



Federal Register

**Wednesday,
February 12, 2003**

Part II

Environmental Protection Agency

**40 CFR Parts 9, 122, 123, and 412
National Pollutant Discharge Elimination
System Permit Regulation and Effluent
Limitation Guidelines and Standards for
Concentrated Animal Feeding Operations
(CAFOs); Final Rule**

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Parts 9, 122, 123 and 412**

[FRL-7424-7]

RIN 2040-AD19

National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs)**AGENCY:** Environmental Protection Agency.**ACTION:** Final rule.

SUMMARY: Today's final rule revises and clarifies the Environmental Protection Agency's (EPA) regulatory requirements for concentrated animal feeding operations (CAFOs) under the Clean Water Act. This final rule will ensure that CAFOs take appropriate actions to manage manure effectively in order to protect the nation's water quality.

Despite substantial improvements in the nation's water quality since the inception of the Clean Water Act, nearly 40 percent of the Nation's assessed waters show impairments from a wide range of sources. Improper management of manure from CAFOs is among the many contributors to remaining water quality problems. Improperly managed manure has caused serious acute and chronic water quality problems throughout the United States.

Today's action strengthens the existing regulatory program for CAFOs. The rule revises two sections of the Code of Federal Regulations (CFR), the National Pollutant Discharge Elimination System (NPDES) permitting requirements for CAFOs (Sec. 122) and the Effluent Limitations Guidelines and Standards (ELGs) for CAFOs (Sec. 412).

The rule establishes a mandatory duty for all CAFOs to apply for an NPDES permit and to develop and implement a nutrient management plan. The effluent guidelines being finalized today establish performance expectations for existing and new sources to ensure appropriate storage of manure, as well as expectations for proper land application practices at the CAFO. The required nutrient management plan would identify the site-specific actions to be taken by the CAFO to ensure proper and effective manure and wastewater management, including compliance with the Effluent Limitation Guidelines. Both sections of the rule also contain new regulatory requirements for dry-litter chicken operations.

This improved regulatory program is also designed to support and

complement the array of voluntary and other programs implemented by the United States Department of Agriculture (USDA), EPA and the States that help the vast majority of smaller animal feeding operations not addressed by this rule. This rule is an integral part of an overall federal strategy to support a vibrant agriculture economy while at the same time taking important steps to ensure that all animal feeding operations manage their manure properly and protect water quality.

EPA believes that these regulations will substantially benefit human health and the environment by assuring that an estimated 15,500 CAFOs effectively manage the 300 million tons of manure that they produce annually. The rule also acknowledges the States' flexibility and range of tools to assist small and medium-size AFOs.

DATES: These final regulations are effective on April 14, 2003.

ADDRESSES: The administrative record is available for inspection and copying at the Water Docket, located at the EPA Docket Center (EPA/DC) in the basement of the EPA West Building, Room B-102, at 1301 Constitution Ave., NW., Washington, DC. The administrative record is also available via EPA Dockets (Edocket) at <http://www.epa.gov/edocket> under Edoctet number OW-2002-0025. The rule and key supporting materials are also electronically available on the Internet at <http://www.epa.gov/npdes/caforule>.

FOR FURTHER INFORMATION CONTACT: Gregory Beatty, U.S. EPA, Office of Water, Office of Wastewater Management (4203M), 1200 Pennsylvania Avenue NW., Washington, DC 20460, 202-564-0724, for information pertaining to the NPDES Regulations (Part 122) or Paul Shriner, U.S. EPA, Office of Water, Office of Science and Technology (4303T), 1200 Pennsylvania Avenue NW., Washington, DC 20460, 202-566-1076, for information pertaining to the Effluent Guideline (Part 412).

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- A. General Information**
- 1. What Entities Are Potentially Regulated by This Final Rule?*
- This final rule applies to new and existing animal feeding operations (AFOs) that meet the definition of a concentrated animal feeding operation (CAFO), or AFOs that are designated as CAFOs by the permitting authority. CAFOs are defined by the Clean Water Act as point sources for the purposes of the National Pollutant Discharge Elimination System (NPDES) program. (33 U.S.C. 1362). The rule also applies to States and Tribes with authorized NPDES Programs.
- Table 1 lists the types of entities EPA is now aware could potentially be regulated by this final rule. This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your facility is regulated by this action, you should carefully examine the definitions and other provisions of 40 CFR 122.23 and the provisions of 40 CFR Part 412, including the applicability criteria at 40 CFR 412.1. If you have questions regarding the applicability of this action to a particular entity, consult one of the persons listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

TABLE 1.—ENTITIES POTENTIALLY REGULATED BY THIS RULE

Category	Examples of regulated entities	North American industry code (NAIC)	Standard industrial classification code
Federal, State, and Local Government: Industry	See below	See below

TABLE 1.—ENTITIES POTENTIALLY REGULATED BY THIS RULE—Continued

Category	Examples of regulated entities	North American industry code (NAIC)	Standard industrial classification code
	Operators of animal production operations that meet the definition of a CAFO:		
	Beef cattle feedlots (including veal)	112112	0211
	Beef cattle ranching and farming	112111	0212
	Hogs	11221	0213
	Sheep	1241, 11242	0214
	General livestock, except dairy and poultry	11299	0219
	Dairy farms	11212	0241
	Broilers, fryers, and roaster chickens	11232	0251
	Chicken eggs	11231	0252
	Turkey and turkey eggs	11233	0253
	Poultry hatcheries	11234	0254
	Poultry and eggs	11239	0259
	Ducks	112390	0259
	Horses and other equines	11292	0272

2. How Can I Get Copies of This Document and Other Related Information?

a. *Docket.* EPA has established an official public docket for this action under Docket ID No. W-00-27. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to this action. Although a part of the official docket, the public docket does not include Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. The official public docket is the collection of materials that is available for public viewing at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426.

b. *Electronic Access.* You may access this **Federal Register** document electronically through the EPA Internet under the “**Federal Register**” listings at <http://www.epa.gov/fedrgstr/>.

An electronic version of the public docket is available through EPA’s electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at <http://www.epa.gov/edocket/> to view public comments, access the index listing of the contents of the official public docket, and to access those documents in the public docket that are available electronically. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the docket facility identified in section A.2.a. Once

in the system, select “search,” then key in the appropriate docket identification number (OW-2002-0025).

B. Under What Legal Authority Is This Final Rule Issued?

Today’s final rule is issued under the authority of Sections 301, 304, 306, 307, 308, 402, and 501 of the Clean Water Act, 33 U.S.C. 1311, 1314, 1316, 1317, 1318, 1342, and 1361.

C. How Is This Preamble Organized?

Below is an outline for the preamble to the final rule. It is written in a question-and-answer format that is designed to help the reader understand the information in the rule. Each question is followed by a concise answer, a brief summary of what was proposed, the key comments that the Environmental Protection Agency (EPA) received on the proposed rule, and the principal rationale for EPA’s decision.

List of Acronyms

AFO—animal feeding operation
 BAT—best available technology economically achievable
 BCT—best conventional pollutant control technology
 BOD—biochemical oxygen demand
 BPJ—best professional judgment
 BMP—best management practice
 BPT—best practicable control technology currently available
 CAFO—concentrated animal feeding operation
 CFR—Code of Federal Regulations
 CFU—colony forming units
 CNMP—comprehensive nutrient management plan
 CSREES—USDA’s Cooperative State Research, Education, and Extension Service
 CWA—Clean Water Act
 CZARA—Coastal Zone Act Reauthorization Amendments
 ELG—effluent limitations guideline

EMS—environmental management system
 EPA—Environmental Protection Agency
 EQIP—Environmental Quality Incentives Program
 FAPRI—Food and Agricultural Policy Research Institute
 FR—Federal Register
 ICR—Information Collection Request
 NODA—Notice of Data Availability
 NOI—notice of intent
 NPDES—National Pollutant Discharge Elimination System
 NRCS—USDA’s Natural Resources Conservation Service
 NRDC—Natural Resources Defense Council
 NSPS—new source performance standards
 NTTAA—National Technology Transfer and Advancement Act
 NWPCAM—National Water Pollution Control Assessment Model
 OMB—U.S. Office of Management and Budget
 POTW—publicly owned treatment works
 RFA—Regulatory Flexibility Act
 SBA—U.S. Small Business Administration
 SBAR (panel)—Small Business Advocacy Review Panel
 SBREFA—Small Business Regulatory Enforcement Fairness Act
 SRF—State Revolving Fund
 TMDL—total maximum daily load
 TSS—total suspended solids
 UMRA—Unfunded Mandates Reform Act
 USDA—United States Department of Agriculture
 WWTP—wastewater treatment plant

D. What Is the Comment Response Document?

EPA received more than 11,000 comments on the proposed rule and on the two supplemental Notices of Data

Availability. EPA evaluated all the significant comments submitted and prepared a *Comment Response Document* containing the Agency's responses to those comments. The *Comment Response Document* complements and supplements this preamble by providing more detailed explanations of EPA's final actions. The *Comment Response Document* is available at the Water Docket. See Section E below for additional information.

E. What Other Information Is Available to Support This Final Rule?

In addition to this preamble, today's final rule is supported by extensive other information that is part of the administrative record, such as the *Comment Response Document*, and the key supporting documents listed below. These supporting documents and the administrative record are available at the Water Docket and via e-Docket.

- “*Development Document for the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*” (EPA 821-R-03-001). Hereafter referred to as the *Technical Development Document*, this document presents EPA's technical conclusions concerning the rule. EPA describes, among other things, the data collection activities in support of the rule, the wastewater treatment technology options, wastewater characterization, and the estimated costs to the industry.
- “*Economic Analysis of the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*” (EPA 821-R-03-002). Hereafter referred to as the *Economic Analysis*, this document presents the methodology employed to assess economic impacts of the final rule and the results of the analysis.
- “*Cost Methodology for the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*” (EPA 821-R-03-004). Hereafter referred to as the *Cost Support Document*, this document presents the methodology employed to estimate costs that will be borne by CAFOs to comply with the requirements of the final rule.
- “*Environmental and Economic Benefit Analysis of the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated*

Animal Feeding Operations” (EPA 821-R-03-003). Hereafter referred to as the *Benefits Analysis*, this document presents the methodologies and results of analyses used to assess environmental impacts of the final rule.

- “*Environmental Assessment of Proposed Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*” (EPA 821-R-01-002). Hereafter referred to as the *Environmental Assessment*, this document illustrates the environmental impacts associated with animal agriculture.

- “*Information Collection Request for Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Limitations Guidelines for Concentrated Animal Feeding Operations*” (EPA ICR No. 1989-02). Hereafter referred to as the *ICR*, this document presents estimates of the labor and capital costs associated with the recordkeeping and reporting requirements of the final rule.

I. Background Information

A. What Is the Context for This Rule?

Nationally, there are an estimated 1.3 million farms with livestock. About 238,000 of these farms are considered animal feeding operations (AFOs)—agriculture enterprises 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. EPA and the United States Department of Agriculture (USDA) are committed to a comprehensive national approach to ensure that manure and wastewater from AFOs are properly managed. EPA and USDA are relying on a comprehensive suite of voluntary programs (e.g. technical assistance, training, funding, and outreach) and regulatory programs to ensure that AFOs establish appropriate site-specific comprehensive nutrient management plans (CNMPs) that will protect the environment and public health. Today's rule is a part of this suite of actions. It ensures that the largest of these operations, CAFOs, are required to develop and implement a nutrient management plan as a condition of an NPDES permit. The requirement in this rule to develop and implement a nutrient management plan can generally be fulfilled by developing and implementing a CNMP.

Congress passed the Clean Water Act to “restore and maintain the chemical,

physical, and biological integrity of the nation's waters.” (33 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 requires 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. Today's final rule revises the more than 25-year old requirements that apply to CAFOs. This regulatory action, which applies primarily to the largest CAFOs, is an important component of the overall effort to ensure effective management of manure.

Focusing EPA's regulatory program on the largest operations, which present the greatest potential risk to water quality, is consistent with the *Unified National Strategy for Animal Feeding Operations* jointly developed by EPA and USDA (USEPA/USDA, March 1999). The *Strategy* specifies that the vast majority of 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 impacts on water quality and public health from AFOs. The vast majority (estimated to be about 95%) of these CNMPs will be developed under voluntary programs. The requirement in today's rule that the largest of these operations develop and implement a nutrient management plan is consistent with the objective of the *Strategy*.

B. Why Is EPA Revising the Existing Effluent Guidelines and NPDES Regulations for CAFOs?

Despite more than 25 years of regulation of CAFOs, reports of discharge and runoff of manure and manure nutrients from these operations persist. Although these conditions are in part due to inadequate compliance with and enforcement of existing regulations, EPA believes that the regulations themselves also need revision. The final regulations being announced today will reduce discharges that impair water quality by strengthening the permitting requirements and performance standards for CAFOs. These changes are

expected to mitigate future water quality impairment and the associated human health and ecological risks by reducing pollutant discharges from facilities that confine a large number of animals in a single location.

EPA's revisions to the existing regulations also address the changes that have occurred in the animal production industries in the United States since the development of the existing regulations. The continued trend toward fewer but larger operations, coupled with greater emphasis on more intensive production methods and specialization, is concentrating more manure nutrients and other animal waste constituents within some geographic areas. These large operations often do not have sufficient land to effectively use the manure as fertilizer. Furthermore, there is limited land acreage near the CAFO to effectively use the manure. This trend has coincided with increased reports of large-scale discharges from CAFOs, as well as continued runoff that is contributing to the significant increase in nutrients and resulting impairment of many U.S. water bodies.

Finally, EPA's revisions to the existing regulations will make the regulations more effective for the purpose of protecting or restoring water quality. The revisions will also make the regulations easier to understand and better clarify the conditions under which an AFO is a CAFO and, therefore, subject to the regulatory requirements of today's final regulations.

C. What Are the Environmental and Human Health Concerns Associated With Improper Management of Manure and Wastewater at CAFOs?

This section provides a brief summary of the environmental and human health concerns associated with the improper management of manure and wastewater at CAFOs. It is intended to provide the necessary context for discussions in subsequent sections of this preamble. Information is provided on the amount of manure generated by animal agriculture and the areas of the country where the amount of manure generated by these operations is considered excess at the farm and county levels as defined in analyses by USDA. This information is critical to framing the action EPA is taking today. A detailed discussion of the environmental and human health impacts is presented in Section VII of this preamble, entitled Environmental Benefits of the Final Rule.

Livestock and poultry manure, if not properly handled and managed by the CAFO, can contribute pollutants to the environment and pose a risk to human

and ecological health. EPA's administrative record for this final rule includes estimates of the amount of manure and excess nutrients generated each year by CAFOs and provides information on the types of pollutants known to be present in animal manure and wastewater. The administrative record also documents the potential environmental problems associated with CAFOs, based on States reporting water quality impairment attributable to agricultural and animal production, survey data that show human and ecological health risks associated with these pollutants, and documented cases linking these risks to the discharge and runoff of pollutants from livestock and poultry facilities. More information is provided in the 2001 proposed rule (66 FR 2972-2974 and 66 FR 2976-2984) and other support documents referenced in the proposal and in the administrative record for this final rule. The administrative record contains information on the scientific and technical literature, as well as available survey and monitoring data, to corroborate the Agency's findings.

1. How Do the Amounts of Animal Manure Compare to Human Waste?

USDA estimates that operations that confine livestock and poultry animals generate about 500 million tons of manure annually (as excreted). This compares to EPA estimates of about 150 million tons (wet weight) of human sanitary waste produced annually in the United States, assuming a U.S. population of 285 million and an average waste generation of about 0.518 tons per person per year. By this estimate, all confined animals generate 3 times more raw waste than is generated by humans in the U.S. As a result of today's action, EPA is regulating close to 60 percent of all manure generated by operations that confine animals. Of the estimated amount of nutrients generated by these operations that is in excess of cropland needs, EPA's regulation will account for nearly 70 percent of manure generated by these operations.

2. What Are "Excess Manure Nutrients" and Why Are They an Indication of Environmental Concern?

An analysis developed by USDA provides a means to consider the potential environmental risk from confined livestock and poultry manure based on the amount of "excess" manure nutrients generated by CAFOs. USDA defines "excess manure nutrients" on a confined livestock farm as manure nutrient production that exceeds the capacity of the crop to

assimilate the nutrients. USDA's analysis of *1997 Census of Agriculture* data indicates that a considerable portion of the manure nutrients generated at larger animal production facilities exceeds the crop nutrient needs, both at the farm and local county levels. Given consolidation trends in the industry toward larger-sized operations that tend to have less available land on which to spread manure, the amount of excess manure nutrients being produced has been rising.

Among the principal reasons for the farm-level excess of nutrients generated is inadequate land for utilizing manure. USDA data show that the amount of nutrients, and the amount of excess nutrients, produced by confined animal operations rose about 20 percent from 1982 to 1997. During that same period, cropland and pastureland controlled by these farms declined from an average of 3.6 acres in 1982 to 2.2 acres per 1,000 pounds live weight of animals in 1997. The combination of these factors has contributed to an increase in the amount of excess nutrients produced at these operations. Larger-sized operations with 1,000 or more animals exceeding 1,000 pounds accounted for the largest share of excess nutrients in 1997. Roughly 60 percent of the nitrogen and 70 percent of the phosphorus generated by these operations must be transported off-site.

By sector, USDA estimates that operations that confine poultry account for the majority of on-farm excess nitrogen and phosphorus. Poultry operations account for nearly one-half of the total recoverable nitrogen, but on-farm use is able to absorb less than 10 percent of that amount. In 1997 poultry operations accounted for about two-thirds of the total excess on-farm nitrogen. About half of the estimated on-farm excess phosphorus was generated by poultry. This is attributable to not only the limited land area for manure application but also the generally higher nutrient content of poultry manure compared to the manure of most other farm animals, as reported in the scientific literature. Dairies and hog operations are the other dominant livestock types shown to contribute to excess on-farm nutrients, particularly phosphorus.

The regions of the United States that show the largest increase in excess nutrients between 1982 and 1997 are the Southeast and the Mid-Atlantic. The excess amounts are mostly the result of the number and concentration of large poultry and hog operations in those regions. These operations generate high nutrient concentrations and often have the smallest land area per animal unit

for manure application in the United States.

USDA's analysis also indicates which counties have the potential for excess manure nutrients defined as manure nutrients produced in a county in excess of the assimilative capacity of crop and pastureland in that county. (The analysis includes counties that have nutrient levels that exceed the assimilative capacity for all of the crop and pastureland in the county, as well as those counties where half of the county's total nitrogen or phosphorus could be provided by manure from confined animal operations.) The counties with potential excess manure nitrogen totaled 165 counties across the United States in 1997; the counties with potential excess manure phosphorus totaled 374 counties. The areas of particular concern for potential county-level excess manure nutrients are in North Carolina, Georgia, Alabama, Mississippi, Arkansas, California, Maryland, Delaware, Pennsylvania, Virginia, and Washington. If current trends in the livestock and poultry industry continue, more manure will be produced in areas without the physical capacity to agronomically use all the nutrients contained in that manure.

USDA's analysis is reported in "Confined Animal Production and Manure Nutrients" (Agriculture Information Bulletin 771) and also in "Confined Animal Production Poses Manure Management Problems" in the September 2001 issue of USDA's *Agricultural Outlook*. Both are available at USDA's Web site at <http://www.ers.usda.gov/>. Additional documentation on how this analysis was conducted is in USDA's "Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States," December 2000, available at <http://www.nhq.nrcs.usda.gov/land/pubs/mannttr.html>. These documents are also available in the administrative record for today's final rule (*i.e.* docket number W-00-27).

3. What Pollutants Are Present in Animal Manure and Wastewater?

Pollutants most commonly associated with animal waste include nutrients (including ammonia), organic matter, solids, pathogens, and odorous compounds. Animal waste can also be a source of salts and various trace elements (including metals), as well as pesticides, antibiotics, and hormones. These pollutants can be released into the environment through discharge or runoff if manure and wastewater are not properly handled and managed.

4. How Do These Pollutants Reach Surface Water?

Pollutants in animal waste and manure can enter the environment through a number of pathways. These include surface runoff and erosion, overflows from lagoons, spills and other dry-weather discharges, leaching into soil and ground water, and volatilization of compounds (*e.g.*, ammonia) and subsequent redeposition on the landscape. As documented in the administrative record, pollutants from animal manure and wastewater can be released from an operation's animal confinement area, treatment and storage lagoons, and manure stockpiles, and from cropland where manure is often land-applied.

5. How Is Water Quality Impaired by Animal Manure and Wastewater?

Agricultural operations, including CAFOs, now account for a significant share of the remaining water pollution problems in the United States, as reported in the *National Water Quality Inventory: 2000 Report* (hereafter the "2000 Inventory"). This report, prepared every 2 years under Section 305(b) of the Clean Water Act, summarizes States' reports of impairment to their water bodies and the suspected sources of those impairments. A more comprehensive discussion of the results of the 2000 Inventory is included in Section VII of this preamble.

EPA's 2000 Inventory data indicate that the agricultural sector including crop production, pasture and range grazing, concentrated and confined animal feeding operations, and aquaculture is the leading contributor of pollutants to identified water quality impairments in the Nation's rivers and streams. This sector is also the leading contributor in the nation's lakes, ponds, and reservoirs. Agriculture is also identified as the fifth leading contributor to identified water quality impairments in the nation's estuaries. The inventory does not allow a comprehensive breakout of water quality impairments attributable to CAFOs, but EPA's data show that water quality concerns tend to be greatest in regions where crops are intensively cultivated and where livestock operations are concentrated.

The leading pollutants impairing surface water quality in the United States as identified in the 2000 survey data include nutrients, pathogens, sediment/siltation, and oxygen depleting substances. These pollutants can originate from a variety of sources, including the animal production industry.

The 2000 Inventory provides a general indication of national surface water quality. While concerns have sometimes been raised about the comparability and consistency of these data across States, the report highlights in a general way the magnitude of water quality impairment from agriculture and the relative contribution compared to other sources. Moreover, the findings of this report are consistent with other reports and studies conducted by government and independent researchers that identify CAFOs as an important contributor of surface water pollution, as summarized in the administrative record for this rulemaking.

6. What Ecological and Human Health Impacts Have Been Caused by CAFO Manure and Wastewater?

Among the reported environmental problems associated with animal manure are surface water (*e.g.*, lakes, streams, rivers, and reservoirs) and ground water quality degradation, adverse effects on estuarine water quality and resources in coastal areas and effects on soil and air quality. The scientific literature, which spans more than 30 years, documents how this degradation can contribute to increased risk to aquatic and wildlife ecosystems; an example is the large number of fish kills in recent years. Human and livestock animal health can also be affected by excessive nitrate levels in drinking water and exposure to waterborne human pathogens and other pollutants in manure. The administrative record provides more detailed information on the scientific and technical research to support these findings.

Section VII of this document provides additional information concerning the adverse impacts of pollutants associated with manure in surface water. Both ecological and human health impacts are addressed.

D. What Are the Roles of the Key Entities Involved in the Final Rule?

EPA recognizes the role of many interested parties in the development of and, ultimately, the successful implementation of this final rule. To the greatest extent possible, EPA has attempted to strike a reasonable balance among the many interests. A short summary of their broad roles is provided below.

1. CAFOs

Entities that are defined or designated as CAFOs have clear and binding legal obligations under this regulation. In general, all CAFOs have a mandatory duty to apply for an NPDES permit and

must comply with the technology and water quality-based limitations in the permit as defined by the permitting authority. Only CAFOs that have successfully demonstrated no potential to discharge may avoid a permit. Each permitted CAFO must also develop and implement a site-specific nutrient management plan. EPA fully expects that a CNMP that is properly developed and implemented, consistent with USDA guidance, will satisfy the nutrient management requirements of this rule.

2. States

The States, including their environmental, agriculture, and conservation agencies, have the key leadership role in implementing programs to ensure that AFOs take the important steps needed to implement sound management practices that protect water quality. State regulatory agencies will play a central role in implementing today's final rule while supporting the voluntary efforts of other State programs and agencies.

3. EPA

EPA's statutory obligation is to establish national regulations that protect and restore the chemical, physical, and biological integrity of the Nation's waters. EPA has undertaken an extensive outreach process to promote understanding of the science, policy, and economic issues surrounding animal agriculture. The Agency will continue to work effectively with the varied interest groups to ensure effective implementation, compliance assistance, and enforcement of these regulations.

4. USDA

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

5. Other Stakeholders

A host of other entities, such as research and educational institutions, soil and water conservation districts, watershed groups, and many others, can contribute to the use of sound agricultural practices and protection of water quality. The private sector plays an important role in ensuring that CAFOs have the tools and expertise available to protect water quality while enhancing production and remaining profitable. For example, the private

sector in partnership with educational institutions and other stakeholders can explore innovative technologies for the management and utilization of animal manure and provide the needed expertise to support development of sound, site-specific, and technically based nutrient management plans.

6. The Public

The public has had, and continues to demonstrate, a keen interest in many aspects of animal agriculture. This final rule establishes obligations for CAFOs to protect water quality and affirms the public's role and involvement throughout the regulatory program.

E. What Principles Have Guided EPA's Decisions Embodied in This Rule?

EPA has considered the implementation of the existing regulations which are more than 25 years old, changes in the industry, the extensive comments on the proposed rule and supplemental notices of data availability, and countless studies, reports, and data in developing this final rule. At the same time, EPA has tried to embody some important principles throughout the final rule. The Agency strives to ensure its rules are based on sound science and economics, promote emerging technologies, and protect watersheds. In addition, the following principles have guided this rulemaking:

Simplicity and Clarity

EPA has tried to make this final rule as simple and easy to understand as possible. This rule provides a clear understanding of who is covered and what they are expected to do.

Emphasis on Large CAFOs

This rule focuses on the operations that pose the greatest risk to water quality. These operations are predominantly large CAFOs and some smaller CAFOs that pose a high risk to water quality.

Flexibility for States

This rule establishes a strong and consistent national expectation for CAFOs, yet provides flexibility for States to address site-specific situations.

Sound Nutrient Management Planning

This rule embodies the goal of developing site-specific nutrient management plans to ensure that animal manure is used consistent with proper agriculture practices that protect water quality.

F. What Are the Major Elements of This Final Rule? Where Do I Find the Specific Requirements?

This section provides a very brief summary of the major elements of this final rule and a brief index on where each of the requirements is located in the final regulations. The regulations for the NPDES permit program are in Part 122 of Title 40 of the Code of Federal Regulations. These NPDES regulations include requirements that apply to all point sources, including CAFOs. The national effluent limitations guidelines for CAFOs are in Part 412 of Title 40 of the Code of Federal Regulations. This summary is not a replacement for the actual regulations.

1. NPDES Regulations for CAFOs

Overall, this final rule maintains many of the basic features and the overall structure of the 1976 NPDES regulations with some important exceptions. First, all CAFOs have a mandatory duty to apply for an NPDES permit, which removes the ambiguity of whether a facility needs an NPDES permit, even if it discharges only in the event of a large storm. In the event that a Large CAFO has no potential to discharge, today's rule provides a process for the CAFO to make such a demonstration in lieu of obtaining a permit. The second significant change is that large poultry operations are covered, regardless of the type of waste disposal system used or whether the litter is managed in wet or dry form.

Third, under this final rule, all CAFOs covered by an NPDES permit are required to develop and implement a nutrient management plan. The plan would identify practices necessary to implement the ELG and any other requirements in the permit and would include requirements to land apply manure, litter, and process wastewater consistent with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients.

2. Effluent Limitations Guidelines Requirements for CAFOs

a. Existing sources. The final ELGs published today will continue to apply to only Large CAFOs, historically referred to as operations with 1,000 or more animal units, although the requirements for existing sources and new sources are different for certain animal sectors. In the case of existing sources, the ELGs will continue to prohibit the discharge of manure and other process wastewater pollutants, except for allowing the discharge of process wastewater whenever rainfall

events cause an overflow from a facility designed, constructed, and operated to contain all process wastewaters plus the runoff from a 25-year, 24-hour rainfall event. In addition, the ELGs that require land application at the CAFO must be at rates that minimize phosphorus and nitrogen transport from the field to surface waters in compliance with technical standards for nutrient management established by the Director. The ELGs also establish certain best management practice (BMP) requirements that apply to the production and land application areas.

b. New sources. For new large beef and dairy operations, the ELGs establish

production area requirements that are the same as those for existing sources. In the case of large swine, veal, and poultry operations that are new sources, a new zero discharge standard is established. The rule also clarifies that where waste management and storage facilities are 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 is operated in accordance with certain other requirements, this will satisfy the new standard. Land application requirements for both groups are

identical to those established for existing sources.

Table 1.1 provides an annotated summary of the key elements of these final regulations as well as the specific regulatory citation for each change. The chart is intended only to provide a summary and roadmap to the regulations and is not a definitive description of all regulatory requirements. Table 1.2 provides a summary of the time frames for the implementation and complying with the requirements of today's rulemaking.

TABLE 1.1.—REGULATORY SUMMARY

Topic	Regulatory cite (40 CFR)
Definitions	
Animal Feeding Operation (AFO)	122.23(b)(1)
Concentrated Animal Feeding Operation (CAFO)	122.23(b)(2)
Production Area	122.23(b)(8)/412.2(h)
Land Application Area	122.23(b)(3)/412.2(e)
Large CAFOs	122.23(b)(4)
Manure	122.23(b)(5)
Medium CAFOs	122.23(b)(6)
Process Wastewater	122.23(b)(7)/412.2(d)
Overflow	412.2(g)
10-year, 24-hour and 25-year, 24-hour storm	412.2(i)
Setback	412.4(b)(1)
Vegetated buffer	412.4(b)(2)
Multi-year phosphorus application	412.4(b)(3)
Who Needs an NPDES Permit?	
Designated CAFOs	122.23(c)
Duty to apply	122.23(d)
Land application discharges from a CAFO are subject to NPDES requirements	122.23(e)
No Potential to Discharge determinations	122.23(f)
When Must CAFOs Apply for Coverage Under an NPDES Permit?	
Sources covered under prior regulations	122.23(g)(1)
Newly covered CAFOs	122.23(g)(2)
New sources and new dischargers	122.23(g)(3) and (4)
Designated CAFOs	122.23(g)(5)
How Do CAFOs Apply for an NPDES Permit?	
Permit application requirements—Individual or general permits	122.21(i)(1) and 122.28(b)(2)(ii)
What Is Required in NPDES Permits Issued to CAFOs?	
Effluent limitations	122.42(e)(1)
Requirements for CAFOs subject to the ELGs (Part 412):	
Subpart C—Dairy and Beef Cattle Other Than Veal	412.30
Subpart C—Dairy and Beef Cattle Other Than Veal: Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).	412.31
Subpart C—Dairy and Beef Cattle Other Than Veal: Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).	412.32
Subpart C—Dairy and Beef Cattle Other Than Veal: Effluent limitations attainable by the application of the best available control technology economically achievable (BAT).	412.33
Subpart C—Dairy and Beef Cattle Other Than Veal: New source performance standards (NSPS)	412.35
Subpart D—Swine, Poultry, and Veal	412.40
Subpart D—Swine, Poultry, and Veal: Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).	412.43
Subpart D—Swine, Poultry, and Veal: Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).	412.44

TABLE 1.1.—REGULATORY SUMMARY—Continued

Topic	Regulatory cite (40 CFR)
Subpart D—Swine, Poultry, and Veal: Effluent limitations attainable by the application of the best available control technology economically achievable (BAT).	412.45
Subpart D—Swine, Poultry, and Veal New source performance standards (NSPS)	412.46
Subparts C and D—Required Land Application Best Management Practices	412.4(c)
Subparts C and D—Inspection and Record Keeping Requirements	412.37 and 412.47
Additional NPDES CAFO permit requirements:	
Nutrient management plan development and Implementation	122.42(e)(1)
Record-keeping	122.42(e)(2)
Transfer of manure	122.42(e)(3)
Annual reporting requirement	122.42(e)(4)

TABLE 1.2.—CONSOLIDATED TIME LINE FOR IMPLEMENTING TODAY'S RULEMAKING

	Time Frame
Milestone:	
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 Large CAFOs that are new sources, 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 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	April 12, 2004.
Statutory changes needed to revise NPDES Program	April 13, 2005.

II. What Events Have Led to This Rule?

The revisions to the National Pollutant Discharge Elimination System (NPDES) and Effluent Limitation Guidelines Programs specified in this final rule are focused on those livestock and poultry operations that are defined or designated as CAFOs. CAFOs are defined as point sources under the Clean Water Act. Following is a brief historical context of key regulatory, legal, and policy actions which have collectively led to today's action.

A. The Clean Water Act

Congress passed the Clean Water Act to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. 1251(a)). The Clean Water Act establishes a comprehensive program for protecting and restoring our Nation's waters. Among its core provisions, the Clean Water 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 establishes the NPDES permit program to authorize and regulate the discharges of pollutants to waters of the United States. EPA has issued comprehensive regulations that implement the NPDES program at 40 CFR part 122. The Clean Water Act also provides for the development of technology-based and water quality-based effluent limitations that are implemented through NPDES permits to control discharges of pollutants.

1. The National Pollutant Discharge Elimination System (NPDES) Permit Program

Under the NPDES permit program, all point sources that discharge pollutants to waters of the United States must apply for an NPDES permit and may discharge pollutants only in compliance

with the terms of that permit. Such permits must include any nationally established, technology-based effluent discharge limitations (effluent guidelines—discussed below, in subsection II.A.2). In the absence of an applicable national effluent guideline, NPDES permit writers may establish technology-based requirements as determined by the permitting authority on a case-by-case basis, based on their "best professional judgment" (BPJ). Water quality-based effluent requirements are also included in permits where technology-based requirements are not sufficient to ensure compliance with State water quality standards or where required to implement a Total Maximum Daily Load (TMDL). For information on TMDLs see section IX.A.2 of this preamble.

Technology- and water quality-based requirements may be in the form of

numeric effluent limitations or in the form of specific BMPs or other non-numeric effluent limitations and standards. In addition, NPDES permits normally include reporting, record-keeping, and other requirements and standard conditions (conditions that apply to all NPDES permits, such as the duty to properly operate and maintain equipment and treatment systems).

NPDES permits may be issued by EPA or a State, Territory, or Tribe authorized by EPA to implement the NPDES program. Currently, 45 States and the Virgin Islands are authorized to administer the NPDES program. This means that most CAFOs will obtain NPDES permits from State governments, not from EPA. Alaska, Arizona, the District of Columbia, Idaho, Massachusetts, New Hampshire, New Mexico, and Puerto Rico and other territories are not currently authorized to implement the NPDES program. In addition, Oklahoma, although authorized to administer the NPDES program, does not have CAFO regulatory authority. No Tribe is currently authorized to implement the NPDES program. This means that CAFOs located in the above-named jurisdictions or in Indian Country will obtain their NPDES permits from EPA.

An NPDES permit may be either an individual permit tailored for a single facility or a general permit applicable to multiple facilities. Before an individual permit is issued, the owner or operator must submit a permit application with facility-specific information to the permitting authority, which reviews the information and prepares a draft permit. The permitting authority prepares a fact sheet explaining the draft permit and publishes the draft permit and fact sheet for public review and comment. Following the permitting authority's consideration of public comments, a final permit is issued. Specific procedural requirements apply to the modification, revocation and reissuance, and termination of an NPDES permit. NPDES permits are subject to a maximum 5-year term and may be renewed when their term expires.

General NPDES permits are available to address categories of discharges that involve similar operations with similar wastes. Once a general permit is drafted, it is published for public review and comment accompanied by a fact sheet that explains the permit. Following EPA's or the State permitting authority's consideration of public comments, a final general permit is issued. The general permit specifies the type or category of facilities that may obtain coverage under the permit. To gain permit coverage, facilities generally

must submit a "notice of intent" (NOI) to be covered under the general permit. Both general permits and individual permits are used to implement the same pollution control standards.

2. Effluent Limitations Guidelines and Standards

Effluent limitations guidelines and standards ("effluent guidelines" or "ELGs") are national regulations that establish limitations on the discharge of pollutants by industrial category and subcategory. For each category and subcategory guidelines address three classes of pollutants: (1) Conventional pollutants (*i.e.*, total suspended solids (TSS), oil and grease, biochemical oxygen demand (BOD), fecal coliform bacteria, and pH); (2) toxic pollutants (*e.g.*, toxic metals such as lead and zinc; toxic organic pollutants such as benzene); and (3) non-conventional pollutants (*e.g.*, phosphorus). These technology-based requirements are subsequently incorporated into NPDES permits. The Clean Water Act provides that effluent guidelines may include numeric or non-numeric limitations. Non-numeric limitations are usually in the form of BMPs. The effluent guidelines are based on the degree of control that can be achieved using various levels of pollution control technology, as outlined below.

a. Best Practicable Control Technology Currently Available (BPT)—Section 304(b)(1) of the Clean Water Act. In the guidelines for an industry category, EPA defines BPT effluent limits for conventional, toxic, and non-conventional pollutants. Traditionally, EPA establishes BPT effluent limitations based on the average of the best performances of facilities within the industry of various ages, sizes, processes or other common characteristics. Where existing performance is uniformly inadequate, EPA may require higher levels of control than those currently in place in an industrial category if the Agency determines that the technology can be practically applied. In specifying BPT, EPA looks at a number of factors. EPA first considers the cost of achieving effluent reductions in relation to the effluent reduction benefits. The Agency also considers the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the Agency deems appropriate (33 U.S.C. 304(b)(1)(B)).

b. Best Available Technology Economically Achievable (BAT)—Section 304(b)(2) of the Clean Water

Act. In general, BAT represents the best existing economically achievable performance of direct discharging facilities in the industrial category or subcategory. The factors considered in assessing BAT are the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the processes employed, engineering aspects of the control technology, potential process changes, non-water quality environmental impacts (including energy requirements), and such factors as the Administrator deems appropriate. The Agency retains considerable discretion in assigning the weight to be accorded to these factors. An additional statutory factor considered in setting BAT is economic achievability. Generally, the achievability is determined on the basis of the total cost to the industrial subcategory and the overall effect of the rule on the industry's financial health. BAT requirements may be based on effluent reductions attainable through changes in a facility's processes and operations. As with BPT, where existing performance is uniformly inadequate, BAT may be based on technology transferred from a different subcategory within an industry or from another industrial category. BAT may be based on process changes or internal controls, even when these technologies are not common industry practice.

c. Best Conventional Pollutant Control Technology (BCT)—Section 304(b)(4) of the Clean Water Act. The 1977 amendments to the Clean Water Act required EPA to identify effluent reduction levels for conventional pollutants associated with BCT technology for discharges from existing industrial point sources. In addition to other factors specified in Section 304(b)(4)(B), the Clean Water Act requires that EPA establish BCT requirements after considering a two-part "cost-reasonableness" test. EPA explained its methodology for the development of BCT limitations in July 1986 (51 FR 24974). Section 304(a)(4) designates the following as conventional pollutants: BOD, TSS, fecal coliform bacteria, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease as an additional conventional pollutant on July 30, 1979 (44 FR 44501).

d. New Source Performance Standards (NSPS)—Section 306 of the Clean Water Act. New Source Performance Standards (NSPS) reflect effluent reductions that are achievable based on the best available demonstrated control technology. New facilities have the opportunity to install

the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS represents the greatest degree of effluent reduction attainable through the application of the best available demonstrated control technology for all pollutants (conventional, non-conventional, and priority pollutants). In establishing NSPS, EPA is directed by the Clean Water Act to take into consideration the cost of achieving the effluent reduction and any non-water quality environmental impacts and energy requirements.

3. Effluent Guidelines Planning Process—Section 304(m) Requirements

Section 304(m) of the Clean Water Act, added by the Water Quality Act of 1987, requires EPA to establish schedules for (1) reviewing and revising existing effluent limitations guidelines and standards and (2) promulgating new effluent guidelines. On May 28, 1998, EPA published a Notice of Proposed Effluent Guidelines Plan (63 FR 102) that established schedules for developing new and revised effluent guidelines for several industry categories. One of the industries for which the Agency established a schedule was “Feedlots” (swine, poultry, dairy and beef cattle).

a. Clean Water Act Section 304(m) consent decree. The Natural Resources Defense Council (NRDC) and Public Citizen, Inc. filed suit against the Agency, alleging violation of section 304(m) and other statutory authorities that require promulgation of effluent guidelines (*NRDC et al. v. Whitman*, Civ. No. 89–2980 (D.D.C.)). Under the terms of the consent decree in that case, as amended, EPA agreed, among other things, to propose effluent guidelines for swine, poultry, beef and dairy portions of the animal industry by December 15, 2000, and to take final action by December 15, 2002.

B. Existing Clean Water Act Requirements Applicable to CAFOs

EPA’s regulation of CAFOs dates to the 1970s. The existing NPDES CAFO regulations were issued on March 18, 1976 (41 FR 11458). The existing national effluent limitations guidelines and standards for feedlots were issued on February 14, 1974 (39 FR 5704). The discussion below provides an overview of the scope and requirements imposed under the existing NPDES CAFO regulations and feedlot effluent guidelines. It also explains the relationship of these two regulations, and it briefly summarizes other federal and State regulations that potentially affect AFOs.

1. Scope and Requirements of the 1976 NPDES Regulations for CAFOs

This section provides a simplified summary of the previous NPDES regulation to provide context for today’s action. The previous NPDES CAFO regulations promulgated in 1976, determined which AFOs were defined or could be designated as CAFOs under the Clean Water Act and therefore subject to NPDES permit regulations. Under those regulations, CAFOs were defined as AFOs that confined more than 1,000 animal units (AU). In addition, an AFO that confined 300 to 1,000 AU was defined as a CAFO if it discharged pollutants through a man-made device or if pollutants were discharged to waters of the United States that ran through the facility or otherwise came into contact with the confined animals. AFOs were not defined as CAFOs, however, if they discharged only during a 25-year, 24-hour storm. Under the 1976 NPDES CAFO regulations, the permitting authority could also designate any AFO a CAFO, including those with fewer than 300 AU, if it met the discharge criteria specified above and was determined to be a significant contributor of pollution.

2. Scope and Requirements of the 1974 Feedlot Effluent Guidelines

This section provides a simplified summary of the previous effluent guidelines to provide context for today’s action. EPA uses the effluent guidelines to establish national requirements limiting discharges to waters of the United States. EPA established the effluent guidelines for feedlots in 1974 based on the best available technology that was economically achievable for the industry. The guidelines were applicable to those facilities in specified sectors (or subcategories) with as many as or more than 1,000 AU that were to be issued an NPDES permit. The 1974 effluent guidelines did not allow discharges of pollutants from CAFOs into the Nation’s waters except when a chronic or catastrophic storm caused an overflow from a facility that had been designed, constructed, and operated to contain manure, process wastewater and runoff resulting from a 25-year, 24-hour storm. For permitted facilities where the ELGs did not apply (those with fewer than 1,000 AU), technology-based discharge limits were established using the permit writer’s best professional judgment.

C. USDA–EPA Unified National Strategy for Animal Feeding Operations

In 1998, EPA and USDA jointly developed a unified national strategy to minimize the water quality and public health impacts of AFOs. EPA and USDA jointly published a draft *Unified National Strategy for Animal Feeding Operations* on September 21, 1998. After sponsoring and participating in 11 public listening sessions and considering public comments on the draft strategy, a final *Unified National Strategy for Animal Feeding Operations* was published on March 9, 1999. A copy of the *Strategy* is available on the EPA and USDA web sites. The *Unified National Strategy for Animal Feeding Operations* established national goals and performance expectations for all AFOs. The general goal is for AFO owners and operators to take actions to minimize water pollution from confinement facilities and land where manure is applied. To accomplish this goal, the *Strategy* established a national performance expectation that all AFOs should develop and implement technically sound, economically feasible, and site-specific CNMPs to minimize impacts on water quality and public health.

The *Unified National Strategy for Animal Feeding Operations* identified seven strategic issues that should be addressed to better resolve concerns associated with AFOs. These are (1) fostering CNMP development and implementation; (2) accelerating voluntary, incentive-based programs; (3) implementing and improving the existing regulatory program; (4) coordinating research, technical innovation, compliance assistance, and technology transfer; (5) encouraging industry leadership; (6) increasing data coordination; and (7) establishing better performance measures and greater accountability. Today’s action addresses the third strategic issue—implementing and improving the existing regulatory program.

III. How Was This Final Rule Developed?

The preamble to the proposed rule presented a detailed discussion of the history of EPA actions addressing CAFOs, including issuance of the original NPDES CAFO regulations and effluent limitations guidelines (ELGs) for feedlots, development of the EPA/State Feedlot Workgroup Report (1993), outreach dialogues with representatives of the pork industry and poultry industry, EPA AFO strategy development, and collaboration with USDA on the development of the

Unified National Strategy for Animal Feeding Operations (66 FR 2965). The discussion below briefly summarizes the key events that have been part of the process of preparing today's final rule.

A. Small Business Advocacy Review (SBAR) Panel

To address small business concerns, EPA's Small Business Advocacy Chairperson convened a Small Business Advocacy Review (SBAR) Panel under section 609(b) of the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA). Participants included representatives of EPA, the Small Business Administration (SBA) and the Office of Management and Budget (OMB). "Small Entity Representatives" (SERs), who advised the Panel, included small business livestock and poultry producers as well as representatives of the major commodity and agricultural trade associations. Information on the Panel's proceedings and recommendations is in the April 7, 2000, *Final Report of the Small Business Advocacy Review Panel on EPA's Planned Proposed Rule on National Pollutant Discharge Elimination System (NPDES) and Effluent Limitations Guideline (Effluent Guidelines) Regulations for Concentrated Animal Feeding Operations* (hereinafter called the "Panel Report"), along with other supporting documentation included as part of the Panel process. The *Panel Report* details the process that EPA followed, provides meeting summaries, and offers other information, including the composition of both the panel and the SERs.

The report also includes the Panel's recommendations on specific issues concerning the NPDES CAFO regulation and ELGs. Key panel recommendations were to: streamline reporting requirements; minimize burden of any required certifications and testing requirements; and carefully weigh the costs and benefits of removing the 25-year, 24-hour storm exemption for operations with less than 1,000 animal units and of modifying the specific criteria for defining medium-sized AFOs as CAFOs. The entire SBAR report is available in the administrative record for this rulemaking, which is available for public review.

B. Proposed Rule

On January 12, 2001, EPA published a proposal to revise and update two regulations to ensure that manure, wastewater, and other process waters generated by CAFOs do not impair water quality (66 FR 2959). These two

regulations were (1) the NPDES provisions that define which operations are CAFOs and establish permit requirements and (2) the ELGs, or effluent guidelines, for feedlots (beef, dairy, swine and poultry subcategories), which establish the technology-based effluent discharge standards for CAFOs. Key proposed changes that would affect the CAFO definition included options for establishing either two or three size categories of CAFOs, the thresholds for different size operations defined as CAFOs, criteria applicable to medium operations, inclusion of dry chicken operations that meet specified size thresholds, and potential revisions to the designation criteria and process. In addition, the proposed rule also presented options for co-permitting entities that exercise substantial operational control over a CAFO, ensuring appropriate public participation in permitting, and encouraging proper management of excess manure that is transferred off-site. Key proposed changes to the ELGs for feedlots included updating the guidelines based on current practices and technologies, the increased use of BMPs, and application of technology options to both the CAFO production area and the land application area (including nutrient management planning).

C. 2001 Notice of Data Availability

On November 21, 2001, EPA published a Notice of Data Availability (hereinafter referred to as the "2001 Notice") that presented a summary of new data and information submitted to EPA during the public comment period on the proposed CAFO regulations, including data received from USDA (66 FR 58556). The notice had four main components: (1) Discussion of new data and changes EPA was considering to refine its cost and economics model; (2) discussion of new data and changes EPA was considering to refine its nutrient loading and benefits analysis; (3) new data and changes EPA was considering to the proposed NPDES permit program regulations; and (4) new data and changes EPA was considering to the proposed ELG regulations. EPA's 2001 Notice also discussed options that the Agency was considering to enhance flexibility for the use of State NPDES and non-NPDES CAFO programs, including implementation of environmental management systems (EMS).

D. 2002 Notice of Data Availability

On July 23, 2002, EPA published a second Notice of Data Availability (hereinafter referred to as the "2002

Notice") that presented a summary of new data and information submitted to EPA during the public comment period on the proposed CAFO regulations, including data received after publication of the 2001 Notice. The 2002 Notice had three main components: (1) A discussion of alternative regulatory thresholds for chicken operations using dry litter management practices; (2) the potential creation of alternative performance standards to encourage CAFOs to implement new technologies; and (3) financial data and changes EPA was considering to refine its economic analysis models. The 2002 Notice made these data and potential changes available for public review and comment.

E. Public Comments

A general summary of public comments is included in the discussions of the various issues addressed in this preamble. EPA has prepared a *Comment Response Document* that includes responses to comments submitted for the proposed rule and both notices. All of the comments including supporting documents submitted on today's action are available for public review in the administrative record for this final rule which is filed under docket number W-00-27.

The proposed regulations were published in the **Federal Register** on January 12, 2001 (66 FR 2959), and the comment period closed on July 30, 2001. EPA received approximately 11,000 comments in total on the proposed rule. EPA received comments from a multitude of sources, including private citizens, facility owners and operators, environmental groups, local and State agencies, members of the academic community, banks and insurance companies, congressional representatives, and representatives (including trade associations) from each of the animal sectors (beef, dairy, swine, poultry, horses, ducks, turkey, and others). The comments are addressed in the *Comment Response Document* prepared by EPA in support of today's final rule.

The comment period for the 2001 Notice was from November 21, 2001, through January 15, 2002 (66 FR 58556). Approximately 300 comments were received on the 2001 Notice. Responses to each of these comments are also included in the *Comment Response Document*.

EPA prepared and published in the **Federal Register** a second notice (2002 Notice) during the development of today's final rule. The comment period

for the 2002 Notice was from July 23, 2002, through August 22, 2002. Approximately 150 comments were received on the 2002 Notice. Responses to each of these comments are also included in the *Comment Response Document*.

In addition to the public comments received on the proposal and the two Notices, approximately 200 additional comments on the two Notices were received from various stakeholders. Responses to each of these comments are included in the *Comment Response Document*.

F. Public Outreach

In support of both the proposed rule and today's final rule, EPA has conducted extensive outreach activities. These activities are documented in the administrative record for the final rule, which is available for public review under docket number W-00-27. The discussion that follows is focused on key outreach activities that EPA has conducted.

1. Pre-Proposal Activities

During the development of the proposed regulations for CAFOs, EPA met with many members of the stakeholder community through meetings, conferences, and site visits. EPA convened a SBAR Panel to address small entity concerns, provided outreach materials to and met with several national organizations representing State and local governments, and conducted approximately 110 site visits to collect information on waste management practices at livestock and poultry operations. EPA also established a workgroup that included representatives from USDA, seven States, EPA regions, and EPA headquarters. More detailed information on EPA's public outreach efforts was published in section XII of the **Federal Register** notice for the proposed rule (66 FR 3120).

2. Post-Proposal Activities

a. Public meetings and stakeholder outreach. Following publication of the proposed rulemaking, EPA conducted nine public outreach meetings on the proposed CAFO regulations. In addition, EPA continued to meet with representatives of various stakeholder groups, including representatives from various industry trade associations and environmental groups, as well as researchers from select land grant universities and research organizations. The land grant university staff consulted on this rulemaking included researchers at the Food and Agricultural Policy Research Institute (FAPRI) at the

University of Missouri and researchers at The National Center for Manure and Animal Waste Management, composed of researchers from 16 land grant universities supported by USDA-Cooperative State Research, Education and Extension Service (CSREES). EPA has also consulted with State and local governments and several national associations representing State governments. A more detailed account of these efforts is provided in the 2001 Notice (66 FR 58557-58558).

b. USDA-EPA Workgroup meetings. In April 2001 USDA initiated a process to review the proposed revisions to EPA's CAFO rule and identify issues and concerns posed by the rule. USDA identified 15 specific areas of concern and a number of overarching issues. As a follow-up to this process, USDA and EPA's Office of Water initiated monthly meetings on issues of significance for agriculture and the environment, specifically water quality. The goal was to foster greater communication between the two agencies to provide better information to the public and policy makers on areas of mutual concern related to agriculture and water quality, and to facilitate informed decisions on approaches and needs to address the key agriculture and environment issues. In July 2001 EPA and USDA convened a joint workgroup to address the issues identified by the two agencies and begin to develop options for EPA leadership to consider in developing the final rule. The collaboration fostered increased understanding on the part of both agencies with respect to the issues, data, and analyses used to finalize today's CAFO rule.

c. Other outreach activities. As part of the development of this rulemaking, EPA used several additional means to provide outreach to stakeholders. Most notably, EPA has managed a number of Web sites that post information related to these regulations. Supporting documents for the proposed rule were posted to these sites, including the *Technical Development Document*, *Economic Analysis*, *Environmental Assessment*, *Environmental and Economic Benefit Analysis* of the proposed CAFO regulations, and cost methodology reports and guidance related to Permit Nutrient Plans. These are available at <http://www.epa.gov/guide/cafo/>. Other outreach materials are available at <http://www.epa.gov/npdes/caforule> and include brochures describing the proposed CAFO regulations, a compendium of AFO-related State program information, and various materials related to permitting issues to facilitate an understanding of

the NPDES program and development of comments on the proposed rule by the public.

IV. CAFO Roles and Responsibilities

A. Who Is Affected by This Rule?

1. What Is an AFO?

In today's final rule, EPA is retaining the definition of an animal feeding operation (AFO) as it was defined in the 1976 regulation at 40 CFR 122.23(b)(1). An animal feeding operation means a lot or facility (other than an aquatic animal production facility) where the following conditions are met: (1) 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 (2) crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility. (**Note:** EPA is making a typographical correction to the AFO definition. The comma between vegetation and forage growth had been inadvertently dropped from the 1976 final rule in subsequent printings of the **Federal Register**).

What did EPA propose? In the January 12, 2001, proposed rule, the Agency proposed to change the definition of an AFO, intending to eliminate ambiguities about which facilities and operations would be defined as AFOs in certain circumstances where the animals strip the ground of vegetation. The proposal stated that " * * * Animals are not considered to be stabled or confined when they are in areas such as pastures or rangeland that sustain crops or forage growth during the entire time that animals are present * * *."

What were the key comments? While it was EPA's intent to clarify the existing AFO definition, the proposed new regulatory language created substantial confusion. For example, many commenters from the beef cattle industry and others strongly believed that the proposed language would include pastures, rangeland, and unconfined wintering operations as AFOs and, in essence, would bring the entire beef industry under the regulations, none of which was intended. These commenters strongly recommended that the existing regulations should be kept intact to avoid new ambiguity. The view of commenters from the dairy sector and the Sustainable Agriculture Coalition was that the exclusion of pastureland and rangeland from the AFO definition was clear in the proposed rule and they found the proposed language acceptable. Other livestock sectors and environmental groups generally did not comment extensively on this issue.

Rationale. Based on public comment and further consideration, EPA concludes that the proposal to revise the AFO definition to exclude areas “that sustain crops or forage growth during the entire time that animals are present” created further concern and confusion, rather than clarification. EPA’s intent was to make a minor change to the AFO definition to clarify how it would apply to wintering/grazing operations and to incidental vegetation that may exist in the area of confinement. EPA is retaining the existing definition for animal feeding operation because of the widespread familiarity that exists with the existing definition and because EPA’s desired clarification can be achieved through preamble language rather than a change to the rule.

In an attempt to address some of the public comments and confusion created by the proposal, EPA is clarifying three topics in this preamble. First, EPA is reiterating that true pasture and rangeland operations are not considered AFOs, because operations are not AFOs where the animals are in areas such as pastures, croplands or rangelands 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, pens) that may qualify as an AFO. Second, incidental vegetation in a clear area of confinement, such as a feedlot or pen, would not exclude an operation from meeting the definition of an AFO. Third, in the case of a winter feedlot, the “no vegetation” criterion in the AFO definition is meant to be evaluated during the winter, when the animals are confined. Therefore, use of a winter feedlot to grow crops or other vegetation during periods of the year when animals are not confined would not exclude the feedlot from meeting the definition of an AFO. Note that animals must be stabled or confined for at least 45 days out of any 12 month period to qualify the operation as an AFO. EPA assumes that AFOs and permitting authorities will use common sense and sound judgement in applying this definition.

2. What Is a CAFO?

In today’s final rule, EPA is retaining the existing structure for determining which AFOs are CAFOs, as well as retaining the existing conditions for defining Medium CAFOs. EPA is also retaining the existing conditions for designation of AFOs as CAFOs. Large facilities are considered CAFOs if they

fall within the size range provided in § 123.23(b)(4). Medium AFOs are defined as CAFOs only if they fall within the size range provided in § 122.23(b)(6) and they meet one of the two specific criteria governing the method of discharge: (1) Pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or (2) pollutants are discharged directly into waters of the United States that originate outside the facility and pass over, across, or through the facility or otherwise come into direct contact with the confined animals. Small facilities are CAFOs only if they are so designated by EPA or the State NPDES permitting authority. Refer to Table 4.1 in section IV.A.3 of this preamble for explicit definitions of Large, Medium, and Small CAFOs in each animal sector. Also, as proposed, EPA is no longer using the term “animal units” to define size classes in this final rule. Instead, EPA is setting thresholds by specifying the actual number of animals. EPA believes that using the number of animals at an operation to define thresholds more simply illustrates which operations are regulated. Using the number of animals also eliminates any confusion caused by the difference between EPA’s and USDA’s definitions of the term “animal unit.”

What did EPA propose? EPA co-proposed two alternative ways to structure the NPDES regulations for defining which AFOs are CAFOs. The first alternative was a “two-tier structure,” and the second was a “three-tier structure.” In the first alternative, EPA proposed that all AFOs with the equivalent of 500 animal units or more would be defined as CAFOs, and those with fewer than the equivalent of 500 animal units would be CAFOs only if they are designated as such by EPA or the State NPDES permitting authority. In the second alternative, EPA proposed to retain a three-tier structure whereby all large operations are CAFOs, medium operations are CAFOs if they meet specified risk-of-discharge criteria, and small operations are CAFOs only if they are so designated by EPA or the State NPDES permitting authority. EPA also proposed to significantly revise the conditions whereby a medium AFO could be defined as a CAFO. Finally, EPA proposed to require all medium AFOs to certify to the permitting authority that they do not meet any of the conditions for being defined a CAFO.

What were the key comments? The predominance of public comment did not support the two-tier structure, as

proposed, whereby all operations with the equivalent of 500 animal units or more would be CAFOs. Many commenters opposed such a low threshold as imposing unnecessary permitting and engineering costs on small operations and on operations that do not discharge, and would very likely cause many small operators to go out of business. Opponents also indicated that the proposal did not recognize geographic differences such as arid regions. Many of those same comments were, however, supportive of a two-tier structure if the regulatory threshold was set at the equivalent of 1,000 animal units or even 750 animal units, leaving discretion for the permitting authority to address all operations below that threshold. Conversely, some commenters indicated that 500 animal units was too high, because it did not address the pollution from smaller operations in their region. There was some preference for a two-tier structure that regulates all facilities above the equivalent of 300 AU, believing that all those operations pose risk to the environment and should be regulated as CAFOs.

Many commenters, including many State agencies, preferred to retain the existing three-tier structure because so many of their existing programs are based on the three-tier structure established in the 1976 regulations. They believe it would be very disruptive to their ongoing programs to have to change the basic structure of the regulations that define who is a CAFO.

Additionally, there was little support among the commenters for the three-tier structure, as proposed, with the new set of broad conditions that were proposed for redefining which of the medium facilities would be CAFOs. Many commenters believed that the existing conditions were adequate for addressing risk of discharge from medium facilities, and that the proposed new conditions would be an unnecessary expansion of who would be considered CAFOs. Further, many commenters indicated that the revised conditions did not add clarity and would not improve implementation. For example, many commenters indicated that one of the proposed conditions, whether an AFO was within 100 feet of waters of the United States, did not take into account facilities that are implementing BMPs to control runoff. The condition for evidence of discharge in the last five years did not take into account operations that may have instituted new practices or corrected problems to prevent future discharges, especially in light of the fact that, in the last two or three years, there has been heightened

awareness of the impacts of AFOs and renewed effort by States to implement both regulatory and non-regulatory AFO programs. The condition defining a facility as a CAFO if it transferred excess manure to off-site recipients also did not correlate closely enough to whether a facility had a risk of discharging, especially in arid regions.

The SBAR Panel did not make a recommendation specifically on the structure of the CAFO regulations. The Panel noted that some States already have effective permitting programs for CAFOs in place and recommended that EPA consider the impact of any new requirements on existing State programs and include in the proposed rule sufficient flexibility to accommodate such programs where they meet the minimum requirements of federal NPDES regulations. The Panel further recommended that EPA continue to consult with States in an effort to promote compatibility between federal and State programs.

Rationale. The Clean Water Act specifically lists CAFOs as point sources, and EPA has broad discretion under the Act to define that term. In the proposal, EPA noted a range of different factors that it considered relevant to determining which operations should be defined as CAFOs.

EPA has concluded that a three-tier structure is preferable to a two-tier structure because it is better suited to identifying those operations that, through a combination of size, concentration and potential to discharge, are more industrial and point source-like in nature and pose the greatest risk to water quality and therefore are appropriate to define as CAFOs. Another important reason to retain a three-tier structure is that changing to a two-tier structure at this point in time would be unnecessarily disruptive in the number of States that currently have three-tier CAFO programs in place. Many of these States have had these programs in place for over two decades, and they have many years of practical experience in operating their programs and issuing permits based on this existing definition. Changing to a two-tier structure not only would be disruptive to the States that are carrying out existing programs but would also create an unnecessary need to build a new understanding of the regulations in the CAFO industry. For these reasons, a three-tier structure is preferable even though it does not have the simplicity of a two-tier structure.

Establishing a two-tier structure at a low threshold, e.g., at either 300 animal

units or 500 animal units would be highly burdensome to permit authorities and AFO operators. While some parts of the country experience problems from concentrations of small facilities, this would impose significant costs on the regulated community and permit authorities in all parts of the country, including those areas that do not experience these problems. On the other hand, while it might seem desirable to provide flexibility for States with effective non-NPDES programs by establishing a threshold on the higher end, say at 750 or 1,000 animal units, using such a high threshold across-the-board would apply equally in States that do not have fully developed and effective programs to address water quality risks posed by operations with fewer than 1,000 animal units. This could lead to a definition that would not appropriately identify those operations that are large and concentrated enough and pose enough of a risk of discharge (taking into account the absence of effective State non-NPDES programs in some areas) that they should be identified as CAFOs. A high threshold might also undercut the ability of some permit authorities to address water quality problems associated with smaller facilities, especially in States that have restrictions on imposing CAFO NPDES requirements that are stricter than federal requirements.

Although the final rule retains the three-tier structure for defining who is a CAFO, after consideration of the public comments, EPA has not adopted the new set of conditions that were proposed for defining which medium operations are CAFOs. Instead, EPA is retaining the two conditions in the existing regulations. After careful consideration of the comments, EPA agrees with those commenters who believe that the new set of conditions proposed under the three-tier structure for determining when a medium facility is a CAFO would not necessarily have improved the clarity, effectiveness or enforceability of the regulations, which were the Agency's intended goals. The proposed new conditions were an attempt to better identify those medium operations that are of sufficient size and concentration and pose enough of a risk of discharge that they should be defined as CAFOs. While these conditions may have been environmentally protective on the whole, they were not finely targeted enough to identify the operations that meet these criteria; instead, EPA now believes that they would have caused substantial permitting burden and imposed costs on

essentially all operations above 300 animal units.

For example, many commenters indicated that one of the proposed conditions, whether an AFO was within 100 feet of waters of the United States, did not take into account facilities that are implementing BMPs to control runoff. The condition for evidence of discharge in the last five years did not take into account operations that may have instituted new practices or corrected problems to prevent future discharges, especially in light of the fact that, in the last two or three years, there has been heightened awareness of the impacts of AFOs and renewed effort by States to implement both regulatory and non-regulatory AFO programs. The conditions defining a facility as a CAFO if it did not have a permit nutrient plan or if it transferred excess manure to off-site recipients also did not correlate closely enough to whether a facility had a risk of discharging, especially in arid regions.

EPA has concluded that retaining the existing two criteria provide an appropriate basis for defining which medium-size operations are CAFOs, while maintaining flexibility for States to tailor NPDES and non-NPDES programs for more comprehensive risk factors that may vary from State to State and even watershed to watershed.

3. What Types of Animals Are Covered by Today's Rule?

Today's revisions to the CAFO effluent guidelines address beef, dairy, swine, veal calves and poultry operations and do not change the effluent guidelines regulations for sheep, horses or ducks. On the other hand, today's final revisions to the NPDES permit regulations generally apply to all CAFOs regardless of species, and specifically address the size thresholds for defining which beef, dairy, swine, veal calves, poultry, sheep, horses, and duck operations are CAFOs. The following sections discuss changes made to the size thresholds for defining which operations in these sectors are CAFOs.

Although the following discussion focuses primarily on circumstances where an AFO is defined as a CAFO, it is important to note that small and medium-size AFOs can be designated as CAFOs by EPA or an NPDES authorized State. Refer to section IV.A.7 and 8 for a discussion of designation.

The thresholds for defining Large, Medium, and Small CAFOs in each sector are summarized in Table 4.1 below.

TABLE 4.1.—SUMMARY OF CAFO SIZE THRESHOLDS FOR ALL SECTORS

Sector	Large	Medium ¹	Small ²
Cattle or cow/calf pairs	1,000 or more	300–999	Less than 300.
Mature dairy cattle	700 or more	200–699	Less than 200.
Veal calves	1,000 or more	300–999	Less than 300.
Swine (weighing over 55 pounds)	2,500 or more	750–2,499	Less than 750.
Swine (weighing less than 55 pounds)	10,000 or more	3,000–9,999	Less than 3,000.
Horses	500 or more	150–499	Less than 150.
Sheep or lambs	10,000 or more	3,000–9,999	Less than 3,000.
Turkeys	55,000 or more	16,500–54,999	Less than 16,500.
Laying hens or broilers (liquid manure handling system)	30,000 or more	9,000–29,999	Less than 9,000.
Chickens other than laying hens (other than a liquid manure handling system)	125,000 or more	37,500–124,999	Less than 37,500.
Laying hens (other than a liquid manure handling system)	82,000 or more	25,000–81,999	Less than 25,000.
Ducks (other than a liquid manure handling system)	30,000 or more	10,000–29,999	Less than 10,000.
Ducks (liquid manure handling system)	5,000 or more	1,500–4,999	Less than 1,500.

¹ Must also meet one of two “method of discharge” criteria to be defined as a CAFO or may be designated.

² Never a CAFO by regulatory definition, but may be designated as a CAFO on a case-by-case basis.

A facility confining any other animal type 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 § 122.23(c) for a discussion of designation.

a. *Chickens.* In today’s action, EPA is revising the CAFO definition to include

chicken operations that use manure handling systems other than liquid manure handling systems (see 40 CFR Part 122, Appendix B of the 1976 regulation). EPA has also eliminated the condition for continuous overflow watering system from the CAFO definition. This action establishes that dry litter chicken operations of specified sizes will need to seek coverage under an NPDES CAFO permit. EPA is

establishing size thresholds for dry chicken operations based on the phosphorus content of the manure, and is therefore distinguishing between broiler and layer operations. EPA is not changing the existing threshold for chicken operations using liquid manure systems. The size thresholds for large, medium, and small chicken operations under today’s regulations are as follows:

	Large	Medium	Small
Chickens other than laying hens (other than liquid manure handling)	125,000 or more	37,500–124,999	<37,500
Laying hens (other than liquid manure handling)	82,000 or more	25,000–81,999	<25,000
Laying hens or broilers (liquid manure handling)	30,000 or more	9,000–29,999	< 9,000

What did EPA propose? EPA proposed to regulate chicken operations regardless of the type of manure handling or watering system used. EPA proposed to include broilers and layers in a single category with one threshold number. Under the co-proposed three-tier structure, EPA proposed to adopt a Large CAFO threshold of 100,000 chickens and a Medium CAFO threshold of 30,000 chickens. In the co-proposed two-tier structure, the regulatory threshold would have been 50,000 chickens. Subsequently, EPA published a notice of data availability (FR 67, 48099, July 23, 2002) in which the Agency considered whether, under a three-tier structure, the threshold for large broiler operations should remain as proposed at 100,000 broilers, changed to 125,000 broilers, or established at some other threshold. EPA also considered whether the large threshold for laying hens should remain as proposed at 100,000 laying hens, or be changed to 82,000 laying hens. EPA also

noted that the thresholds in the 1976 CAFO regulations for chicken operations with liquid manure handling systems or continuous overflow watering systems may remain unchanged in the final rule.

What were the key comments? Comments from poultry industry representatives and owners and operators of poultry operations stated that dry operations (those not using continuous flow watering systems) should not be defined as CAFOs under the NPDES regulations because the absence of water or other liquids would not result in pollutants being discharged through a discrete point source. Some industry representatives asserted that dry and wet manure handling pose different levels of risk and, therefore, EPA’s CAFO regulations should distinguish between wet and dry poultry operations. A few commenters indicated that they felt that EPA was proposing to regulate dry poultry operations to address insufficient

storage issues at some operations. These commenters believed that properly stored poultry litter would not result in a discharge. In addition some commenters disagreed with EPA’s statement that many poultry operations did not have sufficient land to apply litter at agronomic rates. Commenters from this sector also felt that voluntary programs were working to address the excess manure issue. A more limited number of commenters indicated that the inclusion of dry poultry operations should be limited to what they described as very large operations. Commenters defined very large as ranging from more than six houses to more than 10,000 animal units (e.g., 300,000 birds).

Many other commenters supported regulating poultry operations regardless of the watering systems they use because that approach provides equity across all animal sectors and addresses potential risk to water quality posed by dry operations. Some commenters

further stated that EPA should use manure phosphorus as the basis for setting thresholds for such operations.

Rationale. Why is EPA including chicken operations with dry manure and litter handling systems in today's regulations? For some time, poultry operators have been replacing continuous overflow watering systems by more efficient water conserving methods (e.g., on-demand watering). Given this trend, liquid manure systems are used at approximately 25 percent of layer operations and are not generally used at broiler operations. As a result, most chicken operations are not covered by the existing regulations.

For the reasons articulated in the proposed rulemaking (66 FR 3010), and after carefully reviewing the public comments, EPA has determined that including chicken operations with dry manure handling systems is justified to protect water quality. EPA believes that dry poultry operations continue to contaminate surface water and ground water because of rainfall coming in contact with dry manure and litter that is stacked in exposed areas; accidental spills such as from egg-wash facilities and drinking water lines; improper handling of large numbers of mortalities; and improper land application of litter. In addition, included within the coverage of the CAFO regulations are other sectors that use dry technologies, such as ducks, turkeys, and certain swine, beef, and dairy operations using total confinement housing. Inclusion of dry poultry operations is consistent with the regulation of both wet and dry operations within these other animal sectors.

Why were the size thresholds selected? EPA believes that it is appropriate to distinguish between potential risk of discharge posed by wet versus dry handling systems, using the pollutant of most concern, i.e. phosphorus, for establishing regulatory thresholds. For nitrogen and BOD, the levels for broilers would result in similar thresholds varying only by 1% to 3%. EPA agrees with commenters who asserted that EPA should determine the chicken threshold values by evaluating phosphorus content in the manure on an annual basis, which takes into account that phosphorus production does not continue during the periods of the year when no manure is generated (i.e., clean out time between flocks when no broilers are present). Traditionally, layers were kept through one year of egg production and sold for meat at 18 to 20 months of age (see Section 4 of the *Technical Development Document*). Depending on the relative

price of eggs to hens, it has become increasingly common to recycle layers through more than one year of production. Flock recycling consists of stopping the flock's egg production, allowing a suitable rest period, and then bringing the flock back into production. The entire process is known as "force-molting". Some producers now keep the birds through two or three complete cycles of egg production. Laying hens are now typically kept for 94 weeks of production. Since layers will continue to produce manure throughout the year the daily phosphorus levels were used in setting thresholds for laying hens. Therefore, EPA is establishing different thresholds based first on wet versus dry manure systems and second on the broad type of poultry, e.g., chickens for meat (broilers) and chickens for eggs (layers) based on phosphorus content of manure generation.

b. Swine Nurseries and Heifer Operations. Today's rule regulates swine nurseries and heifer operations that are defined as CAFOs. Specifically, the Agency has adopted a Large CAFO threshold of 10,000 or more immature swine (i.e. weighing less than 55 pounds) and a Medium CAFO threshold of 3,000 to 9,999 immature swine. For heifers, EPA has adopted a Large CAFO threshold of 1,000 head or more and a Medium CAFO threshold of 300 to 999 head.

What did EPA propose? EPA is adopting what was proposed for these animal types in a three-tier structure.

What were the key comments? While a majority of commenters supported the inclusion of immature swine and dairy cattle in the proposed rule, a number of commenters opposed this change, and preferred to retain the exemption for immature animals. A number of commenters noted that many States already have programs at least as strict as the one EPA is proposing, and that States should be allowed the flexibility to determine if including operations with immature animals would improve water quality.

Rationale. Immature swine were not a concern in the past because they were usually part of operations that included mature animals and, therefore, their manure was included in the permit requirements of the CAFO. However, in recent years, these swine operations have become increasingly specialized, increasing the number of large, separate nurseries where only immature swine are raised.

Under the three-phase production pyramids used by most large swine operations, specialized farrowing operations that house only sows and piglets until weaned represent the first

phase of raising swine. The weaned piglets are transferred to a nursery at a separate location until they reach about 55 to 60 pounds, at which time they are transferred to a grow-finish facility at another site. EPA's thresholds for swine weighing less than 55 lbs were established on the basis of the average phosphorus excreted from immature swine in comparison to the average phosphorus excreted from swine weighing more than 55 pounds. (Refer to the *Technical Development Document* for more details).

For dairies, immature heifers are often removed to a separate location until they reach maturity. EPA data indicate that some of these animals are confined, some are pastured, and some move back and forth between confinement and pasture. The previous CAFO definition considered only the mature milking cows in determining whether an operation was a CAFO and did not address operations that separately confine immature heifers. EPA believes that these separately confined heifer operations should be included in the regulatory definition of a CAFO because they may generate as much manure as a CAFO dairy given that the animals are maintained until fully grown, and they confine the animals in a manner very similar to CAFO beef feedlots.

EPA agrees that the number of immature animals kept in confinement with mature animals varies greatly and should not be the basis for determining whether an AFO is a CAFO. In situations where immature animals (e.g. heifers and swine) are confined with mature animals, the immature animals are not counted for purposes of determining whether an AFO is defined as a CAFO based on the number of mature animals. Once an AFO is defined as a CAFO, based on any of the threshold values provided in table 4.1, manure and process wastewater generated by all immature and mature animals in confinement would be subject to NPDES permit requirements.

c. Horses. Today's rule retains the animal number thresholds for defining which horse operations are CAFOs. AFOs with 500 or more horses are defined as Large CAFOs, AFOs with 150 to 499 horses are defined as Medium CAFOs under certain conditions (see § 122.23(b)(7)), and AFOs with fewer than 150 horses are Small CAFOs only if designated in accordance with § 122.23(c).

What did EPA propose? In the January, 2001 proposed rule, EPA did not consider changing the CAFO definition thresholds for horses. As a result of the comments and data received on the proposal, EPA

considered in a subsequent Notice of Data Availability (66 FR 58556, November 21, 2001) two alternative options for revising the horse thresholds. One option would retain the existing regulatory threshold in a two-tier structure. For example, if the regulatory threshold was dropped to 500 AU, EPA would retain 500 horses as the 500 AU equivalent, and those with fewer than 500 horses would be CAFOs only if so designated on a case-by-case basis. EPA suggested this option because the Agency agreed with commenters that there was no need to increase regulation of this sector; by maintaining the status quo EPA would be neither increasing nor decreasing the regulated universe. In the second option, EPA would have set one horse equal to one beef cow thereby establish regulatory thresholds similar to those for beef operations. As a result, in a three-tier structure, Large horse CAFOs would have 1,000 animals or more, and Medium horse CAFOs would have 300–999 horses. EPA presented the second option after examining data submitted by industry that suggested that a 1,000 pound horse may generate similar manure as a 1,000 pound beef cow. However, because that data did not differentiate thoroughbred race horses (typically on high-energy feed which might alter manure composition) from other horses, EPA requested more definitive data to justify the second approach.

What were the key comments? A number of comments were submitted by horse industry associations and individual horse operations requesting that EPA not lower the threshold for horses, as the existing regulation was adequate. They further suggested that this rulemaking would be an opportunity to revisit the basis for the existing threshold, and requested that EPA change it to one horse being equal to one beef cattle, asserting that there is no scientific basis for making one horse equal to two beef cattle (which is how the existing regulation defines horse CAFOs). Industry representatives provided data on manure content to support their position, although they did not provide manure data specific to racehorses. The commenters also explained that the horse industry is fundamentally different in how it is organized and operated from the other sectors that focus on food production, and that this sector has not seen the kinds of changes (e.g., expansion and consolidation) that EPA is seeking to address in today's rule. Further, they point out that most large racetracks are in urban areas and are currently subject

to a variety of EPA-initiated and State-administered programs related to water pollution and storm water runoff control.

Some commenters requested that EPA not reduce the regulatory thresholds, and asked EPA to retain the ability of permit writers to use BPJ to establish site-specific BMPs. Industry representatives also asked the Agency to clarify that confinement pertains to stalls or similar structures in buildings and not to fenced areas, and that it does not include short visits to stalls for shoeing, veterinary evaluation, or related activities.

Rationale. It should be noted that the thresholds for the CAFO definition refer only to horse operations where animals are confined for 45 days (non-consecutive) over a 12 month period. Thus, to be considered a Large CAFO, the operation would need to confine 500 horses at one time for 45 days or longer in a 12-month period, and to be a Medium CAFO at least 150 horses would need to be confined for 45 days or longer in a 12-month period. The areas associated with confinement at horse facilities would constitute the production area, and would not include pastures and other unconfined areas. EPA notes the 1974 ELG for horses assumed the majority of horse CAFOs were racetracks. Although race tracks accounted for less than 0.1 percent of all horse operations today, race tracks still account for more than 96% of all horse operations with 500 horses or more. Boarding/training stables comprise the remaining few operations with 500 horses or more. Such operations would not be considered CAFOs unless all of the horses were kept in confinement (as opposed to pasture). Data suggests most horse operations confine their animals for short-term stabling or visits to stalls for shoeing, veterinary evaluation, or related activities. However, according to consultations with the American Horse Council, it is unlikely that these visits would involve a number of horses large enough to define the operation as a CAFO. For example, a ranch maintaining over 500 horses would typically have fewer than 100 stalls or stables (i.e. confinement areas). Therefore, those operations that confine enough horses for a long enough period to be defined as CAFOs are generally racetracks.

In the 1970s regulations, the Agency considered racetracks when originally determining the size of an operation that must comply with the effluent guidelines, and the records indicate the size of operation was based on the manure generated by thoroughbred racehorses. Based on some comments

that EPA should re-evaluate the classification of horses by bodyweight or manure content, EPA collected more current manure characteristics data from ASAE, USDA, and based on this data presented alternative thresholds for horses in the 2001 NODA (see 66 FR 225, page 58595). After reviewing the data, EPA generally agrees that the phosphorus content of horse manure is similar to that of a beef cow. However, as described above, the majority of horse CAFOs are racetracks, and the more general data on recreational and work horses is not comparable. The Agency also reviewed the data submitted by horse industry representatives and determined that this data also did not distinguish manure generated by racehorses with that of a recreational or farm horse, and thus EPA does not believe the record is sufficient to justify a change to the existing regulatory thresholds.

The effluent guideline, which is not being changed in today's final rulemaking, continues to be applicable to those horse operations confining 500 horses or more, including stables such as at racetrack operations. Other horse operations that may be defined or designated as CAFOs would continue to follow permit requirements based on the BPJ of the permitting authority.

d. Ducks. Today's final rulemaking revises the thresholds for defining whether a duck operation is a CAFO. The following thresholds apply to duck operations where the AFO uses other than a liquid manure handling system ("dry systems"): 30,000 or more ducks for a Large CAFO and 10,000 to 29,999 ducks for a Medium CAFO. For small operations with fewer than 10,000 ducks, EPA or the State permitting authority may designate them as a CAFO. For operations where the AFO uses a liquid manure handling system ("wet systems"), EPA is retaining the existing thresholds. That is, those with 5,000 or more ducks are considered Large CAFOs; those with 1,500 to 4,999 ducks may be Medium CAFOs (if the other conditions are met); and small operations with fewer than 1,500 ducks would become CAFOs only if designated in accordance with § 122.23(c).

What did EPA propose? In the January, 2001 proposed rule, EPA did not consider changing the existing animal unit equivalents for ducks. As a result of comments received on the proposal, EPA considered in a subsequent 2001 Notice of Data Availability (NODA) (66 FR 58566, November 21, 2001) two alternative options for establishing thresholds for duck operations. One option would treat

dry systems similarly to chicken operations (e.g., at the time of the NODA, EPA was considering 100,000 ducks would have constituted a Large CAFO). Another option would establish a Large CAFO threshold of 30,000 ducks based on the quantity and content of duck manure, using data and recommendations supplied by Purdue University. In all cases, the threshold for Large CAFOs with wet systems would remain at 5,000 ducks.

What were the key comments? A number of commenters on both the proposal and the NODA from duck industry associations, individual duck operations and some States requested that EPA change the threshold in the CAFO definition for ducks. They urged EPA to consider revising the duck thresholds to a higher number. By retaining the 5,000 duck threshold, they noted, essentially all duck operations in the United States would be required to apply for an NPDES permit. Commenters noted that management practices have changed significantly since the 5,000 duck threshold was established. The management practices currently used to raise ducks are similar to chicken operations. Commenters claim that these dry facilities should be regulated like chicken operations, basing the threshold either on phosphorus manure levels or using a threshold similar to chickens. State commenters agree that the threshold for these types of facilities should be raised but suggest retaining the existing threshold for wet systems.

Rationale. The existing NPDES regulation and the effluent guideline make no distinction between dry and wet systems. The duck thresholds were originally established in the 1970s and were based primarily on ducks being raised outside on ponds or with a stream running through an open lot. These types of facilities have been referred to as "wet" lot operations. Today's regulation refers to them as AFOs that use liquid manure handling systems. This preamble also refers to them as "wet systems." For purposes of today's rulemaking, these include duck operations that use ponds, wet lots, or buildings with lagoons.

EPA agrees with commenters that the management practices more typically used today to raise ducks are similar to chicken operations where the birds are confined to a building on solid bedding or in a building with a concrete pit underneath it where manure collects. These types of facilities have been referred to as "dry lot" operations. Where these practices are utilized, and are not combined with liquid manure handling systems, such as lagoons, they

present much less risk of a discharge than do wet systems. Today's regulation refers to them as AFOs that use "other than liquid manure handling systems." This preamble also refers to them as "dry systems."

After examining information concerning the current technologies of the duck industry, EPA concurs that it is appropriate to adjust the regulatory thresholds for dry systems, while retaining the existing threshold for wet systems. EPA is setting the Large CAFO threshold for duck operations with dry systems at 30,000 birds or more based on data produced by Purdue University and the American Society of Agriculture Engineers (ASAE), which are available in the administrative record. This threshold was calculated using phosphorus manure levels and assuming an approximate 3 duck to 1 chicken ratio. The medium size threshold is 10,000 to 29,999 ducks and the small threshold is less than 10,000 ducks. These thresholds were set at these levels based on the same 3 duck to 1 chicken ratio. Data on both layer and broiler chickens were averaged to obtain this ratio. This threshold is generally consistent with the thresholds adopted in current State programs, especially Indiana where the majority of the duck operations are located. This decision is also consistent with today's final decision on the chicken threshold, where EPA has established higher thresholds for layer operations using other than liquid manure handling systems than for layer operations using liquid manure handling systems.

e. Cow/Calf. In today's final rule, a beef cow/calf pair counts as one animal when temporarily confined in a pen, lot, barn, or stable. However, a cow/calf pair counts as two animals after the offspring are weaned.

What did EPA propose? The proposed rule did not discuss a convention to count cow/calf pairs. In response to comments from the beef industry, EPA described a convention in the November 2001 NODA to count a cow/calf pair as one animal for 120 days after the calf is weaned, after which they would be considered two animals.

What were the key comments? Comments on the proposal from organizations and individuals representing the beef sector indicated that they thought the proposal would alter the way mature and immature beef cow pairs are counted. They commented that if a cow/calf pair was counted as two animals, the proposed rule would have a significant impact on small beef operations that are largely pasture-based. Environmental organizations

generally did not comment on this issue.

In comments on the 2001 Notice, States and industry commenters unanimously supported the proposal to explicitly count a cow/calf pair as one animal. Many commenters said that, in practice, producers think of the cow and calf as a single entity until weaning time when the young animal becomes physically separated and requires separate penning and housing, and suggested adopting this standard. Some commenters suggested other alternatives, such as counting a cow/calf pair as 1.2 animal units, or differentiating the AU equivalent based on the age of the calves (e.g., up to two months old the cow/calf would be counted as one animal unit, from two to six months calves would be counted as 0.3, from six months to a year counted as 0.6, etc.).

Rationale. As described in the 2001 Notice, EPA has always assumed that cow/calf operations are typically pasture-based and would not normally fall within the coverage of the CAFO regulations. Such operations typically confine animals only temporarily for birthing, veterinary care, or other purposes. This temporary confinement may result in the operation being defined as an AFO, in which case it could in turn be defined as a CAFO should it meet certain conditions. However, it is not likely that this temporary confinement would involve enough animals to define the operation as a CAFO. EPA would like to make it clear that it is still not the Agency's intention to regulate pasture-based or rangeland operations. Counting a cow/calf pair as one animal is consistent with how EPA treats mother/offspring pairs housed together at the same location in other sectors (e.g., dairy and swine).

After considering public comment, EPA determined that it was appropriate to consider a cow/calf pair as one animal until the calf is weaned, rather than to specify a particular time period after weaning, which would have entailed additional, potentially burdensome, record keeping requirements (e.g. date of weaning for each calf).

f. Eliminate the mixed animal calculation. With today's final rulemaking, EPA is eliminating the formula for calculating whether an AFO is a CAFO because of the accumulation of several different animal types in confinement at one facility. An AFO is defined as a CAFO only if the specific threshold for any one animal sector covered by today's final regulations is met. 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 the operation. In the event that waste streams from multiple livestock species are co-mingled, and the regulatory requirements for each species are not the same, the permit must include the more stringent requirements.

What did EPA propose? EPA proposed to eliminate the mixed animal calculation.

What were the key comments? A number of comments were received concerning the elimination of the mixed animal calculation. Commenters opposed to the elimination of the calculation believe it is more protective of the environment to count all of the animals at an operation, in order to address the cumulative quantities of manure through the CAFO permit. Some commenters also claimed that eliminating the mixed animal calculation would create an opportunity for larger operations to avoid permitting by maintaining slightly fewer than the regulatory thresholds for several types of animals. Comments supporting EPA's proposal agreed that this change simplifies the regulation, provides relief to small farms, and focuses the regulation on the larger, more specialized facilities that tend to be more industrialized.

Rationale. As described in the proposed rulemaking (66 FR 3005) EPA is eliminating the mixed animal calculation for several reasons. First, this action simplifies the regulations. In addition, EPA's analysis indicates that the mixed animal calculation would have caused only a small fraction of the smaller AFOs to have been defined as CAFOs, so the Agency believes that this action does not materially change the scope of coverage of this regulation. To the extent that coverage is changed at all, it appropriately would be shifted away from smaller operations that tend to have more sustainable practices and sufficient crop land for land application of their manure nutrients. Should an AFO with mixed animals types be found to be a significant contributor of pollutants to waters of the United States, it could still be designated a CAFO in accordance with the designation provisions of this final rule.

4. Is My AFO a CAFO If It Discharges Only During Large Storm Events?

Today's final rule defines an operation as a CAFO regardless of whether the operation discharges only in the event of a large storm. In other words, today's final rule eliminates the 25-year,

24-hour storm permitting exemption for defining a CAFO. EPA notes, however, that the 25-year, 24-hour storm design criterion in the ELGs for large CAFOs is not being changed, except for new sources in the swine, veal, and poultry sectors (see preamble section IV.C.2).

What did EPA propose? EPA proposed to eliminate the 25-year, 24-hour storm event exemption from the definition of a CAFO.

What were the key comments? Comments from the animal agriculture industry were generally opposed to eliminating the permit exemption. Their position was that facilities that discharge only as a result of a storm event that exceeds a 25-year, 24-hour storm should not be covered by an NPDES permit. Environmental organizations and others supported the elimination of the exemption based on the position that it was not being used appropriately by the industry. States were split on whether to eliminate the exemption, depending largely on their current regulatory policy. Many commenters confused the proposed elimination of this exemption with consideration of the appropriate design standard for permitted facilities.

The SBAR Panel agreed that removing the 25-year, 24-hour exemption was generally appropriate for Large CAFOs because of the significant potential for environmental harm from Large CAFOs when the manure is not properly managed. The Panel also recognized that, under the terms of the proposal, eliminating the exemption would mean that some facilities would need to apply for a permit even though they have sufficient manure management and containment in place or, for some other reason, do not discharge except in a 25-year, 24-hour storm.

The Panel recommended that EPA consider reduced application requirements for small operators affected by the removal of the exemption. In the proposed rule EPA requested comment on whether to retain this exemption for small facilities as well as how many animals would be considered "small" for this purpose. The Agency carefully analyzed these issues during the development of this final rule.

Rationale. For the reasons stated in the proposal (66 FR 3006), and based on EPA's analysis of comments and other information, the Agency continues to believe that the 25-year, 24-hour storm permit exemption has created confusion and ambiguity that undermines the ability of permitting authorities to implement the CAFO regulations effectively. Eliminating this provision will: (1) Ensure that all Large CAFOs are

appropriately permitted; (2) ensure through permitting that facilities are, in fact, properly designed, constructed, operated, and maintained to contain manure and the rainfall associated with a 25-year, 24-hour storm event or the revised standard for new sources in the swine, veal calf, and poultry sectors; (3) improve the ability of EPA and State permit authorities to monitor compliance; (4) ensure that facilities do not discharge pollutants from their production areas and that they 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, and process wastewater; and (5) achieve EPA's goals of simplifying the regulations, providing clarity to the regulated community, and improving the consistency of implementation.

The 25-year, 24-hour exemption was not applicable to operations that became CAFOs by designation. Since small AFOs can only become CAFOs by designation, the elimination of this exemption will not affect the universe of Small CAFOs (refer to section IV.A.7 for a discussion of designation).

Because EPA is not changing the criteria under which medium facilities are defined as CAFOs, the elimination of the 25-year, 24-hour storm permitting exemption is not expected to significantly affect the universe of Medium CAFOs either. EPA believes that at most medium facilities that meet the existing conditions for being defined as a CAFO, discharges would most likely occur not only in the 25-year, 24-hour storm but as a result of lesser storms as well. For example, a facility with a pipe or other man-made conveyance is likely to discharge to surface water in wet weather, or for that matter could potentially discharge even in dry weather. Similarly, a facility that has a stream or other water of the United States running through the production area meets the definition of a CAFO and is also likely to discharge in less than the 25-year, 24-hour storm. By using the existing criteria, the Agency does not believe that there will be a significant increase in the number of medium facilities defined as CAFOs. Medium facilities that meet these conditions are encouraged to take advantage of available technical support and eliminate the conditions that cause them to be defined as a CAFO.

Accordingly, EPA believes that the Agency has addressed the principal concerns raised by the SBAR Panel. In addition, the Agency has taken steps to reduce the amount of information

required as part of the permit application process, thereby addressing the other concern raised by the Panel.

In providing comments on the proposed rule, a number of commenters appear to have confused EPA's proposal to eliminate the 25-year, 24-hour storm event as a permit exemption with issues relating to the design standard for the effluent limitation guideline. In this final rule, the Agency is eliminating the use of the 25-year, 24-hour storm only for the purpose of determining who is required to be covered by an NPDES permit. The Agency is retaining the existing design standard for containment based on the 25-year, 24-hour storm event (except for new sources in certain animal sectors, as discussed elsewhere in this preamble).

The elimination in today's rule of the 25-year, 24-hour storm exemption from permitting is also compatible with today's requirement for all CAFOs to apply for a NPDES permit. In section IV.B.1 below, EPA explains the reasons for adopting a more comprehensive "duty to apply" today, including the unique characteristics of CAFOs and the zero discharge regulatory approach (except for large storm events) that applies to them, the historical experience showing the lack of permitting of Large CAFOs, and the need to simplify and clarify the applicability of the rule. Retaining the 25-year, 24-hour storm exemption from permitting would not be compatible with these reasons and indeed would perpetuate confusion over which operations are required to apply for a permit.

Having eliminated the 25-year, 24-hour storm exemption from permitting, today's rule nevertheless allows operations to avoid permitting if they can demonstrate that they truly have no potential to discharge (*see* section IV.B.2). However, operations that do have the potential to discharge, even if just in the 25-year, 24-hour storm, may not receive a determination of no potential to discharge.

5. How Are Land Application Discharges of Manure and Process Wastewaters at CAFOs Covered by This Rule?

Today's rule clarifies that runoff from the application of CAFO manure, litter, or process wastewaters to land that is under the control of a CAFO is a discharge from the CAFO and subject to NPDES permit requirements, except where it is an agricultural storm water discharge. All permits for CAFOs must contain terms and conditions on land application in order to ensure

appropriate control of discharges that are not agricultural storm water.

What did EPA propose? EPA proposed to define an AFO to include both the animal production areas of the operation and any land areas under the control of the owner or operator on which manure and process wastewaters are applied. The definition of a CAFO is based on the AFO definition and therefore would have included the land application areas as well. Accordingly, a CAFO's permit would include requirements to control discharges from both its production area and its land application area.

What were the key comments? A number of commenters asserted that EPA lacks the authority to include permit requirements governing a CAFO's land application of manure and process wastewaters. They claim generally that the runoff from such land application is a nonpoint source discharge and therefore is not subject to NPDES requirements. In particular, they argue that because land application areas are not places where animals are concentrated or fed, there is no basis in the Act for including them in the definitions of AFO and CAFO. In addition, in their view, runoff of CAFO manure and process wastewaters from land application areas is excluded from the point source definition because it is "agricultural storm water." They believe that land application runoff is appropriately addressed only through nonpoint source, voluntary, incentive-based programs. Accordingly, these commenters objected to the proposal to include land application areas in the definition of an AFO and CAFO.

One commenter also stated that EPA's policy reasons for including land application areas in the AFO and CAFO definitions are not convincing. Excluding land application areas from the AFO and CAFO definitions, this commenter notes, does not necessarily mean that CAFO generated manure could be land applied without concern for the environment. For example, as a nonpoint source discharge, land application discharges would still be subject to State controls, the Clean Water Act nonpoint source program (section 319), and the TMDL program.

In contrast, certain other commenters indicated that there is a significant need to better address manure and related discharges from CAFO land application areas and therefore they agreed with the proposal to include the land application areas in the AFO/CAFO definitions. These commenters stated that this approach is consistent with recent court decisions and that addressing land

application runoff is critical to ensuring water quality protection.

Rationale. EPA noted in the proposal that the runoff from land application of manure at CAFOs is a major route of pollutant discharges from CAFOs; that in some regions of the country, the amount of nutrients present in land-applied manure has the potential to exceed the nutrient needs of the crops; that areas exist of widespread phosphorus saturation of the soils; and that research shows a high correlation between areas with impaired lakes, streams and rivers due to nutrient enrichment and areas where there is dense livestock and poultry production.

EPA fundamentally disagrees with those commenters who asserted that the Agency lacks authority over land application discharges at CAFOs because this is an attempt to regulate nonpoint source pollution. Under the Clean Water Act, the Agency has broad discretion to determine what are point source discharges from CAFOs. EPA explained in the proposal why it is appropriate to clearly specify that land application discharges of manure and process wastewater from areas where CAFO manure and process wastewaters have been overapplied are discharges by the CAFO that are subject to NPDES requirements rather than being nonpoint source discharges. In brief, EPA stated in the proposal that the pipes and other manure-spreading equipment that convey CAFO wastes to the fields are an integral part of the CAFO, and so discharges from this equipment should be considered discharges from the CAFO. Further, land application areas are integral to CAFO operations, and there have been significant discharges in the past attributed to land application of CAFO wastes. The proposal noted in addition that defining CAFOs in this way is consistent with EPA's effluent limitations guidelines for other industries, which consider on-site waste treatment systems to be part of the production facilities in that the regulations restrict discharges from the total operation.

EPA believes that, in explicitly including CAFOs in the definition of a point source (CWA Sec. 502(14)), Congress intended that discharges of manure and process wastewater from a CAFO to waters of the U.S. should be regulated through the NPDES permit program. Since one important manner by which CAFOs may produce such discharges is to apply manure and process wastewater to land areas under their control, EPA believes that Congress must have intended discharges from a CAFO's land application area to be at least potentially included as

regulated point source discharges. However, Sec. 502 also includes a specific exclusion from the definition of a point source for "agricultural storm water discharges." EPA explains in the following section how it interprets these two statutory provisions in order to identify which discharges from a CAFO's land application area are agricultural storm water discharges and therefore are not point source discharges.

Because the runoff from land application of manure at CAFOs is a major route of pollutant discharges from CAFOs, and for the other reasons articulated above, EPA does not believe it is sufficient to rely on non-regulatory controls cited by one of the commenters, such as the CWA section 319 program, or State non-NPDES authorities.

While EPA is today making explicit in the regulations that a CAFO's land application of CAFO manure and process wastewaters is subject to NPDES requirements, the Agency is doing so through different regulatory language from what was proposed. EPA proposed to amend the AFO definition to include the land application areas at the facility as well as the animal production areas. Following the proposal, however, concerns were raised that this language could be misconstrued to mean that CAFO permits must include terms and conditions on any pollutants running off the operation's land application areas (for example, runoff of pesticides). This was not EPA's intent. The focus of this rulemaking is on the CAFO manure and process wastewaters that may be discharged by the CAFO. Therefore, EPA has chosen not to include the land application areas at an animal feeding operation within the definition of an AFO or CAFO in the final regulations. Instead, EPA has added section 122.23(e), entitled "Land application discharges from a CAFO are subject to NPDES requirements," which states as follows: "The discharge of manure, litter or process wastewater to waters of the United States from a CAFO as a result of the application of that manure, litter or process wastewater by the CAFO to land areas under its control is a discharge from that CAFO subject to NPDES permit requirements, except where it is an agricultural storm water discharge as provided in 33 U.S.C. 1362(14)." This provision goes on to state that a discharge of manure or process wastewater from a CAFO's land application areas is an agricultural storm water discharge under certain conditions, as discussed in the next preamble section.

The Agency emphasizes that in today's amendments to the CAFO

regulations, a CAFO's responsibility for land application discharges extends only to the CAFO's own land application areas, which includes areas at the CAFO itself or otherwise under the CAFO owner's or operator's control. Also, as noted, today's land application rule provisions apply only to the application of manure, litter, and process wastewaters at the CAFO, and not to other pollutants that may exist at the operation.

As explained above, EPA also believes that the final rules adopted today appropriately account for the exclusion of "agricultural storm water discharges" from the definition of a point source in the Clean Water Act. This subject is discussed in the following section.

6. How Is EPA Applying the Agricultural Storm Water Exemption With Respect to Land Application of CAFO Manure and Process Wastewaters?

EPA is clarifying in today's rule that discharges of manure, litter, and process wastewaters from the land application areas of a CAFO are agricultural storm water discharges where the manure or process wastewater has been applied in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater. Such practices, as specified in 122.42(e)(1) (vi)–(ix) must be included in all CAFO permits.

What did EPA propose? For purposes of land application of manure from an AFO or CAFO, EPA proposed to define the term "agricultural storm water discharge" as a discharge composed entirely of storm water, as defined in § 122.26(a)(13), from a land area upon which manure and/or wastewater has been applied in accordance with proper agricultural practices, including land application of manure or wastewater in accordance with either a nitrogen-based or, as required, a phosphorus-based manure application rate. Also, as noted, the proposed effluent guidelines included technology-based requirements for a CAFO's land application areas that were based on the CAFO's use of proper agricultural practices. (See 66 FR at 3029–32).

What were the key comments? A number of the commenters who claimed that EPA does not have authority to regulate land application at CAFOs focused on the exclusion for agricultural storm water discharges. In their view, under this exclusion, all runoff of manure, litter, or process wastewaters from a CAFO's crop fields is exempt from the NPDES program as agricultural storm water. In contrast, other

commenters took the view that because of the Act's specific naming of CAFOs as point sources, none of the runoff from CAFO crop fields is entitled to the agricultural storm water exemption.

Rationale. The CWA states that the term "point source" does not include "agricultural storm water discharges" (section 502(14)). Nothing in the statutory language or legislative history indicates that Congress did not mean to include agricultural storm water discharges from a CAFO in this exclusion. EPA therefore believes that in order to interpret the inclusion of CAFOs as point sources and the agricultural storm water exclusion consistently, it is necessary to identify the conditions under which discharges from the land application area of a CAFO are point source discharges that are subject to NPDES permitting requirements and those under which they are agricultural storm water discharges and therefore are not point source discharges.

EPA has determined that it is appropriate to base the distinction between agricultural storm water discharges and regulated point source discharges of manure, litter, and process wastewater from a CAFO on whether or not the manure and process wastewater has been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater. The specific types of practices that EPA believes are needed to ensure this are specified in 122.42(e) (1)(vi)–(ix). Where such practices have been used, EPA believes it is reasonable to conclude that any remaining discharge is agricultural storm water. Conversely, where such practices have not been used, EPA believes it is reasonable to conclude that land application discharges of manure, litter, or process wastewater are not agricultural storm water but are discharges that Congress meant to subject to NPDES permitting requirements when it explicitly included CAFOs in the definition of a point source.

When manure or process wastewater is applied in accordance with practices designed to ensure appropriate agricultural utilization of nutrients, it is a beneficial agricultural production input. This fulfills an important agricultural purpose, namely the fertilization of crops, and it does so in a way that minimizes the potential for a subsequent discharge of pollutants to waters of the U.S. EPA recognizes that even when the manure, litter, or process wastewater is land applied in accordance with practices designed to

ensure appropriate agricultural utilization of nutrients, some runoff of nutrients may occur during rainfall events, but EPA believes that this potential will be minimized and any remaining runoff can reasonably be considered an agricultural storm water discharge.

EPA notes that any dry weather discharge of manure or process wastewater resulting from its application to land area under the control of a CAFO would not be considered an agricultural storm water discharge and would thus be subject to Clean Water Act requirements. As a matter of common sense, only storm water can be agricultural storm water. Further, if manure or process wastewater were applied so thickly that it ran off into surface waters even during dry weather, this would not be consistent with practices designed to ensure appropriate agricultural utilization of nutrients.

In this rule, EPA is clarifying how it believes the scope of regulated point source discharges from a CAFO is limited by the agricultural storm water exemption. EPA does not intend its discussion of how the scope of point source discharges from a CAFO is limited by the agricultural storm water exemption to apply to discharges that do not occur as the result of land application of manure, litter, or process wastewater by a CAFO to land areas under its control and are thus not at least potentially CAFO point source discharges. In explaining how the scope of CAFO point source discharges is limited by the agricultural storm water exemption, EPA intends that this limitation will provide a "floor" for CAFOs that will ensure that, where a CAFO is land applying manure, litter, or process wastewater in accordance with site specific practices designed to ensure appropriate agricultural utilization of nutrients, no further effluent limitations will be authorized, for example, to ensure compliance with water quality standards. Any remaining discharge of manure or process wastewaters would be covered by the agricultural storm water exemption and would be considered nonpoint source runoff. Further, the Agency does not intend that the limitation on the scope of CAFO point source discharges provided by the agricultural storm water exemption be in any way constrained, so long as manure, litter, or process wastewater is land applied by the CAFO in accordance with site specific nutrient management practices that ensure appropriate utilization of nutrients. In particular, EPA does not intend that the applicability of the agricultural storm

water exemption to discharges from land application areas of a CAFO be constrained by requirements to control runoff resulting from the application of pesticides or other agricultural practices.

Although as noted above, manure and process wastewater discharges from the land application area are not directly subject to water quality-based effluent limits, EPA encourages States to address water quality protection issues in their technical standards for determining appropriate land application practices.

The Agency disagrees with the commenters who would interpret the agricultural storm water provision to exclude all of the runoff from a CAFO's land application areas. It would not be reasonable to believe that Congress intended to exclude as an "agricultural" storm water discharge any and all discharges of CAFO manure from land application areas, for example, no matter how excessively such manure may have been applied without regard to true agricultural needs. Similarly, EPA does not agree with the commenters who believe that the agricultural storm water discharge exclusion does not apply to all to CAFOs because Congress singled out CAFOs by specifically including them in the definition of point source. There is nothing in the text of the point source definition (CWA section 502(14)) that indicates that Congress intended the agricultural storm water discharge exclusion not to apply to CAFOs.

After considering all the comments, EPA has decided that it is not necessary to include a definition of the term "agricultural storm water" in the rule text at section 122.23(b). EPA believes that the amended regulatory text at 40 CFR 122.23(e), in combination with this preamble discussion, adequately clarifies the distinction between regulated point source discharges and non-regulated agricultural storm water discharges from the land application area of a CAFO.

Under the final rule, as proposed, discharges from the production area at the CAFO (e.g., the feedlot and lagoons) are not eligible for the agricultural storm water exemption at all, because they involve the type of industrial activity that originally led Congress to single out CAFOs as point sources.

Today's final rule also requires all permits for CAFOs to include terms and conditions to address land application. See section 122.42(e) and Part 412. The Agency has included this requirement because it has the authority to regulate point source discharges and any discharge of CAFO manure, litter, or process wastewaters from the land

application area of a CAFO which is not agricultural storm water is subject to the Clean Water Act. EPA believes that 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 only applied 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.

7. When and How Is an AFO Designated as a CAFO?

In today's final rule, EPA is retaining the requirement for an on-site inspection and a determination that an AFO is a significant contributor of pollutants to waters of the United States prior to designating an AFO as a CAFO. A small AFO may be designated only if it discharges either: (1) Into waters of the United States through a man-made ditch, flushing system, or other similar man-made device or (2) 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 contact with the confined animals. Medium operations may also be designated as CAFOs even if they do not meet either of the two conditions for being defined as a CAFO.

What did EPA propose? In the proposed rule, EPA presented two options with respect to the designation criteria. EPA proposed to retain the existing criteria under a three-tier structure and proposed to eliminate them under a two-tier structure. In addition, EPA requested comment on several additional alternatives that would have retained the criteria only for small operations.

EPA also proposed to modify the on-site inspection requirement to explicitly include other forms of information gathering such as use of monitoring data, fly-overs, and satellite imagery. EPA also proposed a technical correction, changing the term "significant contributor of *pollution*" to "significant contributor of *pollutants*."

What were the key comments? EPA received limited comment concerning proposed changes to the designation criteria. Only a few States specifically supported the elimination of the criteria. A few representatives of the livestock industry generally supported elimination of the criteria for operations of all sizes. Commenters were generally opposed to EPA's proposal to modify the on-site inspection requirement to

allow for alternative data gathering methods. Some commenters acknowledged that the alternative methods of data collection proposed by EPA can indicate situations where a potential water quality problem exists; however, most commenters asserted that on-site inspections by knowledgeable personnel are the only fair and accurate method of determining whether an AFO is a significant contributor of pollutants.

The SBAR Panel raised concern over the proposed changes to the designation criteria, and the potential to cause more small businesses to be subject to regulation. The Panel supported the retention of the existing designation criteria and process.

Rationale. EPA has decided to retain the existing designation criteria and process because the existing criteria strike an appropriate balance for ensuring protection of surface water quality while maintaining flexibility for States to assist small and medium operations before they become subject to NPDES requirements for CAFOs.

Retaining the requirement for an on-site inspection will help ensure a reasoned assessment of the situation has been performed and make the operation aware that it may be designated a CAFO.

AFOs that do not meet the regulatory definition of a CAFO can often be effectively addressed by State voluntary programs or regulatory non-NPDES programs focused on the elimination of the conditions that pose a threat to water quality. Implementing these voluntary or non-NPDES State programs can help to ensure that medium and small operations implement proper practices and are not designated as CAFOs. If documented threats to water quality are not addressed by the owner or operator of particular AFOs, the NPDES CAFO regulations provide States with appropriate flexibility to use designation as an effective mechanism to designate these operations as CAFOs on a case-by-case basis. Once designated as CAFOs, these operations are subject to the permitting requirements defined in today's action. Note that the ELGs apply only to Large CAFOs. For Medium and Small CAFOs appropriate permit limits should be established according to the BPJ of the permitting authority.

Although no change has been made to either the former designation criteria or the requirement for an on-site inspection, EPA is adopting as final a technical correction to the regulatory language on designation, changing the term from "significant contributor of pollution" to "significant contributor of pollutants." for the reasons discussed in the proposal. This technical correction

makes the NPDES CAFO regulations consistent with the rest of the NPDES program. EPA received very few public comments on this revision.

If, after conducting an on-site inspection, the NPDES authorized State (or EPA in certain circumstances—see below) determines that an AFO is a significant contributor of pollutants to waters of the United States, the AFO may be designated as a CAFO. The determination of whether an AFO is a significant contributor of pollutants to waters of the United States should consider the cumulative impacts of multiple AFOs that may be causing or contributing to the exceedance of water quality standards.

8. Can EPA Designate an AFO as a CAFO Where the State Is the Permitting Authority?

Today's final rule explicitly authorizes the EPA Regional Administrator to designate CAFOs in NPDES authorized States where the Regional Administrator has determined that one or more pollutants in the AFO's discharge contributes to an impairment in a downstream or adjacent State or Indian country water that is impaired for that pollutant. Upon designation, the operation would be required to apply to the appropriate permitting authority for permit coverage. It should be noted that EPA is not assuming authority or jurisdiction to issue permits to the CAFOs that it designates in authorized NPDES States (except for those in Indian Country). That authority would remain with the authorized States.

What did EPA propose? EPA proposed to explicitly authorize EPA designation of AFOs as CAFOs in NPDES authorized States, without limiting this authority to AFOs contributing to impairments in downstream or adjacent jurisdictions.

What were the key comments? In comments submitted on the proposed rule, States and the livestock and poultry industry were generally opposed to EPA designation in NPDES authorized States. A number of commenters argued that EPA did not have the authority to designate in a State with an authorized NPDES permit program. Environmental organizations and allied commenters were generally supportive of EPA's designation authority. Those supportive of EPA's proposal believed that this authority would be an important component of ensuring that the revised regulations are fairly implemented across the entire country.

Rationale. After careful consideration of the comments, EPA has decided to limit EPA designation authority, in

NPDES authorized States, to circumstances where the Regional Administrator has determined that one or more pollutants in the AFO's discharge contributes to an impairment in a downstream or adjacent State or Indian country water that is impaired for that pollutant. In these situations, the State in which the discharge is located may not have the same incentives for designating sources as it would if the impaired water affected by the discharger were located in the State. This approach will ensure consistent implementation of designation requirements across State boundaries where there are serious water quality concerns. EPA expects NPDES authorized States to ensure consistency within State boundaries. It is not EPA's intention to make such designations lightly or without close coordination with affected States. EPA's designation authority will be helpful in sensitive situations where one State finds it difficult to resolve water quality impairments caused by AFOs in another State.

EPA disagrees with those commenters who believe that the Agency does not have the legal authority to designate CAFOs in authorized States. In today's action, EPA is asserting similar, albeit more limited, authority to designate CAFOs as compared to designation of storm water point sources. See 40 CFR 122.26(a)(1)(v) and 122.26(a)(9).

Ultimately, EPA's authority to designate derives from the CWA itself. CWA Section 501(a) provides the Agency with the authority to designate point sources subject to regulation under the NPDES program, even in States approved to administer the NPDES permit program. This interpretive authority to define point sources and nonpoint sources was recognized by the D.C. Circuit in *NRDC v. Costle*, 568 F.2d 1369, 1377 (DC Cir. 1977). The interpretive authority arises from CWA Section 501(a) when EPA interprets the term "point source" at CWA Section 502(14).

9. How Can States Use Non-NPDES Programs To Prevent Medium and Small Operations From Being Defined or Designated as CAFOs?

EPA promotes the efforts of States to actively use a variety of strategies to work with owners and operators of AFOs to ensure that they do not meet the criteria that would result in their being defined or designated Small or Medium CAFOs.

Operators of medium and small facilities are encouraged to participate in voluntary programs that promote sustainable agriculture and the

reduction of environmental impacts. EPA anticipates that participation in these programs will assist them in eliminating conditions which would result in the AFO being defined or designated as a CAFO. For example, it may be that an operation that confines 500 cattle and that participates in a voluntary program to develop and implement a CNMP, as defined by USDA, could proactively fix situations that may otherwise cause them to meet the criteria for being defined or designated as a CAFO. EPA intends to develop a small entity compliance guide to assist small business and additional tools needed to assist AFOs in complying with this requirement. Please refer to a more extensive discussion of how this rule promotes and encourages State flexibility in section V.F.

10. What CAFOs Are New Sources?

Today's final rule makes no changes to the definition of "new source" in 40 CFR 122.2 or the definition and criteria for new source determinations in 40 CFR 122.29 with respect to CAFOs. For purposes of applying the new source performance standards in today's final rule, a source would be a new source if it commences construction after April 14, 2003 (*see* 40 CFR 122.2). Each source that meets this definition is required to achieve the new New Source Performance Standard upon commencing discharge.

What did EPA propose? EPA proposed additional criteria for determining who is a new source, including:

1. The CAFO is constructed at a site at which no other source is located;
2. The CAFO totally replaces the housing including animal holding areas, exercise yards, and feedlot, waste handling system, production process, or production equipment that causes the discharge or potential to discharge pollutants at an existing source; or
3. The CAFO constructs a production area that is substantially independent of an existing source at the same site.

What are the key comments? Some industry commenters expressed the view that the new source definitions were too broad and would result in many existing CAFOs being considered by their permitting authority as new sources. Commenters interpreted the proposal to mean that operations undergoing routine operation and maintenance or replacement of individual structures and equipment could be considered a new source under the proposed language. These existing facilities defined as new would have to undergo costly improvements to comply with the NSPS. In addition, the new

source definition would be a disincentive to conduct routine maintenance and improvements at an operation. The commenters indicated that EPA did not provide enough rationale to include this language and that other industries do not have such a broad new source definition. Industry commenters, including some conservation districts, concluded that EPA should retain the existing definition.

Comments from environmental organizations and private citizens indicated their belief that all expanding AFOs should be considered CAFOs and subject to NSPS, and that these standards should be more restrictive than the existing source standards.

Rationale. After reviewing public comment and reconsidering this proposed revision, EPA has concluded that the existing regulation at § 122.29(b) provides adequate criteria for determining who is a new source. EPA's intention was to provide permit writers with clear and specific criteria applicable to CAFOs to improve clarity of these regulations. In retrospect, the only clarification that was provided was related to § 122.29(b)(ii), which refers to when the new construction "totally replaces the process or production equipment that causes the discharge of pollutants at an existing source." While the Agency disagrees with commenters that the proposed revisions would expand the scope of the existing regulation, EPA decided that it was not necessary to adopt the proposal as the existing regulation is sufficient for EPA to provide guidance on determining new sources. Further, EPA is not adopting the proposal in the interest of keeping the regulation simple. Nevertheless, EPA believes some clarity as to which CAFOs are new sources is appropriate. In response to commenters who believe that EPA should consider any facility that expands to be a new source, EPA did not propose such a definition, the reasons for which are discussed at 66 FR 3066 of the proposed rulemaking. EPA is clarifying that it is not the intent of this section to serve as a disincentive to CAFOs to maintain, upgrade, or otherwise enhance facilities and waste management systems to improve their operational and environmental performance. Thus, EPA is clarifying that an expanding source is not automatically defined as a new source. For example, a facility that expands its operation by simply extending existing housing structures by constructing new housing adjacent to existing housing, is not typically considered a new source. Under existing provisions at § 122.29(b) such

expansions at an existing facility would not result in the facility becoming defined as a new source unless the modifications totally replace the process or production equipment that causes the discharge of pollutants, or the new/modified facility's production and waste handling processes are substantially independent of the preexisting source.

B. Who Needs a Permit and When?

1. Who Needs To Seek Coverage Under an NPDES Permit?

Today's rule requires all CAFO owners or operators to seek coverage under an NPDES permit, except in very limited situations where they make an affirmative demonstration of "no potential to discharge," as discussed below. This "duty to apply" applies without exception; it makes no difference, for example, whether the CAFO manure management system has been appropriately designed and operated to prevent discharges except during large storm events. Recognizing that there may be certain situations in which no reasonable potential to discharge exists, EPA has also established the ability for a CAFO owner or operator to demonstrate that the facility has no potential to discharge from either its production areas or its land application areas. If the permitting authority agrees with the demonstration of no potential to discharge, the operation would not need to obtain an NPDES permit. The no potential to discharge demonstration is not relevant to small or medium operations because an actual discharge is a required criterion for a small or medium operation to be considered a CAFO.

What did EPA propose? EPA proposed to require all CAFOs to seek coverage under an NPDES permit, except where they can demonstrate no potential to discharge.

What were the key comments? Environmental groups were largely in favor of the duty to apply provision, and sought to ensure that all Large CAFOs in particular had a duty to apply. These commenters expressed concern about the impacts of unregulated operations, the potential for CAFOs to discharge, and the lack of permitting of CAFOs under the current regulations. Many commenters stated that because of the potential to discharge CAFOs should have NPDES permits.

Trade associations and industry commenters were largely opposed to the duty to apply requirement. A number of these commenters questioned EPA's legal authority for requiring permit applications from CAFOs that claim not to discharge. They argued that the Clean

Water Act requires an NPDES permit only for an actual discharge of pollutants to the waters of the United States. Commenters also noted that imposing a duty to apply is inconsistent with EPA's past interpretations of the Clean Water Act, pointing to past instances in which EPA has stated that permits are required only for actual discharges.

An industry commenter also disagreed with EPA's reasons for finding that there is a need to impose a duty to apply for a permit for CAFOs. The commenter disagreed with EPA's belief that many large AFOs have not applied for permits because of widespread confusion over the CAFO regulatory requirements and stated that any confusion in the regulations can easily be remedied by EPA. The commenter noted that there could be other reasons these operations are not permitted (for example, the operation does not discharge, it discharges only in a 25-year, 24-hour storm, or is a dry poultry facility). Commenters also questioned EPA's finding that many CAFOs are discharging without a permit and stated their belief that CAFO discharges are no more intermittent (and thus no more difficult to detect and document) than those in other industries.

These commenters also asserted that EPA is not authorized and not justified in putting the burden on the CAFO to show that it does not discharge. According to the commenters, this presumption of a discharge weakens the requirement of an actual discharge in the Act and will result in EPA regulating facilities that Congress intended to exclude from the NPDES program.

State comments were mixed. Most supported the duty to apply provision, including the no potential to discharge determination, agreeing with EPA that any operation that meets the definition of a CAFO should be required to apply for a permit. Some States indicated that the criteria for becoming a CAFO needed to be clear, and then facilities would know when they are CAFOs and would comply with the duty to apply. Other States opposed this proposal for a variety of reasons, including that shifting the burden of proof to the facility would be onerous, especially if EPA lowers the regulatory threshold; that there was no need to impose a permit in order to ensure that livestock operations have nutrient management plans; and that EPA should not create duplicative efforts in States with effective programs.

Although the SBAR Panel did not comment on the proposed duty to apply requirements, the Panel did comment

on EPA's proposal to require all medium facilities either to certify that they are not CAFOs or to seek coverage under an NPDES permit. The Panel recommended that EPA carefully consider the burden of such requirements. The Panel also was concerned that requiring full permit applications from the number of Medium CAFOs contemplated at proposal may impose a significant burden with limited environmental benefits, and recommended that EPA carefully consider appropriate streamlining options. Finally, the SBAR Panel recommended that, before adding any new application or certification requirements for operators in this size range, EPA should carefully weigh the burden and environmental benefits of expanding the scope of the regulations in this way.

Rationale. After careful consideration of the comments, EPA is adopting the "duty to apply" in today's final regulations. This revised duty to apply is designed to identify and ultimately to prevent actual unauthorized discharges to the waters of the United States, consistent with the intent and goals of the Clean Water Act. CAFOs that demonstrate that they do not have a potential to discharge will not need to seek coverage under a permit, as discussed in section IV.B.2 of this preamble.

EPA continues to believe that there is a strong need and a sound basis for adopting this duty to apply and that it is within the Agency's authority to do so. EPA fully discussed its rationale for this provision in the proposal. There, the Agency discussed the duty for CAFOs, other than those which discharge only in the event of a 25-year, 24-hour storm, to apply for a permit under the existing NPDES regulations (40 CFR 122.21(a)) and explained a number of reasons behind the need for a clarified and more broadly applicable duty to apply for CAFOs.

EPA disagrees with the comment that there is no need for a duty to apply because there may be legitimate reasons for so many operations being unpermitted at present. In fact, there are numerous documented instances in the administrative record of actual discharges at unpermitted CAFOs that are not associated with 25-year, 24-hour storms. EPA also disagrees that CAFO discharges are no more intermittent than those in other industries. Operations in other industries are typically designed to routinely discharge after appropriate treatment; this is not the case at CAFOs, where discharges are largely unplanned and intermittent. It is thus much easier for CAFOs to avoid permitting by not

reporting their discharges. EPA continues to believe that imposing a duty to apply for all CAFOs is appropriate given that the current regulatory requirements are being misinterpreted or ignored. Moreover, simply clarifying the regulations would not necessarily be adequate, because operations might still claim that the Clean Water Act requires no permit application if the facility claims not to discharge. As discussed in the proposal, Congress contemplated that EPA could set effluent standards at zero discharge, where appropriate, and that EPA would effectuate these standards through permits; this statutory scheme would be negated if CAFOs were allowed to avoid permitting by claiming that they already meet a zero discharge standard.

EPA noted in the proposal that it had not previously sought to categorically adopt a duty to apply for an NPDES permit for all facilities within a particular industrial sector. The Agency explained that it is doing so for reasons that involve the unique characteristics of CAFOs and the zero discharge regulatory approach (except for large storm events) that applies to them. EPA also noted that since the inception of the NPDES permitting program in the 1970s, only a small number of Large CAFOs have actually sought permits. The Agency is adopting this revised duty to apply for all of these reasons, including this historical experience showing the lack of permitting of Large CAFOs, while numerous documented discharges occurred over time. This change also serves to substantially simplify and clarify the applicability of the rule.

In addition, there is a sound basis in the administrative record for the presumption that all CAFOs have a potential to discharge to the waters of the United States such that they should be required to apply for a permit, unless they can show no potential to discharge. EPA does not agree with the claim that the presumption of a discharge will weaken the requirement of an actual discharge in the Clean Water Act and will result in EPA regulating facilities that Congress intended to exclude from the NPDES program. CAFOs will have the opportunity to demonstrate that they do not have a potential to discharge and therefore would not be required to apply for a permit.

2. How Can a CAFO Make a Demonstration of No Potential To Discharge?

Today's rule specifies that a Large CAFO need not have an NPDES permit if the permitting authority finds that the operation has no potential to discharge.

This final rule provides that Large CAFOs may request and submit technical information as the basis for a permitting authority to determine that there is no potential to discharge. Today's rule also establishes requirements for the permitting authority to issue a public notice that such a request has been received. The request for a no potential to discharge determination must be submitted by the date upon which the CAFO is required to seek permit coverage (See 40 CFR 122.23(g) and section IV.B.3 and Table 4.2 of this preamble). Within 90 days of receiving the request, the Director will let the CAFO know whether or not the request for a no potential to discharge determination has been granted. If the request is denied, the CAFO must seek permit coverage within 30 days after the denial.

What did EPA propose? EPA proposed that Large CAFOs have a duty to apply for an NPDES permit unless the permitting authority, upon request from the CAFO, makes a case-specific determination that a CAFO has no potential to discharge pollutants to water of the United States.

What were the key comments? Trade associations and industry commenters generally opposed the requirement to demonstrate "no potential to discharge." Their objections largely follow from their view that CAFOs should not be required to apply for a permit in the first instance absent evidence of an actual discharge. Having to show "no potential to discharge" in order to avoid a permit would place a difficult or impossible burden on operations to prove a negative, in their view. They also expressed concerns over the resources and expense of showing "no potential to discharge" and about how permitting authorities will be able to interpret and apply this standard consistently. Certain environmental groups, on the other hand, were also opposed to this provision, but their view is that CAFOs should be required to apply for permits without exception, and there should be no allowance for CAFOs to avoid permitting based on a finding of "no potential to discharge." They also voiced concerns that this provision will invite abuse by States that seek to avoid permitting responsibilities. On the subject of whether the rules should include a public process for the "no potential to discharge" determination, public commenters expressed views both for and against including this process. Those seeking to have a public process included their belief that it will serve as a check against any abuses in making these determinations.

Rationale. Today's rule requires all CAFOs to apply for a permit unless they have received a determination by the Director that the facility has "no potential to discharge." The "duty to apply" provision is based on the presumption that every CAFO has a potential to discharge and therefore must seek coverage under an NPDES permit. However, the Agency does not agree with commenters that there should be no opportunity to rebut this presumption and avoid permitting because EPA recognizes that, although they may be infrequent, there may be instances where a CAFO truly does not have a potential to discharge. For example, the CAFO may have no potential to discharge because it is located at a great distance from any water of the United States (see further discussion on this subject below). In such circumstances, it would make little sense to impose NPDES permit requirements in order to protect against such discharges. Therefore, the Agency believes that it is reasonable to allow facilities that demonstrate "no potential to discharge" to be released from the requirement to seek coverage under an NPDES permit. Although today's regulation allows facilities to submit "no potential to discharge" claims, an unpermitted CAFO that does in fact discharge pollutants to waters of the U.S., with or without a determination of "no potential to discharge," would be in violation of the Clean Water Act.

The requirement for demonstrating no potential to discharge is not being extended to small and medium AFOs since the specific criteria that must be met prior to becoming CAFOs requires the existence of a discharge. Whereas large AFOs are defined as CAFOs based on number of animals alone, small and medium AFOs only become CAFOs after meeting specific discharge-related criteria. A small AFO can only be designated as a CAFO by the State Director or Regional Administrator where it is determined that it is a significant contributor of pollutants to waters of the U.S. A medium AFO can become a CAFO by designation or definition. As in the case of small AFOs, a medium AFO can only be designated where it is determined to be a significant contributor of pollutants to waters of the United States. A medium AFO that is a CAFO by definition must meet one of the two "method of discharge" criteria prior to being defined as a CAFO. Thus, it is meaningless to consider such facilities as having no potential to discharge.

EPA's intention is that the term "no potential to discharge" is to be narrowly interpreted and applied by permitting

authorities. This provision is intended to be a high bar that excludes those Large CAFOs from having an NPDES permit only where the CAFO can demonstrate to a degree of certainty that they have no potential to discharge to the waters of the United States. 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 circumstances or conditions. Such circumstances would include, for example, CAFOs that are located in arid areas and far from any water body or those that have completely closed cycle systems for managing their wastes and that do not land apply their wastes. For example, a CAFO that meets the following conditions might be able to demonstrate no potential to discharge: (1) Located in an arid or semi-arid environment; (2) stores all its manure or litter in a permanent covered containment structure that prevents wind dispersal and precipitation from contacting the manure or litter; (3) has sufficient containment to hold all process wastewater and contaminated storm water and (4) does not land apply CAFO manure or litter because, for example, the CAFO sends all its manure or litter to a regulated, offsite fertilizer plant or composting facility. In particular, EPA believes that land application of its manure and wastewater would, in most cases, be enough by itself to indicate that a CAFO does have a potential to discharge (although conceivably no potential to discharge could be shown based on the physical features of the site, such as lack of proximity to waters of the United States). This discussion should help to address commenters concerns that there could be inconsistencies in how permitting authorities could interpret and apply the standard for "no potential to discharge".

The term "no potential to discharge" means that there is no potential for any CAFO manure, litter, or wastewater to be added to waters of the United States from an operation's production or land application areas, without qualification. If a Large CAFO chooses to make a demonstration of no potential to discharge, it is the CAFO's responsibility to provide appropriate supporting information that the permitting authority can use when reviewing the demonstration. The supporting information should include, for example, a detailed description of the types of containment used for manure focusing on the attributes of the containment that ensure no discharges

will occur. In addition, there may be instances where after preliminary review of the demonstration, the permitting authority may require the submission of supplemental information to assist in making a determination.

EPA disagrees with commenters' statements that the demonstration of "no potential to discharge" will place an impossible or excessively costly burden on facilities. EPA believes that, in many instances, the information that is specified in 40 CFR 122.23(f)(2) will be adequate for the Director to determine whether or not the facility has a potential to discharge. In such instances, there would be no greater cost to the facility than if it were to apply for a permit. If additional information is necessary, the Agency does not believe that it will result in greatly increased costs, because such information (including, for example, design specifications or other technical information) would be readily available to the facility and could be easily provided to the permitting authority.

Today's rule requires that a request for a no potential to discharge determination include most of the information required for a permit application, as specified in § 122.21(f) and (i)(1)(i) through (ix). This information will serve as the primary source of information relating to the facility's qualifications to avoid an NPDES permit. While some additional information may be available to the Director, including for example regional rainfall, soil, and hydrological conditions, the Director may require supplemental, site-specific information to make this determination. However, EPA is not requiring a CAFO owner or operator pursuing a no potential to discharge determination to certify to the development of its nutrient management plan, as required by § 122.21(i)(1)(x) for a CAFO that seeks permit coverage after December 31, 2006.

Within 90 days of receiving a request for a no potential to discharge

determination the permitting authority will notify the CAFO of its decision on the request. 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 final rule differs from the proposal in not imposing a duty to apply on CAFOs that have submitted a no potential to discharge request until there is a denial of the request by the Director. EPA believes that this is a preferable approach, because it does not risk the imposition of NPDES permit requirements on CAFOs even though they may qualify for a determination that they have no potential to discharge. To guard against abuse of this provision, the Agency is establishing a limited time of 90 days for the Director to make its determination.

If the permitting authority finds that no potential to discharge has not been demonstrated, the CAFO owner or operator must seek permit coverage within 30 days of the denial of the request. States may use the information submitted with the request for a no potential to discharge determination to proceed with individual permit development or for coverage under a general permit. However, in order to obtain coverage, the CAFO owner or operator would also be required to provide a request for coverage and include the information required by § 122.21(i)(1)(x), when applicable.

After all necessary information is submitted, and before making a final decision to grant a "no potential to discharge" determination, today's rule requires the Director to issue a public notice stating that a no potential to discharge request has been received. This notice must be accompanied by a fact sheet which includes, when applicable: (1) A brief description of the 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 Director must base the decision to grant a no potential to discharge determination 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. If the Director's final decision is to deny the "no potential to discharge" determination, the CAFO owner or operator must submit a permit application within 30 days after denial of the no potential to discharge determination.

The Agency believes that the process described above addresses concerns raised by commenters that States might abuse the intended effect of this provision and allow facilities that should be permitted as CAFOs to avoid permitting. The Agency believes this process should ensure that the Director has adequate information to properly decide whether a facility has a potential to discharge or not, and also ensures that the public will be made aware of such determinations and can act appropriately if it appears that determinations are not being made as required by this provision. Also, as noted above, facilities that actually do discharge without a permit are subject to enforcement for a violation of the Clean Water Act—even if they have previously received a no potential to discharge determination. This should provide a strong incentive to CAFOs not to file a frivolous request.

3. When Must CAFOs Seek Coverage Under a NPDES Permit?

Table 4.2 summarizes the time frames by which CAFOs (existing and new sources) must apply for an NPDES permit. Refer to section IV.A.11 of this preamble for a discussion of the new source definition.

TABLE 4.2.—TIME FOR SEEKING COVERAGE UNDER AN NPDES PERMIT

CAFO status	Time frame to seek coverage under an NPDES permit	Examples
Operations defined as CAFOs prior to April 14, 2003.	Must have applied by the date required in 40 CFR 122.21(c).	Operations that previously met the definition of a CAFO and were not entitled to the 25-year, 24-hour storm permit exemption.
Operations defined as CAFOs as of April 14, 2003, and that were not defined as CAFOs prior to that date (e.g. existing operations that become defined as a CAFO as a result of changes in this rule).	As specified by the permitting authority, but no later than April 13, 2006.	For example, "dry" chicken operations (operations that did not use a liquid manure handling or continuous overflow watering system), stand-alone immature swine, heifer and calf operations, and those AFOs that were entitled to the permitting exemption for discharging only in the event of a 25-year, 24-hour storm.

TABLE 4.2.—TIME FOR SEEKING COVERAGE UNDER AN NPDES PERMIT—Continued

CAFO status	Time frame to seek coverage under an NPDES permit	Examples
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 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 14, 2003, the operation must apply no later than April 13, 2006 or 90 days after becoming defined as a CAFO, whichever is later.	For example, an AFO that increases the number of animals in confinement to a level that would result in the operation becoming defined as a CAFO.
New sources	180 days prior to the time the CAFO commences operation.	For example, a new Large CAFO that commences construction after April 14, 2003.
Designated CAFOs	90 days after receiving notice of designation.	

What did EPA propose? The Agency proposed to delay the effective date of the revised definition of a CAFO until three years from the date of publication of the final rule, and thereby delay the date by which permits would be required for newly defined CAFOs until three years after the date of the final rule. During that three-year interim period, the Agency proposed that the existing CAFO definition would remain in effect. For example, prior to the effective date of the revised CAFO definition, the revised new source and new discharger provisions would apply only to those facilities meeting the definition of a CAFO under the existing regulatory definition. For designated CAFOs, EPA proposed that the CAFO must apply for a permit within 90 days of being designated.

What were the key comments? Some commenters felt that extending the time for compliance allowed too much time for implementation of the new regulations, and would only result in further delays in addressing the problems associated with discharges from CAFOs. Other commenters took the view that three years is too little time for States or industry to meet the new requirements, from either a technical or economic standpoint. Most of those who commented on this issue sought clarity in setting the effective dates for the regulations.

Rationale. In today's rule, EPA is establishing time frames for seeking coverage under a permit that are appropriate to the various categories of CAFOs, depending upon their status with respect to the effective date of the rule.

For the reasons discussed in Section IX of the preamble to the proposed rule, the Agency does not believe that it would be reasonable to require permit

coverage for all CAFOs immediately on the effective date of this rule. Following issuance of today's rule, 40 CFR 123.62 provides authorized States with time to revise their State NPDES programs (one year or two years if statutory changes are needed). Further, most States will need approximately an additional year to develop a general permit, publish a draft of the general permit for public comment, and issue a final general permit for the many CAFOs that EPA expects to be covered under a general permit. EPA believes that a three-year time frame for newly defined CAFOs to obtain permit coverage is reasonable and justified based on the requirements of 40 CFR 123.62, together with the need to develop and issue general permits, and for the reasons stated below.

Today's rule is likely to result in fewer facilities being defined as CAFOs than anticipated at the time of proposal. Because States will not need to address concerns associated with identifying, permitting, and ensuring compliance by the large number of medium-size facilities anticipated as potential CAFOs at the time of proposal, EPA does not believe that concerns that States would need more than three years to meet the new requirements are justified.

The Agency is, however, changing its approach to achieve the proposed time frame for requiring CAFOs to seek coverage under a permit. Rather than delaying the effective date for the definition of a CAFO, as was proposed, EPA is simply establishing a three-year time frame for when newly defined CAFOs must seek coverage under a permit.

Today's approach is consistent with Congressional intent in the 1972 Clean Water Act. Today's rule marks the first time in many years, except in the case

of storm water sources, that the Agency is revising the scope of the term point source to include additional facilities under the definition. In the 1972 Clean Water Act, Congress provided more than two years for point sources to obtain coverage under a permit (§ 402(k)). Similarly, in this instance, EPA believes that Congress would have intended for the Agency to provide additional time for these newly covered sources to obtain permit coverage. This additional time is necessary for States to revise their regulations and to develop and issue permits, and it provides facilities some time to take the necessary steps to comply with these new requirements.

Moreover, EPA believes that there will be other advantages as a result of the approach taken in today's rule. The first is to avoid the confusion that would be associated with having different and conflicting definitions of a CAFO present simultaneously in the Code of Federal Regulations, which would be the case if EPA were to promulgate a revised definition of CAFO but delay the effective date of the definition for three years. The second is to encourage States to issue new permits and cover newly defined CAFOs as soon as possible within the time period specified. CAFOs are encouraged to seek coverage under a permit once general permits addressing those facilities are available. A third reason is that this approach is consistent with EPA's approach when the Agency promulgated the storm water phase II regulations, although those regulations were based on a somewhat different statutory foundation.

For all of the reasons stated above, the Agency is exercising its discretion to define these newly regulated facilities as point sources, while delaying their duty

to apply for a permit until three years from the effective date of today's rule.

Today's rule does not extend the date by which operations that were defined as CAFOs under the prior regulations should have applied for a permit (see 40 CFR 122.21). In particular, EPA notes that those operations that previously met the criteria for being a CAFO, but who erroneously claimed the 25-year, 24-hour storm exemption and avoided applying for an NPDES permit on that basis, continue to be in violation of the regulations and need to immediately apply for NPDES permit coverage. Today's rule also does not extend the date by which operations that have previously been designated as a CAFO should have applied for an NPDES permit.

The third category described in Table 4.2 pertains to a category of permittees who become CAFOs subsequent to the effective date of today's rule, but who are not defined as "new sources" in accordance with the new source criteria. For example, a newly constructed Medium CAFO falls in this category, since it is not subject to the new source performance standards in Part 412. Newly constructed CAFOs in this category must seek coverage under an NPDES permit 180 days prior to the time the CAFO commences operation. This requirement is designed to parallel the time for permit application for new sources. Other operations that become CAFOs after the effective date of today's rule, including, for example, operations that increase the number of animals in confinement to a level that would result in the operation being defined as a CAFO, but that are not new sources, are required to seek permit coverage as soon as possible but no later than 90 days after being defined as a CAFO. EPA is establishing this date by which such new dischargers must seek coverage under an NPDES permit in consideration of the unique nature of AFO operations. In other industries, a facility would typically require significant capital improvements to become a newly discharging point source. AFOs, on the other hand, may become a new discharger merely by increasing the number of animals housed in confinement at the facility. Moreover, the increase necessary to meet the threshold numbers necessary to be defined as a CAFO could be relatively small. Such an increase could be necessary in response to fast-changing market conditions, in which case it would be an undue burden on the AFO to encounter a delay of 180 days before being able to operate as a CAFO. Inasmuch as CAFOs are not continuous dischargers, the Agency

believes that it is reasonable and sufficient for a CAFO that is a new discharger (other than those that are newly constructed operations) to seek coverage within 90 days after becoming defined as a CAFO.

EPA is establishing an additional permit application deadline in this category of three years where the change that causes the operation to be defined as a CAFO would not have caused it to be defined as a CAFO if the change had occurred prior to the effective date of today's rule. This would include, for example, a dry poultry operation that, sometime after the effective date of today's rule, adds animals and exceeds the threshold for becoming defined as a CAFO. The Agency is establishing this permit application deadline since it is appropriate to treat such facilities on an equal footing to dry poultry operations that become defined as CAFOs as of the effective date of today's rule and who therefore have three years to apply for a permit. It would have been inequitable to have allowed a dry poultry operation that exists at the time this rule becomes effective to have three years to apply but to require a dry poultry operation that becomes a CAFO because it adds a small number of animals shortly after this rule becomes effective to apply within 90 days.

4. What Are the Different Types of Permits?

Today's final rule allows the permitting authority to determine the most appropriate type of permit coverage for a CAFO. Under the NPDES regulations, the two basic types of NPDES permits that can be used are individual permits and general permits. Refer to section V.E. of this preamble for further discussion about the different types of permits.

What did EPA propose? The proposed rule would have required States to conduct a public process for determining which criteria, if any, would require a CAFO owner or operator to apply for an individual rather than a general permit. The proposed rule also would have added a set of CAFO-specific criteria for when the Director may require an individual permit: (1) CAFOs located in an environmentally or ecologically sensitive area; (2) CAFOs with a history of operational or compliance problems; (3) CAFOs that are exceptionally large operations as determined by the permitting authority; and (4) significantly expanding CAFOs. EPA noted in the preamble to the rule as well that it had considered identifying a specific size threshold for individual permits, such as 5,000AU or 10,000AU,

and solicited comment and information relating to such a threshold.

What were the key comments?

Comments from industry and State agencies by and large were both against setting criteria for individual permits and against establishing a public process for developing such criteria. States in particular felt that existing NPDES regulations already adequately defined the process for developing individual and general permits, and strongly advocated against being told at the federal level what criteria to use in issuing permits. Environmental groups commented that they wanted strict federal criteria for individual permits out of concerns regarding the need for federal oversight over large operations and because of their keen interest in the public involvement afforded by individual permits. Many of these commenters stated that all Large CAFOs (*i.e.*, all with what was formerly termed 1,000 AU) should be required to have an individual permit.

Rationale. EPA elected not to set conditions for determining which CAFOs must have individual rather than general permits or to require the States to establish such conditions. The Agency determined that selecting a set of specific thresholds fundamentally fails to recognize the diversity of feeding operations in States across the nation. What may be a "large" facility in one State is often not viewed as such in another. This view was confirmed by the Agency's findings on this issue that although many States set criteria for who must have individual rather than general permits, these conditions vary greatly from State to State and are generally dominated by regional environmental concerns.

5. How Does a CAFO Apply for a Permit?

CAFO owners or operators must submit an application for an individual permit or submit a NOI (or the State's comparable form) for coverage under an applicable general permit. If a general permit is not available, the CAFO does not meet the eligibility requirements for coverage under the general permit, or the CAFO would otherwise prefer to be covered by an individual permit, the CAFO owner or operator must submit to the permitting authority an application (EPA's Form 2B for CAFOs and Aquatic Animal Production Facilities or the State's comparable form) for an individual permit. Today's final rule does not make any changes in how a CAFO applies for a permit.

6. What Are the Minimum Required Elements of an NOI or Application for an Individual Permit?

Today's final rule revises the information requirements for seeking coverage under an NPDES permit for CAFOs. Today's rule revises the NPDES individual permit application for CAFOs (Form 2B for CAFOs and Aquatic Animal Production Facilities), and specifies the information required in an NOI form for coverage under a CAFO general. EPA is requiring applicants for coverage under either individual or general CAFO permits to provide the same information:

(i) The name of the owner or operator;
(ii) The facility location and mailing addresses;
(iii) Latitude and longitude of the production area (entrance to production area);

(iv) 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 paragraph (f)(7) of § 122.21;

(v) Specific information about the number and type of animals, whether in open confinement and 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);

(vi) 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);

(vii) The total number of acres under control of the applicant available for land application of manure, litter, or process wastewater;

(viii) Estimated amount of manure, litter, and process wastewater generated per year (tons/gallons);

(ix) Estimated amount of manure, litter, and of process wastewater transferred to other persons per year (tons/gallons); and

(x) 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 Form 2B application containing all of the amendments to the application is included as an appendix to this preamble. The required data elements of the NOI are the same as the minimum data elements in the revised

Form 2B. Where EPA is the permitting authority, it is EPA's intent to use the National NOI Processing Center to process NOIs.

What did EPA propose? EPA proposed to require applicants for individual permits to submit the following information in addition to the information required at 40 CFR 122.21(f) and 122.21(i):

- Acreage available for agricultural use of manure and wastewater;
- Estimated amount of manure and wastewater to be transferred off-site;
- Name and address of any person or entity that owns animals to be raised at the facility; directs the activity of persons working at the CAFO; specifies how the animals are grown, fed, or medicated, or otherwise exercises control over the operations of the facility; (in other words, that may exercise substantial operational control);
- If a new source, a copy of the draft Permit Nutrient Plan (PNP);
- Information about whether buffers, setbacks, or conservation tillage is being used to protect water quality; and
- A topographic map (required by Form 1) that identifies the latitude and longitude of the production area and the depth to ground water that may be hydrologically connected to surface water, if any.

EPA proposed that similar information be provided in a revised NOI for coverage under an NPDES CAFO general permit.

What were the key comments? Most of the comments received on this issue were from the States. Several citizens and associations also submitted comments. Several commenters wanted EPA to delete the requirement that the permittee submit the Permit Nutrient Plan with the permit application. Some States would also like to continue to use their forms and not the revised Form 2B. Some commenters argued that the proposed requirements set an undesirable precedent that is both unnecessary, (because NOI requirements are normally specified in the relevant general permit) and that could negatively affect other industries and reduce the flexibility of State permitting authorities.

The SBAR Panel did not specifically comment on the content of the changes to Form 2B and the NOI, but the Panel noted the substantial number of small entities in the medium range and recommended that EPA carefully consider the burden of any additional certification or application requirements. The Panel further noted that EPA had not ruled out the option of requiring a full permit application from all operations in the medium

range. The Panel was concerned that such an approach may impose a significant burden with limited environmental benefits and therefore recommended that EPA carefully consider appropriate streamlining options before considering a more burdensome approach. Finally, the Panel recommended that before adding any new application or certification requirements for operators in the medium range, EPA should carefully weigh the burden and environmental benefits of expanding the scope of the regulations in this way.

Rationale. To clarify the subsequent discussion, it is important to point out that EPA is not adopting the term "Permit Nutrient Plan" in this final rule. The Agency is referring to the nutrient management planning requirements of today's rule simply as the nutrient management plan. EPA is not requiring the nutrient management plan to be submitted as part of the permit application for existing sources or new dischargers. Instead, the permitting authority may establish within the permit what information relative to the nutrient management plan must be submitted. At a minimum, nutrient management plans must be maintained on-site and be available upon request by EPA or the State permitting authority. Regarding the changes to the individual permit application form and the NOI for coverage under a general permit, EPA believes that the minimum data elements adopted in today's rule will provide permitting authorities with the essential information needed to evaluate permit applications properly and will ensure national consistency of information received by permit authorities. To the extent that a permitting authority needs additional information to support a permit application, it can use other Clean Water Act information gathering authorities (e.g., section 308 of the Clean Water Act) to obtain such information. The new data elements correspond with the new rule requirements, including land application information.

In today's final rule, the Agency has revised the topographic map requirements for a permit application for CAFOs, by specifying that the CAFO must provide a topographic map of the geographic area in which the CAFO is located showing the specific location of the production area. In today's final rule, the Agency is consolidating all of the information to be submitted as part of a CAFO's request to seek coverage under an NPDES permit in 40 CFR 122.21(i). This information must be submitted by a CAFO, whether the CAFO is seeking coverage under an

individual permit or a general permit. In establishing the topographic map requirement of § 122.21(i)(iv), the Agency is requiring the descriptive information necessary for permitting a CAFO, and not including all of the elements specified in 40 CFR 122.21(f)(7), which generally do not apply to a CAFO's operations.

In the future, EPA plans to allow the electronic submission of all NPDES permit applications such as Forms 1, 2B, and Notices of Intent for general permits (including attachments such as maps and diagrams). EPA has proposed a separate rule dealing with electronic reporting and recordkeeping (66 FR 46161; August 31, 2001) and is currently working to address comments and resolve technical and legal issues. None of the information collection requirements being promulgated in today's rulemaking are intended to limit or conflict with the future use of electronic reporting or recordkeeping.

C. What Are the Requirements and Conditions in an NPDES Permit?

All CAFO NPDES permits must contain a number of requirements and conditions, including effluent limitations, special conditions, standard conditions, and monitoring and reporting requirements. The December 1996 *U.S. EPA NPDES Permit Writers Manual*, 40 CFR 122.41, and 40 CFR 122.42 provide a detailed discussion of all aspects of an NPDES permit. This section focuses primarily on the major elements of a CAFO NPDES permit that are affected by today's rule. Specifically, this section describes the effluent limitations, special conditions applicable to CAFOs, standard conditions included in all NPDES permits, and monitoring and reporting requirements.

1. What Are the Different Types of Effluent Limitations That May Be in a CAFO Permit?

When developing effluent limitations for a CAFO NPDES permit, the permitting authority must consider limits based on applicable technology-based requirements or any more stringent requirements necessary to protect water quality. 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. In cases where a technology-based permit limit is not sufficiently stringent to meet water quality standards, the permit must include appropriate water quality-based standards. For example, a technology-based standard for a CAFO might allow overflows from storage lagoons under

certain circumstances. In some cases, the overflows might have to be restricted or further controlled to ensure that water quality standards are met. EPA does not expect that water quality-based effluent limitations will be established for CAFO discharges resulting from the land application of manure, litter, or process wastewater. As explained in Section IV.A.6 above, if a CAFO complies with the technical standards for nutrient management established by the Director, any remaining discharges of manure or process wastewater from the land application area are considered agricultural storm water. However, EPA encourages States to address water quality protection issues in their technical standards for determining appropriate land application practices. Today's rule does not change any aspects of water quality-based effluent limitations in the NPDES regulations.

There are two general approaches to developing technology-based limitations: (1) Using national effluent limitations guidelines (ELGs) and (2) using BPJ on a case-by-case basis (in the absence of ELGs). Today's rule revises the ELGs for Large CAFOs. Small and Medium CAFOs are not subject to the ELGs; therefore, the permitting authority will rely on BPJ to establish technology requirements for Small and Medium CAFOs. Revisions to the ELGs are discussed in detail below.

2. Effluent Limitations Guidelines for Large CAFOs

The effluent limitations section in NPDES permits is the primary mechanism for controlling discharges of pollutants to waters of the U.S. This section of the permit describes the specific limitations, in either a narrative or numeric form, that apply to the permittee. The permit contains either technology-based effluent limits (those based on a determination of the degree of pollutant reduction that can be achieved by applying pollution control technologies or practices) or water quality-based effluent limits (those based on the condition of the receiving water body) or both, and it may contain additional BMPs, as needed. This section discusses the ELGs established for Large CAFOs.

Today's final rule establishes new ELGs for Part 412, Subpart C, which applies to beef cattle, dairy cattle, and heifers; and Part 412, Subpart D, which applies to veal calves, swine, and poultry (chickens and turkeys). Today's rule also revises the applicability of Part 412, Subpart A to cover only horses and sheep.

Requirements for Large CAFOs are being established under the authority of Best Practicable Control Technology Currently Available (BPT), Best Available Technology Economically Achievable (BAT), Best Conventional Pollutant Control Technology (BCT), and NSPS, consistent with the factors for consideration under the Clean Water Act, as discussed in Sections II.A.2 and IV.C.2.f of this preamble.

a. To which CAFOs do the effluent guidelines apply? In today's final rule, EPA is revising the 1974 ELGs for beef cattle, dairy cattle, veal calves, swine, and poultry. Consistent with the 1974 ELG regulation, EPA is continuing to apply technology-based ELGs only to those operations which are defined as Large CAFOs at 40 CFR 122.23. In the case of Medium or Small CAFOs, or CAFOs not otherwise subject to Part 412, effluent limitations will be established on a case-by-case basis by the permitting authority using BPJ.

This final rule removes language referring to the type of manure handling or watering system employed at laying hen and broiler operations; as a result, it expands the scope of the rule to also address chicken operations with dry litter management systems. The term "dry" does not mean that no wastewaters are associated with these types of operations. For example, poultry waste includes manure, poultry mortalities, litter, spilled water, waste feed, water associated with cleaning houses, runoff from litter stockpiles, and runoff from land where manure has been applied. Today's rule adds explicit references to veal operations and includes requirements for Large veal CAFOs under Part 412, Subpart D. (Veal calves were included in the 1974 ELGs as part of "slaughters steers and heifers.") Today's rule further expands the applicability of the effluent guidelines to cover Large heifer CAFOs and operations that confine immature swine (*i.e.*, swine weighing less than 55 pounds).

What did EPA propose? In the proposed rule, EPA applied the technology-based ELGs to all Large CAFOs (the 1974 ELGs apply to only Large CAFOs) and proposed to expand the scope of the rule to apply to Medium CAFOs as well. Small CAFOs were excluded from the applicability of the ELGs in the proposed rule, and the limits included in their permits were to be based on BPJ. EPA also proposed to expand the scope of the rule to include heifer operations, immature swine operations (*e.g.*, swine nurseries), and chicken operations with dry litter management systems.

What were the key comments? EPA received a variety of comments regarding the size of operation to which the ELGs should apply. A number of comments favored retaining the framework of the 1974 ELGs, limiting the applicability of the ELGs to Large CAFOs and relying on the use of BPJ for Small and Medium CAFOs. Some commenters favored allowing even broader use of BPJ, with the permitting authority establishing BPJ-based permit limits for all CAFOs, regardless of size. Conversely, other commenters suggested applying the ELG requirements to all CAFOs, including Small and Medium CAFOs. In general, commenters expressing support for applying ELG requirements to Small and Medium CAFOs believe that basing permit requirements on BPJ will lead to a lack of uniformity in permit development. They believe the permit writers should not have an inappropriate amount of flexibility and there should be consistent effluent limitations for all CAFOs.

The SBAR Panel provided comments to EPA on this topic during the development of the proposed rule, suggesting that EPA consider less stringent ELGs for Medium CAFOs or allow permits for Medium CAFOs to be developed based on BPJ. The SBAR Panel stated that providing a mechanism for permitting authorities to establish less stringent guidelines for smaller facilities, based on consideration of economic achievability, could result in permit conditions that are more appropriately tailored to smaller operations and reduce the overall financial burden on the industry.

Rationale. The ELGs being promulgated in today's rule apply only to Large CAFOs, which is consistent with the approach used for the 1974 ELG regulation. EPA is not extending the ELG requirements being codified at 40 CFR Part 412 to Small or Medium CAFOs because setting the permit limitations for these facilities using BPJ allows for the establishment of permit conditions that are more appropriately tailored to and more directly address the site-specific conditions that led to the facility being defined or designated as a CAFO. This approach is consistent with the manner in which permit requirements for Small and Medium CAFOs have been established prior to today's rule.

The ELGs promulgated in today's rule mimic the fundamental structure embodied in the NPDES provisions. The NPDES provisions at Part 122 establish a threshold (in terms of numbers of animals) above which every AFO is defined as a CAFO (specifically, these

are defined as Large CAFOs). Similarly, EPA has determined that, because of the nature of these Large CAFOs and the potential risk discharges from these operations pose to the environment, the ELGs promulgated today should apply to Large CAFOs. However, for the reasons discussed below and consistent with the approach used in establishing the 1974 ELGs, EPA is not establishing ELGs for Small or Medium CAFOs. EPA's analyses, based on USDA data, show that small and medium AFOs are more likely than Large CAFOs to have a sufficient land base for utilizing manure nutrients at rates consistent with appropriate agricultural utilization of nutrients. Small and medium AFOs are defined or designated as CAFOs only when certain conditions that pose an environmental risk are present at the operation. Since these smaller operations become CAFOs only if certain conditions are present, and the highly site-specific conditions that trigger any particular operation being defined or designated as a Small or Medium CAFO will vary from facility to facility, discharges from Small and Medium CAFOs are more appropriately controlled through NPDES permit limitations on a BPJ basis. EPA expects that, by tailoring the permit requirements for Small and Medium CAFOs on a BPJ basis, these smaller facilities will be able to better and more efficiently target their more limited resources to reducing their environmental impacts. This increased flexibility for setting the permit requirements for Small and Medium CAFOs will reduce the overall financial burden on the industry. Consistent with the Unified National AFO Strategy, EPA is focusing today's ELGs on those larger operations that present the greatest potential risk to water quality.

EPA is extending the applicability of the ELGs to heifer operations and operations that confine immature swine (*i.e.*, swine weighing less than 55 pounds). Increasingly, swine operations may specialize in a production phase, such as a nursery that confines swine under 55 pounds. In the dairy sector, some operators prefer to obtain their dairy cattle from heifer-raising operations. These heifer operations specialize in raising immature dairy cattle until the cattle are ready for their first calving. These operations for immature animals are increasing in both size and number, and they operate similarly to other CAFOs. Therefore, EPA is today including immature swine under Subpart D (swine/poultry/veal) and heifer operations under Subpart C (beef/dairy/heifer) of the ELGs.

In addition, EPA is expanding the scope of the ELGs to address chicken operations with dry litter management systems to better address water quality impacts associated with both storage and land application of manure, litter, and process wastewaters. EPA believes that improper storage, as well as improper land application rates that exceed the appropriate agricultural utilization of nutrients, has contributed to water quality problems, especially in areas with large concentrations of poultry production. Nutrients from large poultry operations continue to contaminate surface waters because of rainfall coming in contact with dry manure that is stacked in exposed areas, accidental spills, etc. In addition, land application remains the primary management method for significant quantities of poultry litter (including manure generated from facilities using dry systems). Most poultry operations are located on smaller parcels of land in comparison to other livestock sectors, placing increased importance on the proper management of the potentially large amounts of manure, litter, and process wastewaters that they generate.

In the 1974 ELG regulations, EPA established requirements in a manner that placed CAFOs into one of two groups, or subcategories, based on the type of animals at the operation: One subcategory established requirements for ducks only; the second subcategory established identical ELG requirements for CAFOs with horses, sheep, slaughter steers and heifers (including veal calves), dairy cattle, chickens, turkeys, and swine.

Today's rule establishes ELGs based on segregating the animal sectors into four different subcategories. The ELG regulations at Part 412, Subpart A now apply only to Large CAFOs with horses and sheep, but the ELG requirements for these operations remain unchanged by today's rule. Part 412, Subpart B continues to apply only to CAFOs with at least 5,000 ducks and these requirements also remain unchanged by today's rule. Today's rule segregates the remaining animal types covered by the ELGs into two additional subcategories. Part 412, Subpart C applies to Large CAFOs with dairy or beef cattle other than veal (heifer operations are covered by this subpart), and Part 412, Subpart D applies to Large CAFOs with swine, veal, or poultry. EPA developed these subcategories to better reflect similarities in production and waste management practices among the operations grouped together.

The operations in Subpart C predominantly use production and waste management practices that differ

substantially from those practices used at operations in Subpart D. Large swine, poultry, and veal calf operations predominantly maintain their animals in confinement housing as opposed to the open outdoor lots used at the vast majority of large beef feedlots, heifer operations, and dairies (while dairy cattle at many dairies spend much of their time indoors either in the milking parlor or in barns, most dairy cattle also have access to outdoor areas similar in many respects to the outdoor areas at beef feedlots). The open outdoor lots present at beef feedlots expose large areas to precipitation, necessitating the ability to collect storm water runoff in retention ponds. Heifer operations (other than those that are pasture-based) are configured and operated in a manner very similar to beef feedlots, and thus have very similar waste management practices. Dairies also frequently keep animals in open areas for some period of time, whether it is simply the pathway from the barn to the milk house or an open exercise lot. Storm water runoff from these open areas must be collected in addition to any storm water that contacts food or silage. As is the case for beef feedlots and heifer operations, the runoff volume from the exposed areas is a function of the size of the area where the cattle are maintained, and the amount of precipitation.

Because swine, poultry, and veal calves are predominantly maintained in confinement housing, the waste management practices at Large CAFOs covered by Subpart D differ substantially from the practices at Subpart C operations. These confinement operations are able to manage manure largely in a relatively dry form, or contain liquid wastes in storage structures such as lagoons, tanks, or underhouse pits. Broiler and turkey operations generate a dry manure which can be kept covered either under a shed or with tarps. Laying hen operations with dry manure handling practices usually store manure below the birds' cages and inside the confinement building. Nearly all swine, veal, and poultry operations confine their animals under roof, avoiding the use of open animal confinement areas that generate large volumes of contaminated storm water runoff. These Subpart D operations differ most notably from Subpart C operations in that they, in most cases, do not have to manage the large volumes of storm water runoff that must be collected at Subpart C operations. While Subpart D operations that manage wastes in uncovered lagoons must be able to

accommodate precipitation, they are largely able to divert uncontaminated storm water away from the lagoons and minimize the volume of wastes they must manage.

The statutory factors considered as a basis for subcategorization are discussed in Section IV.C.2.f of the preamble and in the *Technical Development Document*.

b. What are the land application effluent guidelines for all Large CAFOs covered by Subparts C and D (beef, dairy, heifer, swine, poultry, and veal)?

The ELGs described in this section apply to all Large CAFOs covered by Part 412, Subpart C (beef, dairy, and heifer) and Subpart D (swine, poultry, and veal). These BPT, BCT, BAT, and NSPS requirements are being established for the reasons discussed below in this section, and consistent with the factors for consideration under the Clean Water Act, as discussed in Sections II.A.2 and IV.C.2.f of this preamble.

Today's final rule establishes requirements to ensure the proper application of manure, litter, and other process wastes and wastewaters to land under the control of Large CAFOs. The ELGs established by this rule require Large CAFOs to prepare and implement a site-specific nutrient management plan (described in detail in Section IV.C.3), for manure, litter, and other process wastewater applied to land under their ownership or operational control. In addition to preparing the site-specific nutrient management plan, and the recordkeeping and reporting requirements described in Section IV.D, Large CAFOs need to conduct the following land application BMPs and can use other BMPs that assist in complying with the ELGs:

- Land-apply manure, litter, and other process wastewaters in accordance with a nutrient management plan that establishes application rates for each field based on the technical standards for nutrient management established by the Director.
- Collect and analyze manure, litter, and other process wastewaters annually for nutrient content, including nitrogen and phosphorus.
- At least once every five years, collect and analyze representative soil samples for phosphorus content from all fields where manure, litter, and other process wastewaters are applied.
- Maintain a setback area within 100 feet of any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters where manure, litter, and other process wastewaters are not applied. As a

compliance alternative, the CAFO may elect to establish a 35-foot vegetated buffer where manure, litter, or other process wastewaters are not applied. For further flexibility the CAFO may demonstrate to the permitting authority that a setback or vegetated buffer is unnecessary or may be reduced.

- Periodically conduct leak inspections of equipment used for land application of manure, litter, or process wastewater.

- Maintain on-site the records specified in 40 CFR 412.37(c). These records must be made available to the permitting authority and the Regional Administrator, or his or her designee, for review upon request. Records must be maintained for 5 years from the date they are created.

Today's rule requires Large CAFOs to determine and implement site-specific nutrient application rates that are consistent with the technical standards for nutrient management established by the permitting authority. Permitting authorities have discretion in setting technical standards that minimize phosphorus and nitrogen transport to surface water. 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 permitting authority may use the USDA Natural Resource Conservation Service (NRCS) Nutrient Management Conservation Practice Standard, Code 590, or other appropriate technical standards, as guidance for development of the applicable technical standard. The current NRCS Nutrient Management technical standard describes three field-specific risk assessment methods to determine whether the land application rate is to be based on nitrogen or phosphorus, or whether land application is to be avoided. These three methods are: (1) Phosphorus Index; (2) Soil Phosphorus Threshold Level; and (3) Soil Test Phosphorus Level. The permitting authority has the discretion to determine which of these three methods, or other State-approved alternative method, is to be used.

The field-specific risk assessment provides CAFOs with the information needed to determine if manure nutrients should be applied at a nitrogen or phosphorus application rate, or if no manure application is appropriate. In today's rule, EPA clarifies that 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 surface waters. This may reduce the field-specific risk rating to a level consistent with manure application at a nitrogen rate in accordance with the technical standard established by the Director.

When establishing technical standards for nutrient management, the permitting authority also shall 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 surface water, implementation of phosphorus-based nutrient management phased-in over time, and other components as determined appropriate by the Director.

EPA recognizes that, under some conditions, CAFOs may experience practical difficulties in applying manure nutrients to fields at a low phosphorus rate. Application equipment at some CAFOs may be unable to deliver the small phosphorus amount needed by crops in a single year. Thus, EPA is clarifying in this rule that CAFOs may elect to use a multi-year phosphorus application rate in accordance with the technical standards established by the Director. A multi-year approach 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. Crop rotations may vary in length depending on the crops produced, geographic area, and other site-specific conditions. For example, a two-year rotation may be common in some areas, while a three-year rotation may be more common in others. Rotations involving grains or hays, such as alfalfa, may run for five or more years. In other instances, crops are produced in a continuous cycle. Many wastewater spray fields are permanently in hay and grasses. In practice, multi-year phosphorus applications typically would be based on applying manure nutrients at a rate achievable with a CAFOs application equipment, and determining the removal rate in order to calculate the length of time until the next manure nutrient application window. Thus, multi-year applications may provide the phosphorus needed for a few to many years. The field would not receive additional phosphorus applications until the amount applied in the single year had been removed through plant uptake and harvest. However, 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. Nor would application be made on sites determined inappropriate based on a high potential for phosphorus runoff to surface water. The appropriateness of multi-year phosphorus application would be based on a field-specific risk assessment in accordance with the technical standard established by the Director.

What did EPA propose? The proposed rule included ELGs that would have required CAFOs to develop and submit a certified Permit Nutrient Plan, which would be reviewed annually and recertified every five years, and would have limited manure spreading on all land owned or under the operational control of the CAFO to the nitrogen-based rate, unless soil or other field conditions at the CAFO warranted limiting the application rate to the more stringent phosphorus-based rate. EPA also proposed to require a series of land application BMPs, including those listed above in this section of the preamble.

What were the key comments? EPA received a number of comments supporting the type and frequency of manure, litter, process wastewater, and soil sampling. Some commenters were opposed to establishing the proposed phosphorus-based standard in nutrient management plans, while other commenters stated that EPA should establish phosphorus-based standards for all CAFOs. In addition, some commenters were opposed to the inclusion of specific manure, litter, or wastewater application rates in NPDES permits, but supported the development of site-specific rates in a nutrient management plan.

EPA received many comments on the requirement to prohibit land application of manure, litter, and other process wastewaters within a 100-foot setback. Some commenters supported the 100-foot setback; however, the majority of commenters expressed opposition to establishment of a setback, in many cases stating that the setback restriction will unnecessarily reduce the available acreage for manure application and will be costly to implement because of its inflexibility. The commenters also stated that it should be left to States or a nutrient management planner to determine whether a setback or vegetated buffer is warranted, and to determine the size of such areas. The proposed rule considered allowing CAFOs to establish a 35-foot vegetated buffer strip as an alternative to the 100-foot setback. Many commenters were in favor of an approach that offers

flexibility to the CAFO and to the nutrient management planner to incorporate site-specific considerations while utilizing the maximum amount of manure nutrients on site. They suggested that in cases where the operation can demonstrate that manure application will not affect surface water, such as when application occurs down-gradient of the surface water, no setback or buffer should be required.

The SBAR Panel noted the high cost of phosphorus-based application relative to nitrogen-based application and supported EPA's intent to require the use of a phosphorus-based application rates only where determined necessary based on field-specific conditions. According to the SBAR Panel, if the soil is not phosphorus-limited, then nitrogen-based application should be allowed. The SBAR Panel recommended that EPA consider leaving the determination of whether to require the use of phosphorus-based rates to BPJ and that EPA work with USDA in exploring such an approach.

Rationale. The nutrient-based limitations in this rule will reduce the discharge of nitrogen, phosphorus, and other pollutants in field runoff by restricting the amount of manure, litter, and other process wastewaters that may be applied to the amount that is appropriate for agricultural purposes, according to technical standards established by the permitting authority. Application of manure, litter, and other process wastewaters in excess of the crop's nutrient requirements increases the pollutant runoff from fields because the crop does not need these nutrients, increasing the likelihood of their being released to the environment. In many cases, the application of manure at a nitrogen-based rate is consistent with appropriate agricultural utilization of nutrients. Soils are able to retain the amounts of phosphorus that would be applied, or other site-specific conditions (e.g., the types of conditions assessed through the phosphorus index approach) are such that the runoff of phosphorus and other pollutants or the likelihood of the pollutants reaching surface waters are adequately controlled.

However, allowing all manure to be spread at the nitrogen-based application rate may not always ensure appropriate agricultural utilization of nutrients. In areas that have high to very high phosphorus buildup in the soils, allowing continued application at a nitrogen-based rate could allow for continued discharge of phosphorus from the CAFO's cropland and consequently may not adequately control phosphorus discharges from these areas. In addition,

EPA believes that in some instances phosphorus levels in soils are so high, or site-specific conditions (e.g., highly erodible soils) are such that any application of manure, litter, or other process wastewaters would be inconsistent with appropriate agricultural utilization of nutrients and would lead to excessive levels of nutrients and other pollutants in runoff. EPA expects that these factors will be taken into account as State permitting authorities develop appropriate technical standards for the land application of manure by CAFOs.

The trace metals present in animal wastes, when applied to fields at either nitrogen- or phosphorus-based rates, are made available to plants in sufficient quantities that they provide many of the micronutrients necessary for proper plant growth. Excessively high levels of these trace metals, however, can inhibit plant growth. By limiting manure applications to the nitrogen- or phosphorus-based rate, CAFOs will also be limiting the rate at which metals are applied to fields and thus reduce the potential for applying excessive amounts of the trace metals.

Nitrogen-based application rates are generally based on the following factors: (1) The nitrogen requirement of the crop to be grown based on the operation's soil type and crop; and (2) realistic crop yields that reflect the yields obtained for the given field in prior years or, if not available, from yields obtained for the same crop at nearby farms or county records. Once the nitrogen requirement for the crop is established, the manure application rate is generally determined by subtracting any other sources of nitrogen available to the crop from the crop's nitrogen requirement. These other sources of nitrogen can include residual nitrogen in the soil from previous applications of organic nitrogen, nitrogen credits from previous crops of legumes and crop residues, or applications of commercial fertilizer, irrigation water, and biosolids. Application rates are based on the nitrogen content in the manure and should also account for application methods, such as incorporation, and other site-specific practices. Phosphorus-based application rates generally take into account the phosphorus requirements of the crop, as well as the amount of phosphorus that will be removed from the field when the crop is harvested. EPA expects that State standards will generally provide CAFOs the flexibility to determine, separately for each field, whether manure is to be applied at the nitrogen- or the phosphorus-based application rate. Thus, EPA expects that as the ELG

requirements are implemented, some CAFOs will be able to apply manure at the nitrogen-based rate for all of their fields; some CAFOs will be limited to the phosphorus-based rate on all of their fields; and the remaining CAFOs will have some fields that are limited to the phosphorus-based rate and some fields where manure can be applied at the nitrogen-based rate. In making these field-specific determinations, CAFOs must use the method authorized by the permitting authority.

Today's rule specifies that manure, litter, or other process wastewaters are not to be applied within 100 feet of any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters. As a compliance alternative to the 100-foot setback, the CAFO may elect to establish a 35-foot vegetated buffer where application of manure, litter, and other process wastewaters are not applied; or may demonstrate to the permitting authority that a setback or vegetated buffer is unnecessary or may be reduced because implementation of alternative conservation practices or site-specific conditions will provide pollutant reductions equivalent to or better than the reductions that would be achieved by the 100-foot setback.

A setback is an area where manure, litter, or other process wastewaters are not applied, but crops may continue to be grown. The transport of nutrients and other pollutants in manure to surface waters and the rate at which transport occurs is dependent on the land use, geography, topography, climate, amount and method of manure application, and the nature and density of vegetation in the area. The setback achieves pollutant reductions by increasing the distance pollutants from the land application of manure, litter, or other process wastewaters have to travel to reach surface waters. The setback requirements established by this rule will minimize the potential runoff of pathogens, hormones such as estrogen, and metals and reduce the nutrient and sediment runoff.

Because a setback may not be the most cost-effective practice to control runoff in all cases, this rule includes a compliance alternative that allows the CAFO to establish a 35-foot vegetated buffer in lieu of the 100-foot setback. A vegetated buffer is a permanent strip of dense perennial vegetation, where no crops are grown, that slows runoff, increases water infiltration, absorbs nutrients, and traps pollutants bound to sediment. The vegetated buffer is more effective (on a per-foot of width basis) than the setback at reducing pollutant

runoff, therefore the compliance alternative allows the buffer width to be smaller than the setback. Both approaches are expected to achieve comparable pollutant reductions. (EPA decided not to require all fields receiving manure, litter, or other process wastewaters to have a vegetated buffer because that would unnecessarily require CAFOs to take that portion of the cropland out of production.)

The setback requirements included in today's rule contain an additional compliance alternative that allows the CAFO to implement alternative conservation practices that will provide pollutant reductions equivalent to or better than the 100-foot setback. In some cases, the CAFO may be able to demonstrate to the permitting authority that no setback is necessary based on site-specific conditions, such as when the surface water is located up-gradient from the area of manure application.

Manure must be sampled at least once per year and analyzed for its nutrient content, including nitrogen and phosphorus. EPA believes that annual sampling of manure is the minimum frequency to provide the necessary nutrient content on which to establish the appropriate application rate. The nutrient composition of manure varies widely among farms because of differences in animal species and management, and manure storage and handling practices. The only method available for determining the actual nutrient content of manure for a particular operation is laboratory analysis. If the CAFO applies its manure more frequently than once per year, it may choose to sample the manure more frequently. Sampling the manure as close to the time of application as practical provides the CAFO with a better measure of the nitrogen content of the manure. Generally, nitrogen content decreases through volatilization during manure storage when the manure is exposed to air. All CAFOs must collect and analyze soil samples for phosphorus at least once every 5 years from all fields under their control that receive manure. Soil tests are an important tool to determine the crop phosphorus needs and to determine the optimum application rate. Crop rotation cycles vary, and State programs require soil sampling at varying frequencies that in many cases are tied to the soil type. EPA requires soil sampling at least once every 5 years to correspond with the permit cycle for CAFOs, although States may require more frequent sampling. Without manure and soil analyses, CAFOs might apply more commercial fertilizer than is needed or spread too much manure on their fields. Either

practice can result in overfertilization, affecting crop yields and increasing the pollutant runoff from fields.

Records of the application of manure and wastewater must be maintained on site. These records are: (1) The expected crop yields; (2) the date manure, litter, or process wastewater is applied to each field; (3) the weather conditions at the time of application and 24 hours before and after application; (4) test methods used to sample and analyze manure, litter, process wastewater, and soil; (5) results from manure and soil sampling; (6) explanation of the basis for determining manure application rates, as provided in the technical standards established by the Director; (7) the calculations showing the total nitrogen and phosphorus to be applied to each field, including sources other than manure, litter, or process wastewater; (8) total amount of nitrogen and phosphorus actually applied to each field, including documentation of calculations of the total amount applied; (9) the method used to apply the manure, litter, or process wastewater; and (10) dates of manure application equipment inspection. Crop yields and the manure and soil testing data, as well as records on applications conducted in previous years, are used to determine whether to apply manure on a nitrogen or phosphorus basis and the amount of nutrients to be applied. The CAFO and the permitting authority will use the remaining land application records to track the amount of nutrients applied and to ensure that application occurs consistent with the nutrient management plan.

EPA believes the land application rates, the 100-foot setback (or the use of equivalent practices authorized by the compliance alternative), and the other land application BMPs included in this rule will ensure that manure, litter, and other process wastewaters are applied in a manner consistent with appropriate agricultural utilization of the nutrients in manure, litter, and other process wastewaters. Effluent limitations in the form of BMPs are particularly suited to the regulation of CAFOs. For many CAFOs, controlling discharges to surface waters is largely associated with controlling storm water. Storm water discharges can be highly intermittent, are usually characterized by very high flows occurring over relatively short time intervals, and carry a variety of pollutants whose nature and extent vary according to geography and local land use. Water quality impacts, in turn, also depend on a wide range of factors, including the magnitude and duration of rainfall events, the time period between events, soil conditions, the

fraction of land that is impervious to rainfall, other land use activities, and the ratio of storm water discharge to receiving water flow. CAFOs are required to apply their manure, litter, and other process wastewaters to land in accordance with the site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, and other process wastewaters. The manure provides nutrients, organic matter, and micronutrients, which are very beneficial to crop production when applied appropriately. The amount or rate at which manure can be applied that ensures appropriate agricultural utilization of nutrients varies based on site-specific factors at the CAFO. These factors include the crop being grown, the expected crop yield, the soil types and soil concentration of nutrients (nitrogen and phosphorus), and the amount of other nutrient sources to be applied. For these reasons, EPA has determined that relying exclusively on numeric ELGs to control these discharges is infeasible. EPA has determined that the BMPs specified in today's rule represent the minimum elements of an effective BMP program and are necessary to control point source discharges to surface water. In this rule, EPA is promulgating only those BMPs that are appropriate on a nationwide basis, while giving States and permittees the flexibility to determine the appropriate practices at a local level to achieve the effluent limitations. The BMPs included in this rule are necessary to ensure appropriate agricultural utilization of nutrients in manure, litter, and other process wastewater.

EPA rejected establishing national requirements in this rule that would prohibit manure application to frozen, snow-covered, or saturated ground. As envisioned, the prohibition considered (but also rejected) at the time of proposal would have required CAFOs to install sufficient storage capacity to hold manure for the period of time during which the ground is frozen, snow-covered, or saturated. According to EPA's analyses, to meet such a requirement CAFOs in some areas, such as northern States, would need to be able to store manure, litter, and other process wastewaters for up to 270 days, depending on the amount of precipitation and severity of winter. In practice, such a prohibition could result in some facilities needing storage to hold manure and wastes for 12 months to allow for spreading manure at times

that coincide with crop growing periods.

EPA rejected establishing these requirements in the final ELGs because pollutant runoff associated with the application of manure, litter, or other process wastewaters on frozen, snow-covered, or saturated ground is dependent on a number of highly site-specific variables, including climate and topographic variability, distance to surface water, and slope of the land. Such variability makes it difficult to develop a national technology-based standard that is reasonable and does not impose unnecessary cost on CAFO operators. Further, given the site-specific nature of the cropland and runoff characteristics, quantifying the pollutant reduction associated with these requirements is difficult and imposing such requirements through a national regulation could divert resources from other technologies and practices that are more effective. Therefore, EPA believes that requirements limiting the application of manure, litter, or other process wastewaters to frozen, snow-covered, or saturated ground are more appropriately addressed through NPDES permit limits established by the permitting authority. Although EPA has decided not to include requirements limiting the application of manure, litter, or other process wastewaters to frozen, snow-covered, or saturated ground in today's rule, the permitting authority retains the authority and is encouraged to include these types of requirements as technology-based standards using BPJ in NPDES permits as appropriate.

EPA is establishing provisions at 40 CFR 122.42(e) for permitting authorities to include in NPDES permits a requirement for the CAFO to develop and implement a nutrient management plan. Under these provisions, NPDES permits are to include prohibitions, practices, and procedures to achieve compliance with 40 CFR part 412, when applicable, or effluent limitations based on BPJ when 40 CFR part 412 does not apply.

As discussed above in this section and in section IV.C.3, today's rule requires CAFOs to develop and implement a nutrient management plan. For Large CAFOs, this requirement is reflected in the effluent guideline as the BPT/BCT/BAT/NSPS limitations on land application discharges (see 40 CFR 412.4(c)). Other CAFOs are also subject to the requirement to develop and implement a nutrient management plan (see 40 CFR 122.42(e)(1)), although the permitting authority would establish precise elements of the plan, such as manure application rates, on a BPJ basis.

For the reasons detailed below, EPA has concluded that there are certain constraints, including currently insufficient infrastructure capacity, that prevent Large CAFOs (except new sources) from being able to develop and implement the land application BMPs, including the nutrient management plan, by the date they will need to seek permit coverage under the requirements of this rule. Therefore, the ELGs promulgated today require Large CAFOs that are existing sources to implement the land application requirements at 40 CFR 412.3(c) by December 31, 2006 because that is the date when EPA is assured that the required planning is in fact available to the large number of regulated sources and, therefore, becomes BPT/BCT/BAT. (EPA has similarly concluded that Small and Medium CAFOs subject to the NPDES provisions for nutrient management plans also will be unable to develop and implement a nutrient management plan by the date they will need to seek NPDES permit coverage under the requirements of this rule, for reasons of insufficient infrastructure. Therefore, EPA is requiring Small and Medium CAFOs that are existing sources to develop and implement nutrient management plans by December 31, 2006.) For all CAFOs that are new sources (*i.e.*, Large CAFOs constructed after the effective date of this rule), the land application requirements at 40 CFR 412.4(c) apply immediately, as discussed further below.

Nutrient management plans are complex documents and their preparation requires knowledge in a number of areas. To adequately address the requirements established by today's rule, the nutrient management plan should be prepared by individuals (either CAFO owners and operators, or their technical consultants) who are competent in or have an understanding of a number of technical areas, including soil science and soil fertility, nutrient application and management, crop production, soil and manure testing and results interpretation, fertilizer materials and their characteristics, BMPs for the management of nutrients and water, and applicable laws and regulations. Because of this, EPA believes it is reasonable to anticipate that many CAFOs will choose to acquire the services of consultants with the technical expertise to prepare nutrient management plans and make recommendations regarding the implementation of the land application BMPs (*e.g.*, whether to use one of the authorized compliance alternatives in

lieu of the setback requirements; options for reducing the nutrient content of manure, such as treatment or alternative feeding strategies; modifications to cropping strategies and land application practices).

Further, while the provisions of 122.42(e)(1) and 412.4(c)(1) do not specifically require nutrient management plans to be prepared or reviewed by certified experts, EPA recognizes that USDA, and other organizations such as the American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, and a number of land grant universities, recommend that nutrient management plans be prepared by trained and certified specialists. USDA has published technical guidance that calls for the development of CNMPs and details the specific components and considerations that should be addressed during CNMP development. The Unified AFO Strategy, developed jointly by USDA and EPA, defines a national objective for all AFOs to develop CNMPs to ensure appropriate agricultural utilization of nutrients. (The vast majority of these CNMPs will be developed under voluntary programs.) EPA is not requiring CAFOs to use certified experts in preparing the nutrient management plans and is not requiring CAFOs to develop CNMPs, but the regulatory requirements for nutrient management plans are designed to dovetail with USDA standards for CNMPs so that CAFOs can meet EPA's nutrient management plan requirements and USDA's CNMP objectives in a single undertaking. It is therefore reasonable to expect that many CAFOs will opt to have their nutrient management plans prepared by certified specialists, an outcome that EPA encourages.

As discussed in more detail below, EPA interprets Section 301(b)(2) of the CWA to require that, for any effluent guideline promulgated, or any technology-based limitation established on a BPJ basis, after March 31, 1989, a discharger must achieve immediate compliance with the BPT/BCT/BAT effluent limitations upon issuance of the discharger's NPDES permit. With imposition of the nutrient management plan requirement, there may be a large number of CAFOs that are all trying to develop plans at the same time. Yet, there is a limited pool of certified preparers and other technical experts that are available nationwide to develop nutrient management plans and CNMPs. It is reasonable to recognize that Large CAFOs (and Small and Medium CAFOs), along with AFOs, could be competing for the services of the

certified preparers and other technical experts. EPA estimates there are approximately 15,500 CAFOs, including 11,000 Large CAFOs, and 222,000 AFOs. AFOs are not required to prepare CNMPs, but their access to sources of public funds, such as EQIP, may be contingent on their adherence to NRCS technical standards, including preparation of a CNMP. Thus, additional time is needed for development and implementation of the plan.

Another aspect that prevents CAFOs from immediately complying with the land application BMPs is the need for States to ensure that they have established appropriate technical standards that CAFOs will use to determine the appropriate application rates for their fields. These standards must be a part of the State NPDES permitting program revisions discussed in Section V.C of this preamble. In addition, CAFOs will need some time to determine whether they have sufficient cropland for applying all of the nutrients contained in the manure, litter, and other process wastewaters that they generate. If they determine that they have excess nutrients, the CAFOs will need to identify alternatives for reducing the nutrient content, or seek markets for the excess nutrients such as off-site cropland, centralized processing facilities (*e.g.*, pelletizing plants, centralized anaerobic digester-based power generation facilities), or other solutions. These activities cannot logically commence until the CAFO has developed the plan and knows what its allowable manure application rate is.

EPA considered whether CAFOs should be required to implement certain elements of the land application BMPs in advance of preparing a nutrient management plan, but rejected doing so because the elements of the land application BMPs are inseparably linked together. The nutrient management plan is the tool CAFOs must use to assess soil and other field conditions at their operation, in conjunction with manure characterization data and crop rotations and yield projections, to determine the site-specific nitrogen or phosphorus-based rate at which manure, litter, and other process wastewaters are to be applied. The proper application rate can not be reasonably determined without first preparing the nutrient management plan. CAFOs will also use their nutrient management plan to inform their decision making on whether to comply with the provisions at 412.4(c)(5) by establishing the 100-foot setback on their fields or to instead select one of the compliance alternatives authorized by those provisions. EPA has also

determined that requiring manure and soil sampling and the record-keeping requirements included in 412.37(c) in advance of preparing and implementing the nutrient management plan would impose an unnecessary burden on CAFOs because, in the absence of a nutrient management plan that determines the appropriate application rates, these elements will not directly establish that manure will be applied in a manner that ensures appropriate utilization of nutrients. (Some of these actions, such as manure and soil sampling, may well be undertaken by the CAFOs as they develop their nutrient management plans, but EPA determined it was unnecessary for the regulation to impose these requirements in advance of nutrient management plan development and implementation.)

The land application BMPs, including the requirement to develop and implement a nutrient management plan, will immediately apply to all Large CAFOs who commence construction after the effective date of this rule (*i.e.*, new sources). Section 306(b)(1)(B) specifies that new source performance standards shall become effective upon promulgation. New sources engage in extensive site selection, facility design, and construction activities prior to commencing operations. Aspects addressed during this phase include location considerations (*e.g.*, climate and topographical factors), facility design variables to optimize the production process, and waste management considerations including the identification of optimal waste handling practices (*e.g.*, waste collection methods, the use of topographical elevation changes to facilitate waste handling) and disposal options (*e.g.*, on-site application on cropland, shipment to off-site markets). These activities undertaken by new sources prior to commencing construction are highly technical in nature, and CAFOs will typically engage the services of a number of consultants. While CAFOs are expected to engage the services of technical consultants to develop the nutrient management plans required by this rule, the analyses embodied within the nutrient management plan will not significantly add to the scope of analyses new sources will engage in prior to commencing operations.

EPA has considerable discretion under CWA section 304(b)(2) to determine whether and when a particular technology or process is BPT, BCT, or BAT. EPA also has broad authority to interpret CWA section 301. In *E.I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112 (1977), the Supreme Court accorded great deference to EPA

in promulgating effluent limitations guidelines as regulations under section 301, noting that “[CWA Section] 101(d) requires us to resolve any ambiguity on this score in favor of the Administrator.” *Id.* at 128. The Supreme Court also found that section 501(a) supports EPA’s broad use of its regulatory authority to implement section 301. *Id.* at 132. EPA believes that its decision to promulgate the land application BMPs, including the nutrient management plans, with a future date for implementation is authorized by sections 301 and 304. Section 301(b)(2) in particular directs EPA to promulgate ELGs that, within the constraints of economic achievability, “will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants.” Section 301(b)(2)(A).

EPA is aware that CWA sections 301(b)(2)(C) & (D) require ELGs to be achieved “in no case later than three years after the date such limits are promulgated under section 304(b), and in no case later than March 31, 1989.” This language does not speak to the precise question EPA confronts here: whether EPA can promulgate ELGs that are phased in over time. In this case, for the reasons discussed above, while EPA believes that the requirement to develop and implement a nutrient management plan will be an “available” technology in the near future, it is not now available for the large number of CAFOs subject to today’s rule. For this reason, EPA is, in essence, today promulgating what will be the available technology for the future, similar to what the Agency did for the pulp & paper effluent guideline. See 63 FR 18604 (Apr. 15, 1998). EPA is specifying the future date of December 31, 2006 because that is the date by which it predicts that sufficient capacity and capability to develop and implement a nutrient management plan and associated BMPs will be available to the great number of regulated sources. The availability of technical experts, including certified preparers, is a critically important component of the planning requirement, and in a sense is itself the technology basis for that BPT/BCT/BAT limitation. The Clean Water Act requires compliance with a promulgated ELG—*e.g.*, to develop a nutrient management plan—only once the technology ripens as the basis for that ELG, in this case as an available technology. While EPA is promulgating the nutrient management plan requirement as BPT/BCT/BAT in this rulemaking, EPA’s record indicates that it may not truly be available for the

subcategory as a whole until December 31, 2006.

c. What are the production area requirements for all existing and new Large beef, dairy, and heifer CAFOs (Part 412, Subpart C)? In today’s final rule, consistent with the 1974 ELG regulation, EPA is continuing to establish BMPs for the CAFO production area, which includes the animal confinement areas and the manure storage and containment areas. These BPT, BCT, BAT, and NSPS requirements are being established for the reasons discussed in this section, and consistent with the factors for consideration under the Clean Water Act, as discussed in Sections II.A.2 and IV.C.2.f of this preamble.

EPA is largely retaining the current effluent guidelines that apply to beef and dairy operations, and adding language extending these requirements to heifer-raising operations. These regulations, which are codified at 40 CFR Part 412, Subpart C, prohibit the discharge of manure, litter, and other process wastewaters, except for allowing discharge when rainfall causes an overflow from a facility designed, maintained, and operated to contain all manure, litter, and process wastewaters, including storm water, plus runoff from the 25-year, 24-hour rainfall event. In addition, today’s rule requires Large CAFOs to comply with the following BMPs:

- Perform weekly inspections of all storm water diversion devices, runoff diversion structures, animal waste storage structures, and devices channeling contaminated storm water to the wastewater and manure storage and containment structure;
- Perform daily inspections of water lines, including drinking water or cooling water lines;
- Install depth markers in all surface and liquid impoundments (*e.g.*, lagoons, ponds, tanks) to indicate the design volume and to clearly indicate the minimum capacity necessary to contain the 25-year, 24-hour rainfall event, including additional freeboard requirements;
- Correct any deficiencies found as a result of daily and weekly inspections as soon as possible;
- Do not dispose of mortalities in liquid manure or process wastewater treatment systems, and mortalities must be handled in such a way as to prevent discharge of pollutants to surface water, unless alternative technologies implemented under alternative performance standards are designed to handle mortalities; and
- Maintain on-site a complete copy of the records specified in 40 CFR

412.37(b) and (c). These records must be available to the permitting authority and the Regional Administrator, or his or her designee, for review upon request. Records must be maintained for 5 years from the date they are created.

What did EPA propose? EPA proposed to establish effluent guidelines that include the requirements promulgated in today's rule, and that would also have required all Large beef and dairy CAFOs (including heifers) to prevent discharges to the ground water beneath the production area (animal confinement areas, manure stockpiles, and impoundments) where there is a direct hydrologic connection to surface waters.

What were the key comments? EPA received numerous comments on the proposed inclusion of ground water monitoring and protection requirements for beef and dairy CAFOs. Many commenters opposed the proposed ground water requirements, stating that EPA lacks the authority to regulate ground water contamination in this rule and that the cost to comply with the proposed requirements would threaten the viability of these operations. The commenters also felt that EPA would need to define the term "direct hydrologic connection to surface water" if ground water requirements were to be implemented. EPA also received comments supporting the inclusion of ground water requirements in this rule, arguing that individual State programs are not always protective of these types of discharges.

EPA received a number of comments suggesting the rule should allow for less frequent inspections of the production area; should establish effluent limitations that would allow CAFOs to discharge treated manure, litter, and process wastewaters (as opposed to the requirements in the 1974 ELGs based on the containment of these wastes); and should allow CAFOs to dispose of mortalities in surface impoundments designed for that purpose. Other commenters stated that EPA should retain the existing zero discharge requirement established by the 1974 ELGs and should not allow CAFOs to discharge the wastes they currently must contain, even if the wastes are treated before being discharged.

Rationale. The production area requirements established today for Large beef, dairy, and heifer CAFOs will provide effective control of discharges of manure and other process wastewaters to surface water. These requirements are widely demonstrated as achievable and are in use at most beef, dairy, and heifer CAFOs and the containment requirements included in

this rule have been applicable to Large CAFOs since they were promulgated in the 1974 ELGs. Furthermore, USDA and ASAE cite the 25-year, 24-hour rainfall event as part of the standard to which storage structures should be constructed.

CAFOs must properly design, operate, and maintain storage structures to contain all manure, litter, and process wastewater including the runoff from a 25-year, 24-hour rainfall event. The determination of the necessary storage volume should reflect the maximum length of time anticipated between emptying events. The design storage volume must reflect manure, wastewater, and other wastes accumulated during the storage period; normal precipitation less evaporation on the surface area during the entire storage period; normal runoff from the facility's drainage area during the storage period; 25-year, 24-hour precipitation on the surface (at the required design storage volume level) of the facility; 25-year, 24-hour runoff from the facility's drainage area; residual solids after liquids have been removed; necessary freeboard (USDA's Natural Resources Conservation Service (NRCS) recommends a minimum of 1 foot of freeboard); and, in the case of treatment lagoons, a minimum treatment volume necessary to allow anaerobic treatment to occur. Additional storage may also be required to meet management goals or other regulatory requirements. For example, if the permitting authority needs further controls to assure compliance with site-specific water quality standards, EPA encourages CAFOs to consider relevant ASAE and NRCS standards as one method to ensure appropriate design and construction.

CAFOs should actively operate and maintain the manure storage structure, including solids removal or dewatering when appropriate, to retain the capacity for the 25-year, 24-hour rainfall event. Recent studies suggest proper operation and maintenance will prevent most, if not all, overflows and discharges from manure storage areas. One recent study from Iowa State University suggested 76 percent of earthen manure structures lacked appropriate accompanying management and maintenance activities. Another study in North Carolina stated more than 90 percent of violations were attributed to operation and management deficiencies. Other studies also list typical shortcomings as including: careless transfer of manure to application equipment; improper manure agitation practices; inadequate controls to prevent burrowing animals and plants from eroding the storage

berms and sidewalls; lack of routine inspection of land application and dewatering equipment during lagoon drawdown; and infrequent visual confirmation of adequate freeboard. Therefore, this rule establishes certain record keeping requirements that document the design basis for the structures, inspection and other maintenance activities related to the operation of the structures, and any overflows that occur. These records will help the CAFO operator to demonstrate that any overflows that do occur are consistent with the proper operation and maintenance of storage structures designed to contain all process wastewater, including the runoff from a 25-year, 24-hour rainfall event.

Although most CAFOs already have containment structures properly sized to contain their process wastes and the contributions from rainfall up to a 25-year, 24-hour rainfall event, many of these operations are not properly maintaining their systems to retain the capacity for such a rainfall event. Therefore, today's rule specifies that surface and liquid impoundments (e.g., lagoons, ponds, and tanks) are required to have depth markers installed. The depth marker indicates the maximum volume that should be maintained under normal operating conditions allowing for the volume necessary to contain the 25-year, 24-hour rainfall event. Without such a depth marker, a CAFO operator might allow lagoons and other impoundments to fill to a level such that the capacity to contain the direct precipitation and runoff from a 25-year, 24-hour rainfall event is not maintained, leading to overflows that are inconsistent with the proper operation and maintenance of the system. In addition, closed or covered liquid impoundments are required to have depth markers installed to properly maintain these storage systems, such that dry weather discharges do not occur. Depth markers are necessary tools that allow operators to actively manage (e.g., dewater, remove solids) the liquid levels in their impoundments and ensure that adequate capacity is retained for the 25-year, 24-hour rainfall event. Remote sensors can also be used to monitor liquid levels in lagoons and impoundments. This sensor technology can be used to monitor changes in liquid levels, either rising or dropping levels. These sensors can also trigger an alarm when the level is changing rapidly or when the liquid level has reached a critical level. The alarm can transmit to a wireless receiver to alert the CAFO owner or operator and can also alert the permitting authority. The

advantage of this type of system is the real-time warning it can provide the CAFO owner or operator that a lagoon or impoundment is in danger of overflowing. It can provide the CAFO operator an opportunity to better manage operations and prevent catastrophic failures. These sensors are more expensive than depth markers; however, the added assurance they provide in preventing catastrophic failures might make them attractive to some operations.

Today's rule prohibits the disposal of dead animals in any liquid impoundments or lagoons and requires operations to handle dead animals in ways that prevent contributing pollutants to waters of the United States, except as provided for by alternative performance standards using technologies designed to handle mortalities. Improper disposal of mortalities can lead to surface or ground water contamination, or both, as well as noxious odors and the potential for disease transmission by scavengers and vermin. Historically, burial was the most common method of carcass disposal, but it is now prohibited in many States. By prohibiting the disposal of dead animals in liquid impoundments, this rule will eliminate the discharge of pollutants from carcasses in overflows and in the runoff from land application areas.

Weekly inspections ensure that any storm water diversions at the production area, such as roof gutters or any devices that channel storm water to the wastewater and manure storage and containment structure, are free from debris. Daily inspections of the automated systems providing water to the animals ensure they are not leaking or spilling, which by increasing the rate at which process wastewater is generated can lead to discharge of pollutants to surface water. The manure storage or treatment facility must be inspected weekly to ensure structural integrity. For surface and liquid impoundments, the berms must be inspected for leaking, seepage, wind or water erosion, excessive vegetation, unusually low or high liquid levels, reduced freeboard, depth of the manure and process wastewater in the impoundment as indicated by the depth marker, and other signs of structural weakness. EPA believes these inspections are necessary to ensure proper maintenance of the production area and prevent discharges of manure, litter, and other process wastewater to surface waters.

Records of these inspections must be maintained on-site, as well as records documenting any problems noted and

corrective actions taken, the design basis for the structures, and the estimated volume of any overflows that occur. The depth of all liquid manure storage impoundments must be noted during each week's inspection. Production area inspection data allow operators to actively manage and maintain their surface and liquid impoundments to ensure the structural integrity of the system and avoid catastrophic failure of such systems. These records also assist the CAFO operator to minimize discharges to the extent possible and demonstrate that any overflows that do occur are consistent with the proper operation and maintenance of storage structures to contain all process wastewater including the runoff from a 25-year, 24-hour rainfall event.

As with the land application requirements, effluent limitations in the form of BMPs are particularly suited to the regulation of CAFOs. For many CAFOs, controlling discharges to surface waters is largely associated with controlling runoff and controlling overflows from manure storage structures. CAFO runoff can be highly intermittent and is usually characterized by very high flows occurring over relatively short time intervals. Whether the runoff or overflow will lead to a discharge, as well as the volume of any discharge that does occur and the nature of the pollutants present in the discharge, can vary substantially depending on the operating practices and physical characteristics of the operation (e.g., paved vs. unpaved surfaces, manure handling practices, climate, amount of area exposed to the precipitation). For these reasons, EPA has determined that relying exclusively on numeric ELGs to control these discharges is infeasible.

EPA believes the production area BMPs included in this rule are necessary to ensure proper maintenance of the production area and prevent discharges, except whenever precipitation causes an overflow of process wastewater from a facility designed, constructed, and operated to contain all manure, litter, and process wastewaters plus the runoff from a 25-year, 24-hour rainfall event. There are numerous reports of operations discharging pollutants from the production area during dry weather; discharges from CAFOs that failed to maintain the required storage capacity to contain the 25-year, 24-hour rainfall; and instances of leakage and catastrophic failure of lagoons and other manure storage structures. Information in the record for this rule indicates that many of the discharges could have been

avoided if CAFOs had practiced the BMPs in this rule frequently enough to detect and correct discrepancies before they led to discharges.

The proposed rule would have imposed explicit national requirements for certain CAFOs to address possible discharges to surface water via ground waters that have a direct hydrologic connection to surface waters. These operations would have been required to sample groundwaters to demonstrate that there is no discharge through a direct hydrologic connection to surface waters, unless they determined to the satisfaction of the permitting authority the absence of a direct hydrologic connection. Where a direct hydrologic connection to surface waters exists, controls on discharges to groundwater would have been required.

In today's effluent limitation guidelines, EPA is rejecting establishing requirements related to discharges to surface water that occur via ground water with a direct hydrologic connection.

Pollutant discharges from CAFOs to surface water via a groundwater pathway are highly dependent on site-specific variables, such as topography, climate, distance to surface water, and geologic factors such as depth of groundwater, soil porosity and permeability, and subsurface structure. The factors affecting whether such discharges are occurring at CAFOs are so variable from site to site that a national technology-based standard is inappropriate. Further, given the site-specific nature of these situations, quantifying the pollutant reduction associated with nationally-established requirements would be difficult. Imposing requirements through a national ELG could divert resources from other technologies and practices that are more effective at controlling CAFO discharges to surface waters. Therefore, EPA believes that requirements limiting the discharge of pollutants to surface water via groundwater that has a direct hydrologic connection to surface water are beyond the scope of today's ELGs.

Furthermore, EPA recognizes there are scientific uncertainties and site-specific considerations with respect to regulating discharges to surface water via groundwater with a direct hydrologic connection to surface water. EPA also recognizes there are conflicting legal precedents on this issue. Nothing in this rule shall be construed to expand, diminish, or otherwise affect the jurisdiction of the Clean Water Act over discharges to surface water via groundwater that has

a direct hydrologic connection to surface water.

At the time of proposal, EPA considered, but rejected, requiring CAFOs to sample surface waters adjacent to feedlots and/or land under control of the feedlot to which manure is applied. This option would have required CAFOs to sample surface waters both upstream and downstream from the feedlot and land application areas following significant rainfall. In this final rule, EPA is continuing to reject imposing surface water monitoring requirements on CAFOs through the effluent guidelines because of concerns regarding the difficulty of designing and implementing through a national rule an effective surface water monitoring program that would be capable of detecting, isolating, and quantifying the pollutant contributions reaching surface waters from individual CAFOs; and because the addition of in-stream monitoring does not by itself achieve any better controls on the discharges from CAFOs than the controls imposed by this rule. In-stream monitoring could be an indicator of discharges occurring from the CAFO; however, unless conditions are appropriate and a well-designed sampling protocol is established, it is equally possible that the in-stream monitoring considered at proposal would measure discharges occurring from adjacent non-CAFO agricultural sources. These non-CAFO sources would likely be contributing many of the same pollutants considered under the sampling option. EPA considered alternative parameters that would isolate constituents from CAFO manure and wastewater from other possible sources contributing pollutants to a stream. Pathogens were considered as potential indicator parameters that could be used if adjacent operations do not also have livestock or are not using manure or biosolids as fertilizer sources. As discussed in the preamble for the proposed rule, however, there are concerns about the ability of CAFOs to collect and analyze samples for these pollutants (unless the sampling program is appropriately designed and tailored to the CAFO) because of the technical difficulty in obtaining representative samples and because of holding time constraints on collected samples associated with the analytical methods for these parameters. Accordingly, EPA believes that the imposition of in-stream monitoring requirements is more appropriately addressed through NPDES permit conditions established by the permitting authority. Although EPA has rejected the inclusion of in-stream

monitoring requirements in this rule, the permitting authority retains the authority to include them in NPDES permits as either technology-based requirements based on BPL, or water quality-based requirements, where the permitting authority determines they are necessary.

Another option considered, and rejected, at proposal would have required large dairy (and swine) operations to install anaerobic digester systems to treat their manure. Requiring anaerobic digester systems was not considered for beef and heifer operations because the wastes from these facilities would not support the operation of digester systems. (Refer to the *Technical Development Document* for more information on the operation of digester systems.) As discussed at proposal, anaerobic digesters offer certain benefits to CAFOs (e.g., energy recovery, control of methane emissions), but they would not necessarily lead to significant reductions for many of the pollutants discharged to surface waters from CAFOs. Mandating the use of anaerobic digesters could divert resources from or complicate the installation of other technologies that can achieve even better performance. Further, use of an anaerobic digester does not eliminate the need for liquid impoundments to store dairy parlor water and barn flush water and to capture storm water runoff from the open areas at the dairy. Digesters do not necessarily reduce the nutrients in animal wastes. Most of the phosphorus removed from the effluent is concentrated in the digested solids, which are still subject to land application requirements. Similarly, metals present in the animal waste are not reduced and remain in the digester effluent and solids.

Although the ELG requirements in this rule are not specifically designed to reduce the pathogens in animal wastes, today's rule may achieve some reductions of pathogens in CAFO discharges by applying manure at rates that ensure appropriate agricultural utilization of nutrient and establishing setbacks or buffers where manure, litter, and other process wastewater are not applied. Pathogen die-off can also occur during the period manure is stored prior to land application, and further die-off of pathogens is expected to occur when the animal waste is exposed to sunlight following application to land. Because of the presence of pathogens in animal wastes and the potential risk they pose to human health and the environment, EPA continues to be concerned about the potential for transmission of pathogenic disease from CAFOs. This

concern is substantiated by information in the rulemaking record regarding instances of foodborne and waterborne disease outbreaks. However, based on the current state of the science, a quantified link has not been established between pathogenic diseases outbreaks and CAFO discharges and runoff. EPA has a number of research efforts underway to better understand and reduce the environmental impact resulting from the discharge and runoff of manure from these facilities. This research will help inform future decisions to address pathogens in CAFO discharges.

d. What are the production area requirements for Large swine, poultry, and veal CAFOs (Part 412, Subpart D)? (1) Existing Large swine, poultry and veal CAFOs. Today's final rule establishes ELGs for existing swine, poultry, and veal operations that are the same as those described above in Section IV.C.2.c. for beef and dairy operations. Consistent with the 1974 ELG regulation, EPA is continuing to establish BMPs for the CAFO production area, which includes the animal confinement areas and the manure storage and containment areas. These BPT, BCT, and BAT requirements are being established for the reasons discussed in this section, and consistent with the factors for consideration under the Clean Water Act, as discussed in Sections II.A.2 and IV.C.2.f of this preamble.

EPA is retaining the current effluent guidelines that apply to swine, poultry, and veal operations, and adding language extending these requirements to immature swine, and to chicken operations with dry litter management practices. These regulations, which are codified at 40 CFR Part 412, Subpart D, prohibit the discharge of manure, litter, and other process wastewater, except for allowing discharge when rainfall causes an overflow from a facility designed, maintained, and operated to contain all manure, litter, and process wastewaters, including storm water, plus runoff from the 25-year, 24-hour rainfall event. In addition, today's rule requires Large CAFOs to comply with certain BMPs described above in Section IV.C.2.c.

What did EPA propose? EPA proposed to establish production area effluent guidelines for existing swine, poultry, and veal operations that would prohibit all discharges from CAFO production areas. Under the proposed rule, existing operations subject to the requirements of Part 412, Subpart D, would not have been allowed to discharge any manure, litter, or other process wastewaters, including the overflow of manure and other process

wastewaters from their containment systems.

What were the key comments? EPA received comments both opposing and supporting the proposed requirements that would have eliminated the allowance for overflows for swine, poultry, and veal CAFOs. Many commenters opposed to eliminating the overflow allowance argued that the cost to comply with such requirements would threaten the viability of their operations. Some stakeholders also stated that the use of impermeable lagoon covers (as a means for achieving compliance with the proposed requirements) would pose a number of operational challenges: freezing, biogas collection, clean storm water management, wind shear, cover repair, and disposal of spent covers. For these reasons, these stakeholders concluded the proposed zero discharge standard was technologically infeasible.

Rationale. The production area requirements established today for existing Large swine, poultry, and veal CAFOs will provide effective control of discharges of manure and other process wastewaters to surface water, consistent with the statutory factors the Clean Water Act requires EPA to consider in establishing effluent guidelines for existing sources (BPT, BCT, and BAT). These requirements are widely demonstrated as technologically achievable for these operations, and the containment requirements included in this rule have been applicable to Large CAFOs since they were promulgated in the 1974 ELGs. Further, USDA and ASAE cite the 25-year, 24-hour rainfall event as part of the standard to which storage structures should be constructed.

CAFOs must properly design, operate, and maintain storage structures to contain all manure, litter, and process wastewater including the runoff from a 25-year, 24-hour rainfall event. The determination of the necessary storage volume should reflect the maximum length of time anticipated between emptying events. The design storage volume must reflect manure, wastewater, and other wastes accumulated during the storage period; normal precipitation less evaporation on the surface area during the entire storage period; normal runoff from the facility's drainage area during the storage period; 25-year, 24-hour precipitation on the surface (at the required design storage volume level) of the facility; 25-year, 24-hour runoff from the facility's drainage area; residual solids after liquids have been removed; necessary freeboard (NRCS recommends a minimum of 1 foot of freeboard); and, in

the case of treatment lagoons, a minimum treatment volume necessary to allow anaerobic treatment to occur. Additional storage may also be required to meet management goals or other regulatory requirements. EPA encourages CAFOs to use relevant ASAE and NRCS standards as one method to ensure appropriate design and construction. This is also consistent with EPA's approach to estimating the costs of compliance with today's rule.

CAFOs should actively operate and maintain the manure storage structure, including solids removal or dewatering when appropriate, to retain the capacity for the 25-year, 24-hour rainfall event. Recent studies suggest proper operation and maintenance will prevent most, if not all, overflows and discharges from manure storage areas. One recent study from Iowa State University suggested 76 percent of earthen manure structures lacked appropriate accompanying management and maintenance activities. Another study in North Carolina stated more than 90 percent of violations were attributed to operation and management deficiencies. Other studies also list typical shortcomings as including: careless transfer of manure to application equipment; improper manure agitation practices; inadequate controls to prevent burrowing animals and plants from eroding the storage berms and sidewalls; lack of routine inspection of land application and dewatering equipment during lagoon drawdown; and infrequent visual confirmation of adequate freeboard. Therefore this rule establishes certain recordkeeping requirements that document the design basis for the structures, inspection and other maintenance activities related to the operation of the structures, and any overflows that occur. These records will help the CAFO operator to demonstrate that any overflows that do occur are consistent with the proper operation and maintenance of storage structures designed to contain all manure, litter, and process wastewater, including the runoff from a 25-year, 24-hour rainfall event.

As with the land application requirements, effluent limitations in the form of BMPs are particularly suited to the regulation of CAFOs. For many CAFOs, controlling discharges to surface waters is largely associated with controlling runoff and controlling overflows from manure storage structures. CAFO runoff can be highly intermittent and is usually characterized by very high flows occurring over relatively short time intervals. Whether the runoff or overflow will lead to a discharge, as well as the volume of any

discharge that does occur and the nature of the pollutants present in the discharge, can vary substantially depending on the operating practices and physical characteristics of the operation (e.g., paved vs unpaved surfaces, manure handling practices, climate, amount of area exposed to the precipitation).

EPA believes the production area BMPs included in this rule are necessary to ensure proper maintenance of the production area and prevent discharges except whenever precipitation causes an overflow of process wastewater from a facility designed, constructed, and operated to contain all manure, litter, and process wastewaters plus the runoff from a 25-year, 24-hour rainfall event. There are numerous reports of operations discharging pollutants from the production area during dry weather, discharges from CAFOs that failed to maintain the required storage capacity to contain the 25-year, 24-hour rainfall, and instances of leakage and catastrophic failure of lagoons and other manure storage structures. Information in the record for this rule indicates that many of the discharges could have been avoided if CAFOs had practiced the BMPs in this rule frequently enough to detect and correct discrepancies before they led to discharges.

For today's rule, EPA has determined that the cost to retrofit the many manure storage structures with covers, or to convert wet manure systems to dry manure systems, or to install other control techniques to achieve total containment of manure, litter, and other process wastewaters is not economically achievable for this subcategory. According to EPA's cost and economic impact analyses, requiring existing Large CAFOs subject to Part 412, Subpart D to comply with requirements for total containment (with no allowance for overflows) would result in facility closures at 11 percent of the CAFOs in Subpart D. (See the *Economic Analysis*.) EPA disagrees, however, with the comments that lagoon covers are technologically infeasible. EPA does agree that retrofitting existing lagoon systems with covers can pose substantial design challenges and some existing lagoons might need to be redesigned to accommodate a cover, substantially increasing the retrofit cost for existing sources. In spite of these design challenges and the operational challenges that covering lagoons can pose, EPA believes the record information on the demonstration status of impermeable lagoon covers adequately addresses these feasibility concerns. EPA has data from several

vendors; one such vendor has developed more than a dozen such systems ranging in size from 3 acres to almost 20 acres. Covered lagoon systems have been successfully implemented in areas with cold climates such as northern Illinois, South Dakota, and Wisconsin, and in high-rainfall areas such as South Carolina, North Carolina, and Georgia. These systems are routinely exposed to and resist freezing, high winds, and other extreme weather events. EPA believes the information in the record demonstrates the technological feasibility of covering lagoons, but is rejecting BPT/BCT/BAT requirements based on such technology because they are not economically achievable.

EPA is not including ground water controls and monitoring requirements, or surface water monitoring requirements for Subpart D facilities for the same reasons described in Section IV.C.2.c for beef and dairy operations. EPA also rejected basing the effluent guidelines for swine operations on anaerobic digesters for the same reasons given above for dairies, and as discussed in the preamble for the proposed rule.

(2) *New Large swine, poultry and veal CAFOs.* In today's rule, EPA is establishing effluent guidelines for new swine, poultry, and veal operations based on zero discharge from CAFO production areas, subject to the provision that if a new source's waste management and storage facilities are 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, it will satisfy the requirements of the NSPS. In addition, today's rule requires Large CAFOs to comply with certain BMPs described above in Section IV.C.2.c for the reasons given in Section IV.C. The NSPS requirements are being established for the reasons discussed in this section, and consistent with the factors for consideration under the Clean Water Act, as discussed in Sections II.A.2 and IV.C.2.f of this preamble.

What did EPA propose? EPA proposed to establish production area requirements for new sources that would have required zero discharge, and that would also have required all new Large swine, poultry, and veal CAFOs with a direct hydrologic connection to surface waters to prevent discharges to the ground water beneath the production area (animal confinement areas, manure stockpiles, and impoundments).

What were the key comments? Most comments received focused on the

technological feasibility of total containment and the appropriateness of establishing ground water controls as part of the effluent guidelines. EPA received numerous comments in opposition to the proposed ground water requirements, stating that EPA lacks the authority to regulate ground water contamination in this rule and that the cost to comply with the proposed requirements would threaten the viability of these operations. The commenters also felt that EPA would need to define the term "direct hydrologic connection to surface water" if ground water requirements were to be implemented. EPA also received comments supporting the inclusion of ground water requirements in this rule, arguing that individual State programs are not always protective of these types of discharges.

Many commenters were also opposed to the proposed requirement that eliminates the allowance for overflows for swine, poultry, and veal CAFOs. Many commenters argued that the cost to comply with these requirements would threaten the viability of their operations. Some stakeholders felt impermeable lagoon covers in particular posed a number of operational challenges: Freezing, biogas collection, clean storm water management, wind shear, cover repair, and disposal of spent covers. For these reasons, these stakeholders concluded the proposed zero discharge standard was technologically infeasible.

Rationale. EPA has determined that the NSPS requirements included in this rule for the production area at new swine, poultry, and veal sources are technologically feasible and will not pose a barrier to entry, for the reasons discussed below and in the Technical Development Document.

A number of the comments opposed to establishing zero discharge limitations (with no allowance for the discharge of overflows) were related to concerns that unforeseeable events could eventually lead to a discharge from a facility and result, in the commenters' view, in a situation of noncompliance that the CAFO would be unable to prevent. EPA disagrees with these comments and believes the NPDES permitting regulations already address this concern. Consistent with existing provisions included in the NPDES regulations at 40 CFR 122.41, upset and bypass provisions are included as standard conditions in NPDES permits to address the potential for unforeseen circumstances and provide CAFOs with a reasonable defense. In other words, even though the NSPS for Subpart D operations

prohibits discharges from the production area, a CAFO can claim an upset/bypass defense for events that are beyond reasonable control, including extreme weather events as well as other uncontrollable or unforeseen conditions.

An upset is an unintentional noncompliance event occurring for reasons beyond the reasonable control of the permittee. The upset provision in the NPDES permit operates as an affirmative defense to prosecution for violation of technology-based effluent limitations, provided certain specified criteria are met. *See* 40 CFR 122.41(n). For example, flood damage or other severe weather damage to containment structures that cannot reasonably be avoided or controlled by the permittee could be a basis for an affirmative defense for an upset. A bypass, on the other hand, is an act of intentional noncompliance during which waste treatment facilities are circumvented under certain specified circumstances, including emergency situations. The bypass provision authorizes bypassing to prevent loss of life, personal injury, or severe property damage where there are no feasible alternatives to the bypass and where the permitting authority is properly notified. *See* 40 CFR 122.41(m).

EPA has added a reference at 40 CFR 412.46(3) to the existing regulatory provisions at 40 CFR 122.41(m) and (n) for upset and bypass. The upset and bypass provisions apply by existing regulation to all NPDES permits. In light of the more stringent requirements for new sources subject to Subpart D, EPA added this cross-reference to ensure that CAFO operators and permit writers were aware that the upset and bypass provisions are available. Upset and bypass conditions are applicable to all NPDES permits, for new and existing sources.

EPA has determined that total containment for the production area for new swine, poultry, and veal sources is technologically feasible and should not pose a barrier to entry for new sources subject to Subpart D. It is common for new poultry, veal, and swine operations to construct facilities that keep the animals in total confinement (covered housing) that is not exposed to rainfall or storm water runoff. In addition, many new operations are based on manure handling systems that greatly reduce or eliminate water use, such as hog and poultry high-rise houses, or that contain manure in covered or indoor facilities, such as underhouse pit storage systems and litter storage sheds. Other new facilities may choose flush systems with

lagoons that are covered or sited and designed to achieve total containment.

EPA recognizes that CAFOs may use different technologies to meet the zero discharge standard and that these technologies may have slightly different vulnerabilities to extreme weather events. Therefore, EPA is clarifying in today's rule that a CAFO may meet the zero discharge standard by designing, constructing, operating, and maintaining its waste management and storage facilities to contain all manure, litter, and process wastewater including the direct precipitation and runoff from a 100-year, 24-hour rainfall event.

By definition, a 100-year, 24-hour storm is an event which occurs on average once every 100 years. EPA believes that the 100-year, 24-hour rainfall event criteria provides the protection of the resource that the Agency intended under the zero discharge limitation, while providing clarity for the regulated community. The principle of tying regulatory or program requirements to precipitation-related events that happen with a frequency of once every 100 years is also used in other federal programs. For example, the Federal Emergency Management Agency uses the 100-year flood as the standard for floodplain management and to determine the need for flood insurance in the National Flood Insurance Program. The USDA Natural Resources Conservation Service (NRCS) uses the 100-year design criteria for flood protection structures. For instance, if the potential failure of a water control structure is likely to cause loss of life or extensive high value crop or property damage, NRCS uses the 100-year frequency storm as the basis for design.

CAFOs may choose to meet the zero discharge requirement through any technology designed to achieve this threshold. If a facility is designed, constructed, operated, and maintained to meet the 100-year, 24-hour rainfall criterion, and it nonetheless has a discharge due to extreme weather, this would not be considered a violation of its permit conditions. This provision is separate from an upset defense discussed above.

EPA has carefully evaluated the concerns raised in comments regarding the technical feasibility of total containment at swine, poultry, and veal operations. The concerns raised by commenters are primarily associated with operational factors and the effect of climate on the use of lagoon covers. Although the effluent guideline does not require the use of any specific technology, EPA concludes that the total containment requirements of this rule could be met at new sources through the

use of lagoon covers or other appropriate technologies. New sources will avoid the design challenges and retrofit costs that existing sources would face with the use of lagoon covers, should they choose that technology to comply. Based on the information in the record, and as discussed above in this section, EPA has received data to demonstrate that each of these factors has been successfully handled at CAFOs and other facilities. Furthermore, by retaining all manure, litter, and other process wastewaters within the building (for example, by using underhouse pits) and not using an outdoor liquid impoundment, or by using other appropriate technologies, such as a lagoon designed to contain the precipitation and runoff from a 100-year, 24-hour rainfall event, new sources can avoid the operational challenges posed by covers.

In many instances, CAFOs are expected to construct swine and poultry housing that maintains the manure in dry form and stores the dry manure under cover until it is hauled off-site or land applied. Dry manures are generally more marketable and easier to transport, important considerations for facilities with insufficient land for agronomic use of the manures. The majority of poultry operations use total confinement housing practices, generating a dry manure that is collected within the poultry houses. The manure/litter is removed periodically from the poultry houses and is either taken directly to the land application area, transported to off-site fields or centralized processing facilities (e.g., pelletizing operations), stored on-site within a roofed facility, or stored in temporary field stacks which can be covered and configured to prevent contact with precipitation. There has also been a great deal of interest in dry manure systems for swine operations in recent years, as evidenced by the current use of hoop structures and other designs described in the Technical Development Document. Dry manure systems are widely used at swine operations in Europe and are also being used at some operations in Canada. Some operations in the U.S. already use dry manure systems and EPA expects that the U.S. swine industry will choose to construct dry manure systems at new operations with greater frequency as they gain greater experience with these designs.

In other instances, new swine operations will likely choose underhouse deep pit systems to comply. Contrary to standard practice 30 years ago, closed buildings with underhouse deep pits are currently the predominant production technology used at swine

operations. By 1995, approximately half of all large swine operations were using under floor pits with slotted floors. In 2000, more than 2,200 large swine operations nationwide utilized under floor pits, with several hundred additional operations using slurry storage. EPA has learned through site visits, as supported by meetings with the National Pork Producers Council (a trade association) that, because of further technological advancements, newly constructed systems rarely include lagoons, and that closed buildings with under floor pits are now the predominant production technology. Given the widespread use of this design, EPA anticipates that a number of new operations constructed in the next five to ten years will choose to use deep pit systems.

Some new swine operations may choose to use lagoon-based or other wet systems, depending on the factors specific to their situation. For example, some new operations may choose to rely on covered lagoon systems (with gas flaring or energy recovery). Another alternative technology that may be selected would be to install an anaerobic digester followed by a covered lagoon for storing the digester effluent. Benefits to operators using anaerobic digesters include the cost savings (or even revenue, in some cases) from electricity generation, a better-stabilized waste, significant odor reduction, and improved marketability of the digester solids. During site visits conducted during the rulemaking EPA has observed the use of aboveground fiberglass-lined steel tanks to store swine wastes. When configured to exclude direct precipitation or to contain all direct precipitation and runoff from a 100-year, 24-hour rainfall event, these tanks are able to meet the zero discharge requirement. As noted below in section IV.C.2.e, in order to provide appropriate flexibility to CAFOs, alternative technologies that achieve overall environmental performance across all media equal or superior to the reductions that would be achieved under the zero discharge standard may also be authorized by the Director.

EPA is aware of some interest by the swine industry in achieving total containment by using uncovered lagoons that would not be expected to discharge to surface waters based upon siting and lagoon design. For example, by providing additional freeboard in the design, a facility with sufficient containment to retain all manure, litter, and process wastewater plus the direct precipitation and runoff from a 100-year, 24-hour rainfall event would

be able to demonstrate that it complies with the rule requirements, assuming proper operation and management. Such facilities would be considered to achieve zero discharge. As discussed above, an upset defense could also apply when unforeseen and uncontrollable conditions result in a discharge.

The production area BMPs established today for Large swine, poultry, and veal CAFOs are necessary to ensure proper operation and maintenance of the production area and provide effective control of discharges of manure, litter, and other process wastewaters to surface water. There are numerous reports of operations discharging pollutants from the production area during dry weather, discharges from CAFOs that failed to maintain the required storage capacity, and instances of leakage and catastrophic failure of lagoons and other manure storage structures. CAFOs should actively operate and maintain the manure storage structure, including solids removal or dewatering when appropriate, to retain the capacity to accommodate continued generation of process wastewater. Information in the record for this rule indicates that many of the discharges could have been avoided if CAFOs had practiced the BMPs in this rule frequently enough to detect and correct discrepancies before they led to discharges.

EPA is not including ground water controls and monitoring requirements, or surface water monitoring requirements for Subpart D facilities for the same reasons described in Section IV.C.2.c for beef and dairy operations. EPA also rejected basing the effluent guidelines for swine operations on anaerobic digesters for the same reasons described above for dairies, and as discussed in the preamble for the proposed rule.

e. Voluntary alternative performance standards to encourage innovative technologies. EPA's long-term environmental vision for CAFOs includes continuing research and progress toward environmental improvement. The Agency believes that certain individual CAFOs will voluntarily develop and install new technologies and management practices equal to or better than those required by baseline technology-based effluent guidelines (BPT, BCT, and BAT) and standards (NSPS) promulgated in today's rule. Furthermore, EPA recognizes that some CAFOs, as well as land grant universities, State agencies, equipment vendors, and agricultural organizations, are working to develop new technologies that achieve

reductions in nutrient and pathogen losses to surface water, ammonia and other air emissions, and ground water contamination. The development of new technologies offers the potential to match or surpass the pollutant reduction that would be achieved by compliance with the baseline production area effluent guidelines and standards (discussed above in Section IV.C.2.c for Large CAFOs subject to Part 412, Subpart C, and Section IV.C.2.d for Large CAFOs subject to Part 412, Subpart D). The term "baseline effluent guidelines" as used here is defined below in the following section of this preamble.

In addition to the production area effluent guidelines promulgated by today's rule (the "baseline effluent guidelines"), EPA is establishing provisions for the development of alternative performance standards for discharges from the production area of Large CAFOs. The effluent guidelines promulgated today also establish BMPs that apply to the production area and land application areas at Large CAFOs. These BMP requirements are applicable to all Large CAFOs (both existing and new sources), regardless of whether their NPDES permit limitations are based on the baseline effluent guidelines or the alternative performance standards.

In establishing the ELG provisions for alternative performance standards, this rule creates a framework that enables new and existing Large CAFOs in Subpart C and existing Large CAFOs in Subpart D to develop and implement new technologies and management practices that perform as well as or better than the baseline effluent guidelines at reducing pollutant discharges to surface waters from the production area. For new Large CAFOs in Subpart D, the rule allows for alternative permit limitations based upon site-specific innovative technologies that achieve environmental performance across all media which is equal or superior to the baseline standards. An added benefit of providing for alternative performance standards is the potential for new or alternative technologies and practices to help address the multimedia environmental issues confronting CAFOs. A key tenet of these programs is that CAFOs will now have the option to either accept NPDES permit limitations based on the baseline effluent guidelines or voluntarily request the permitting authority to establish an alternative BPT/BCT/BAT/NSPS performance standard as the basis for their technology-based NPDES permit limits (e.g., inclusion of effluent

limitations in their NPDES permits that are different from those based on the baseline effluent guidelines).

EPA received suggestions from a number of stakeholders on the merits of creating a framework for alternative performance standards. Several stakeholders believe that the effluent guidelines established by the 1974 ELG regulation, as well as the baseline effluent guidelines promulgated in today's rule, discourage the use of innovative treatment and pollution prevention technologies because they are based on containment rather than treating the wastes to particular targets of effluent quality. A number of commenters expressed support for alternative wastewater treatment technologies that are equivalent to or better than baseline effluent guidelines, and they specifically requested that EPA establish provisions in the rule to allow CAFOs to discharge treated process wastewater generated from the production area of the CAFO.

Commenters also suggested that EPA's regulatory framework should provide incentives encouraging CAFOs to use technologies that would protect all environmental media, including air, ground water, and surface water. Commenters suggested that adding flexibility in the rule to allow for the discharge of treated process wastewater could lead to better approaches for addressing multimedia environmental concerns. On a related note, a number of stakeholders commented that EPA should include controls for pathogens or antibiotics, as well as atmospheric emissions of ammonia, methane, and hydrogen sulfide.

In view of these comments and recognizing the potential environmental gains presented by the ongoing research and development of new treatment technologies for CAFO wastes, today's rule establishes provisions providing for the development of alternative performance standards for discharges from Large CAFOs. As noted above, CAFOs retain the option to either accept NPDES permit limitations based on the baseline effluent guidelines or voluntarily request the permitting authority to establish an alternative performance standard as the basis for their technology-based NPDES permit limits. The specific requirements imposed by the alternative performance standard would be established by the NPDES permitting authority based on the technical analysis and other information submitted by the CAFO, as required under the alternative performance standards provisions included in Part 412. CAFOs would not be required to enter the alternative

performance standards program. A Large CAFO choosing not to participate in the alternative performance standards program would instead be subject to the baseline effluent guidelines discussed above in Section IV.C.2.c (for Subpart C) or Section IV.C.2.d (for Subpart D). EPA previously used a similar approach in establishing the effluent guidelines regulations for the Pesticide Formulating, Packaging, and Repackaging (PFPR) industry. In that rule, PFPR facilities are subject to effluent guidelines requirements that prohibit all discharges, but they may voluntarily elect to instead adopt certain regulatory requirements (mandatory BMPs and treatment of discharged wastes) and be allowed to discharge a "pollution prevention allowable discharge." (See 40 CFR Part 455. See also 61 FR 57518; November 6, 1996.) In another rulemaking, EPA established effluent guidelines for the pulp, paper, and paperboard (Pulp & Paper) industry that provide incentives for mills to voluntarily implement advanced process technologies. For the Pulp & Paper effluent guidelines, mills accepting more stringent NPDES permit limitations based on the performance of the advanced technologies and other process improvements are granted incentives such as public recognition and substantially extended compliance periods. (See 40 CFR Part 430. Also see 63 FR 18504, 18593–18611; April 15, 1998).

(1) Baseline effluent guidelines. The effluent guidelines regulations promulgated in today's rule for all existing Large CAFOs, and for new source Large beef, dairy and heifer CAFOs, prohibit the discharge of process wastewaters, except when rainfall events cause an overflow from a facility designed, constructed, and operated to contain all manure, litter, and process wastewaters plus the runoff from a 25-year, 24-hour rainfall event. These limitations are based on the use of storage ponds and lagoons to contain the process wastes and runoff, although they do not preclude CAFOs from using alternative technologies. The NSPS requirements for new source Large swine, poultry, and veal CAFOs require zero discharge from the production area, subject to a provision that compliance with the standard can be met if the waste management and storage facilities are 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. The ELGs were established on the basis of factors specified in CWA sections 304(b)

and 306, including the cost of achieving the effluent reductions and any non-water quality environmental impacts. These limitations are referred to in this preamble as the "baseline effluent guidelines" for the purpose of clarifying which effluent guidelines requirements may be replaced by the alternative performance standards provisions included in today's rule.

The effluent guidelines promulgated today also establish BMPs that apply to the production area and land application areas at Large CAFOs. These BMP requirements are applicable to all Large CAFOs (both existing and new sources), regardless of whether their NPDES permit limitations are based on the baseline effluent guidelines or the alternative performance standards. As discussed in Sections IV.C.2.c and IV.C.2.d, the production area BMPs are necessary to ensure that manure storage structures and other production area components associated with controlling process wastewaters (e.g., storm water diversions) are properly designed, operated, and maintained to prevent overflows or catastrophic failure of the system.

(2) Voluntary alternative performance standards for all Large beef/dairy/heifer CAFOs and existing Large swine/poultry/veal CAFOs. The alternative performance standards promulgated today for new and existing sources in Subpart C and existing sources in Subpart D, apply to discharges of manure, litter, and other process wastewaters from the CAFO production area. Under the provisions included in the final rule, these Large CAFOs will be allowed to discharge process wastewater that has been treated by technologies that the CAFO demonstrates will result in equivalent or better pollutant removals than would otherwise be achieved by the baseline effluent guidelines. These regulatory provisions are targeted toward the CAFO's wastewater discharges, but EPA encourages operations electing to participate in the alternative performance standards program to consider environmental releases holistically, including opportunities for achieving improvement in multiple environmental media.

As discussed above, the baseline effluent guidelines, though nominally zero discharge, allow for untreated overflow discharges if the system is designed, constructed, and operated to contain manure, litter, and process wastewater plus the runoff from a 25-year, 24-hour rainfall. (Large swine, poultry, and veal CAFOs that are new sources are subject to a different performance standard.) To demonstrate

that an alternative control technology would achieve equivalent or better pollutant reductions than the baseline effluent guidelines, the CAFO must submit a technical analysis, which includes calculating the pollutant reductions based on the site-specific modeled performance of a system designed to comply with the baseline effluent guidelines (e.g., a storage lagoon designed, constructed, and operated to contain all manure, litter, and process wastewaters plus the runoff from a 25-year, 24-hour rainfall event). For many pollutants (e.g., nitrogen, phosphorus, BOD, metals), the mass of pollutants discharged will usually be the most appropriate measure for assessing treatment system performance and determining whether the alternative control technology will achieve equal or better pollutant reductions. For some pollutants such as pathogens, however, pollutant mass may not be the most appropriate measure of pollutant reductions and alternative measures will need to be used.

One approach for making such a demonstration is to use a computer simulation model to evaluate site-specific or region-specific climate data, along with wastewater characterization data, to determine the pollutant discharge that would be projected for a system designed, constructed, and operated to achieve compliance with the baseline effluent guidelines. The model would evaluate the daily inputs to the storage system, including all process wastes, direct precipitation, and runoff. It would also evaluate the daily outputs from the storage system, including losses due to evaporation, sludge removal, and the removal of wastewater for use on cropland at the CAFO or transport off site. The model would be used to predict the overflow from the storage system that would occur over a 25-year period, and these overflow predictions would be used to determine the median annual predicted overflow over the 25 years evaluated by the model.

Precipitation patterns for a given location are inherently variable from year-to-year. As a result, the volume of water entering the storage system, either through direct precipitation or as collected runoff, will vary substantially from one year to another. The potential for the storage system to overflow and the volume of the overflow is a function of site-specific variables, including the rate and total volume of wastes entering and leaving the storage system. To enable the development of alternative performance standards that achieve pollutant reductions comparable to those that would be achieved by the

baseline effluent guidelines, CAFOs must perform a technical analysis that includes a prediction of the volume of overflows from the storage system. If the technical analysis were to be performed using climate data from a period of unusually high precipitation, then the CAFO's analysis would tend to overestimate the overflow volume and result in alternative performance standards that do not achieve pollutant reductions equal to the baseline effluent guidelines. Conversely, if the technical analysis were to be performed using climate data from a period of unusually low precipitation (e.g., drought periods), then the CAFO's analysis would tend to underestimate the overflow volume. By requiring the CAFO to use precipitation data for a 25-year period, the technical analysis will minimize the bias introduced by short-term variations in climate patterns.

The site-specific or other appropriate pollutant characterization data for the wastewater from the waste storage system (i.e., the overflow) would be coupled with the overflow volume output from the model described above to predict the quantity of pollutant discharge that would occur from a system designed to comply with the baseline effluent guidelines. CAFOs would be required to meet NPDES permit conditions that result in equivalent or improved pollutant reductions, as compared to the predicted quantity of pollutant discharge from overflow of the baseline system. If a CAFO elected to use this approach, it would be meeting the same limitations as a CAFO under the baseline effluent guidelines, but expressed in a different fashion (e.g., numeric limits on a continuous discharge versus a limit of zero discharge with an allowance for discontinuous overflows). To illustrate this type of analysis, EPA prepared an example evaluation using model farm characteristics. This example is available in the *Technical Development Document* and in section 19.6.2 of the rulemaking record.

(3) *Voluntary superior environmental performance standards for new Large swine/poultry/veal CAFOs.* The NSPS requirements that apply to production area discharges at new Large swine, poultry, and veal CAFOs are more stringent than the NSPS established for other new sources and the BAT requirements for existing sources. EPA is endeavoring to ensure that this rule does not inadvertently discourage approaches that are superior from a multimedia environmental perspective. Therefore, for new sources subject to Subpart D (Large swine, poultry, and

veal CAFOs), EPA is establishing alternative performance standards that provide additional compliance flexibilities specifically designed to encourage CAFOs to adopt innovative technologies for managing and/or treating manure, litter, and process wastewater. Specifically, the NSPS includes a provision that allows for the CAFO to request the Director to establish alternative NPDES permit limitations based upon a demonstration that site-specific innovative technologies will achieve overall environmental performance across all media which is equal to or superior to the reductions achieved by baseline standards. The quantity of pollutants discharged from the production area must be accompanied by an equivalent or greater reduction in the quantity of pollutants released to other media from the production area (e.g., air emissions from housing and storage), the land application areas for all manure, litter, and process wastewater at on-site and off-site locations, or both. In making the demonstration that the innovative technologies will achieve an equivalent or greater reduction, the comparison of quantity of pollutants is to be made on a mass basis where appropriate.

In general, EPA expects CAFOs will conduct a whole-farm audit to evaluate releases that occur at the point of generation to minimize or eliminate waste production and air emissions, followed by an evaluation of the waste handling and management systems, and ending with an evaluation of land application and off-site transfer operations. The specific technologies that CAFOs will select and adopt to achieve the pollutant reductions are expected to be most effective for the particular operation. As part of the demonstration the CAFO will need to present information that describes how the innovative technologies will generate improvement across multiple environmental media. The Director has the discretion to request additional supporting information to supplement such a request where necessary. Such information could include criteria and data that demonstrate effective performance of the technologies and that could be used to establish the alternative NPDES permit limitations.

(4) *Process and incentives for participating in alternative performance standards.* CAFOs interested in pursuing the alternative performance standards should have a good compliance history, e.g., no ongoing violations of existing permit performance standards or history of significant noncompliance. These facilities must conduct an analysis of

their operation (as described above in Sections IV.C.2.e.(2) and IV.C.2.e.(3)) and prepare a proposed alternative program plan including the results of the analysis; the proposed method for implementing new technologies and practices, including an approach for monitoring performance; and the results demonstrating that these technologies and practices perform equivalent to or better than the baseline effluent guidelines. This plan must be included with the CAFO's NPDES permit application or renewal, and it will be incorporated into the permit upon approval by the permitting authority.

CAFOs are expected to derive substantial benefits from participation in the alternative standards approach, through greater flexibility in operation, increased good will of neighbors, reduced odor emissions, and potentially lower costs. EPA is considering future opportunities for other possible incentives to encourage participation in this program.

f. *How did EPA consider the Clean Water Act statutory factors in establishing the ELGs?* (1) BPT. In establishing BPT effluent guidelines for an industry category, EPA looks at a number of factors in determining the appropriate effluent limits for conventional, toxic, and non-conventional pollutants. EPA first considers the cost of achieving effluent reductions in relation to the effluent reduction benefits. The Agency also considers the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the Agency deems appropriate. 33 U.S.C. 304(b)(1)(B). Traditionally, EPA establishes BPT effluent limitations based on the average of the best performances of facilities within the industry of various ages, sizes, processes or other common characteristics. EPA's consideration of these factors and how they affected this rulemaking is presented in the *Technical Development Document*.

One way that EPA takes these factors into account is by breaking down categories of industries into separate classes of similar characteristics. The division of a point source category into groups called "subcategories" provides a mechanism for addressing variations among products, raw materials, processes, and other parameters that can result in distinct effluent characteristics. This provides each subcategory with a uniform set of ELGs that take into account technology achievability and

economic impacts unique to that subcategory. In this rule, EPA has addressed such considerations by establishing two new subcategories, codified at Subpart C (beef, dairy, and heifers) and Subpart D (swine, poultry, and veal) of 40 CFR 412. *See* Section IV.C.2.a of the preamble for a discussion of these subcategories.

The requirements established in this rule for BPT effluent guidelines reflect consideration of the total cost of applying these technologies (including BMPs) in relation to the effluent reduction benefits that will be achieved. The ELGs promulgated today are expected to cost Large CAFOs \$283 million per year (pre-tax). The ELGs will reduce discharges of sediment by 2.1 billion pounds, nutrients by 155 million pounds, and metals by one million pounds annually. This results in an overall ratio of \$0.12 per pound of pollutant removed (using reductions of sediment, nutrients, and metals). Excluding sediment reductions, the rule achieves an overall ratio of \$1.75 per pound of pollutant removed (nutrients and metals).

The technologies upon which BPT is based are ones that are readily applicable to all CAFOs and will provide effective control of discharges of manure, litter, and other process wastewaters to surface water. These requirements are widely demonstrated as achievable and represent the level of control achieved by the majority of Large CAFOs. The containment requirements included in this rule have been applicable to Large CAFOs since they were promulgated in the 1974 ELGs, and most existing lagoons and other containment structures are built to these standards. Furthermore, USDA and ASAE cite the 25-year, 24-hour rainfall event as part of the standard to which containment structures should be constructed.

As described in Section IV.C.2.b of this preamble, the land application requirements included in this rule represent practices that will ensure that CAFOs apply manure, litter, and other process wastewaters at a rate and in a manner consistent with the appropriate agricultural utilization of nutrients. Limits on the rate at which manure can be applied and certain other constraints on application practices, such as setbacks and vegetated buffers, are widely demonstrated as achievable and have been imposed by a number of States and through NPDES permits.

(2) BCT. In evaluating the possible BCT standards in this rulemaking, EPA first considered whether there are any candidate technologies (*i.e.*, technology options) that are technologically feasible

and achieve greater reductions in conventional pollutants than are achieved by the BPT requirements promulgated today. (Conventional pollutants are defined as TSS, BOD, pH, fecal coliform, and oil and grease.) EPA's analyses of pollutant reductions that can be achieved by the candidate options (including the BPT, BAT, and NSPS options) has focused largely on the control of nutrients, sediments, metals, and pathogens, but to the extent possible have also assessed the effectiveness of the control options at reducing discharges of conventional pollutants. Although animal wastes contain BOD because of the organic material present in these wastes, the data available for estimating reductions of BOD from application of the candidate technologies are limited. Therefore, EPA based its estimates of conventional pollutant reductions on TSS, using estimated reductions in sediment discharges as a surrogate for TSS. Following this approach, EPA identified no BCT technology option that achieves greater TSS removals than the BPT requirements promulgated today, and EPA does not believe the candidate BCT options would substantially reduce discharges of BOD. EPA therefore concluded that there are no candidate BCT technologies for establishing limits on conventional pollutants that are more stringent than BPT, and is establishing BCT requirements in this rule equal to BPT. If EPA had identified technology options appropriate for a national rule that achieve greater reductions of conventional pollutants than are achieved by BPT, then EPA would have performed the two-part BCT cost test. (*See* 51 FR 24974 for a description of the methodology EPA employs when setting BCT standards.)

(3) BAT. In general, BAT represents the best available economically achievable performance of direct discharging facilities in the industrial subcategory or category. The Clean Water Act requires EPA to consider a number of different factors when developing ELGs that represent the BAT level of control for discharges of toxic and nonconventional pollutants by a particular industry category. These factors include the cost of achieving effluent reductions, the age of equipment and facilities involved, the processes employed, engineering aspects of the control technology, potential process changes, non-water quality environmental impacts (including energy requirements), and other factors as the Administrator deems appropriate. EPA's consideration of

these factors and how they affected this rulemaking is presented in the *Technical Development Document*.

An additional statutory factor considered in setting the BAT requirements is economic achievability. Generally, the achievability is determined on the basis of the total cost to the industrial subcategory and the overall effect of the rule on the industry's financial health. The BAT requirements promulgated today are economically achievable and represent the best available technology for Large CAFOs. As was discussed above for BPT, EPA estimates the cost for Large CAFOs to comply with the ELGs at \$283 million per year (pre-tax, \$2001). The ELGs will reduce discharges of sediment by 2.1 billion pounds, nutrients by 155 million pounds, and metals by one million pounds annually. (These costs and pollutant reductions are not additional costs beyond that of BPT. Because the BPT and BAT requirements promulgated today are identical, the costs and pollutant reductions for each level of control are presented incremental to the baseline of current practices and current regulatory requirements.)

The technologies upon which BAT is based are ones that are readily applicable to all CAFOs and will provide effective control of discharges of manure, litter, and other process wastewaters to surface water. The containment requirements, in conjunction with the production area BMPs included in this rule, are widely demonstrated as achievable and represent the level of control demonstrated to be achievable by well-performing Large CAFOs. The containment requirements included in this rule have been applicable to Large CAFOs since they were promulgated in the 1974 ELGs, and most existing lagoons and other containment structures are built to these standards. Furthermore, USDA and ASAE cite the 25-year, 24-hour rainfall event as part of the standard to which storage structures should be constructed.

As described in Section IV.C.2.b of this preamble, the land application requirements included in this rule are consistent with appropriate agricultural utilization of nutrients and will ensure that CAFOs apply manure, litter, and other process wastewaters at a rate and in a manner necessary to meet the requirements of the crops grown and not exceed the ability of the soil and crop to absorb nutrients. Limits on the rate at which manure can be applied and certain other constraints on application practices, such as setbacks and vegetated buffers, are widely

demonstrated as achievable and have been imposed by a number of States and through NPDES permits.

To determine economic achievability, EPA analyzed how many facilities affected by this rule would experience financial stress severe enough to make them vulnerable to closure. As explained in more detail in Section VIII of this preamble and in the *Economic Analysis*, the number of facilities experiencing stress might indicate whether certain regulatory options considered during the rulemaking are economically achievable, subject to other considerations.

For the veal, dairy, turkey, and egg laying sectors, the final regulations are not expected to result in any CAFO-level business closures. In the beef cattle, heifer, swine and broiler sectors, however, the final rule is expected to cause some existing CAFOs to experience financial stress. These operations may be vulnerable to closure as a result of complying with the final rule. Across all sectors, an estimated 285 existing Large CAFOs may be vulnerable to facility closure. This accounts for approximately 3 percent of all Large CAFOs. By sector, EPA estimates that 49 beef operations (3 percent of affected beef CAFOs), 204 hog operations (5 percent of affected hog CAFOs), 10 broiler operations (1 percent), and 22 heifer operations (9 percent) may close as a result of complying with the final rule.

(3) NSPS. NSPS reflect effluent reductions that are achievable based on the best available demonstrated control technology. New facilities have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS represents the greatest degree of effluent reduction attainable through the application of the best available demonstrated control technology for all pollutants (*i.e.*, conventional, non-conventional, and priority pollutants). In establishing NSPS, EPA is directed to take into consideration the cost of achieving the effluent reduction and any non-water quality environmental impacts and energy requirements. In addition, EPA evaluates whether the requirements would impose a barrier to entry to new operations.

The technologies upon which the production area NSPS for Large beef, dairy, and heifer CAFOs are ones that are readily applicable to all CAFOs in that subcategory and will provide effective control of discharges of manure, litter, and other process wastewaters to surface water. The containment requirements, in

conjunction with the production area BMPs included in this rule, are widely demonstrated as achievable and represent the level of control demonstrated to be achievable by well-performing Large CAFOs covered by Part 412, Subpart C. The containment requirements included in this rule have been applicable to Large CAFOs since they were promulgated in the 1974 ELGs, and most existing lagoons and other containment structures are built to these standards. Furthermore, USDA and ASAE cite the 25-year, 24-hour rainfall event as part of the standard to which containment structures should be constructed.

EPA has determined that total containment (with a compliance option to design, operate, and maintain the facility to contain the runoff from a 100-year, 24-hour rainfall event) for the production area for new swine, poultry, and veal sources (and the production area BMPs) is technologically feasible and will not pose a barrier to entry for new sources subject to Subpart D. It is common for new poultry, veal, and swine operations to construct facilities that keep the animals in total confinement. In addition, many new operations are based on manure handling systems that greatly reduce or eliminate water use, such as hog and poultry high-rise houses, or that contain manure in covered or indoor facilities, such as underpit storage systems and litter storage sheds. EPA has carefully evaluated the concerns raised in comments regarding the technical feasibility of total containment at swine, poultry, and veal operations. The concerns raised by commenters are primarily associated with operational factors and the effect of climate on the use of lagoon covers. New sources will avoid the design challenges and retrofit costs that existing sources would face with these requirements. Based on the information in the record, and as discussed above, EPA has received data to demonstrate that each of these factors has been successfully handled at CAFOs and other facilities. Therefore, EPA concludes that the total containment requirements of this rule could be met through the use of lagoon covers if facilities choose to do so. However, by retaining all manure and process wastewater within the building (for example, by using underhouse pits) and not using an outdoor liquid impoundment, these operations will avoid the operational challenges posed by covers. Additional compliance flexibility is provided by the provision that allows the zero discharge standard to be met by designing, constructing,

operating, and maintaining waste management and storage facilities to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 100-year, 24-hour rainfall event.

The land application requirements included in this rule for all Large CAFOs that are new sources are identical to those established under BAT for existing sources and are consistent with appropriate agricultural utilization of nutrients. These land application requirements will ensure that CAFOs apply manure, litter, and other process wastewaters at a rate and in the manner necessary to meet the requirements of the crops grown and not exceed the ability of the soil and crop to absorb nutrients. Limits on the rate at which manure can be applied and certain other constraints on application practices, such as setbacks and vegetated buffers, are widely demonstrated as achievable and as the best available demonstrated control technology, and have been imposed by a number of States and through NPDES permits.

EPA evaluated economic impacts to new source CAFOs by comparing the costs borne by new source CAFOs to those estimated for existing sources. That is, if the expected cost to new sources is similar to or less than the expected cost borne by existing sources (and that cost was considered economically achievable for existing sources), then EPA considers the regulations for new sources do not impose requirements that might grant existing operators a cost advantage over new CAFO operators and further determines that the NSPS is affordable and does not present a barrier to entry for new facilities. In general, costs to new sources for complying with a given set of regulatory requirements are lower than the costs for existing sources to comply with the same requirements since new sources are able to apply control technologies more efficiently than existing sources that may incur high retrofit cost. New source CAFOs will be able to avoid the retrofit costs that will be incurred by existing sources. For example, the cost of a model total containment system for swine that would meet the no discharge requirement (*e.g.*, incremental cost of deep pit swine house, including land application) typically is less than the cost for an existing source to retrofit water intensive lagoon-based systems that are exposed to precipitation. Among the primary reasons for the capital cost difference for a new source with total containment is that it does not include an impoundment lagoon,

and it experiences reduced operating costs because it handles less waste with substantially lower water and higher solids content than a water-intensive lagoon-based system. New sources may be able to avoid many of the other control costs facing some existing producers through careful site selection, such as choosing to locate at a site with sufficient available land nearby for applying manure. Furthermore, other technologies are available to new sources, that have been implemented by existing sources, that are also capable of achieving the no discharge standard.

See section IV C above for further discussion of other technologies. Since the new source requirements for Subpart C are the same as the corresponding existing source requirements, EPA concludes that the NSPS requirements promulgated today do not present a barrier to entry for new facilities. For Subpart D facilities, where the new source requirements are more stringent than the existing source requirements, EPA concludes that the NSPS requirements do not pose a barrier to entry because of the currently widespread use of animal confinement practices and waste management technologies that can comply with the zero discharge standard, and because these total containment technologies and practices are less costly to implement than water-intensive systems (e.g., such as water flush waste management) that are exposed to precipitation. EPA costed for zero discharge technologies and showed that these would pose no barrier to entry. Now that operations can choose an alternative option that might be cheaper to implement, EPA believes that there is even less likelihood that there is a barrier to entry. More information is provided in the *Technical Development Document* and the *Economic Analysis* supporting the final regulations.

3. What Technology-Based Limitations Apply to Small and Medium CAFOs?

In today's final rule, small and medium-size AFOs that have been defined or designated as CAFOs by the permitting authority would not be subject to the effluent limitations guidelines and standards specified in part 412. (Refer to section IV.C.2.a. of this preamble for a discussion of the key public comments and EPA's final analysis for applying the effluent limitations guidelines only to Large CAFOs.) Rather, for Small and Medium CAFOs the permit writer would use BPJ to establish, case by case, the appropriate technology-based requirements for each permit. The technology-based requirements must

address the production area and the land application area(s). Establishing permit limits for these facilities on a BPJ basis, using 40 CFR 125.3 as a guide for the types of factors to consider, allows for the establishment of permit conditions that are tailored to and more directly address the site-specific conditions that led to the facility being defined or designated as a CAFO. In instances where technology-based requirements are not protective of water quality, the permit writer will also establish water quality-based effluent limits.

For the production area, the permitting authority must establish the technology-based limitations on the discharge of manure, litter, and process wastewater, including limitations where applicable based on the minimum duration and intensity rainfall event for which the CAFO can design and construct a system to contain all manure, litter, and process wastewater and storm water. Technical references from USDA and the American Society of Agricultural Engineers should be consulted for appropriate design factors to consider for containment structures. Typical design factors are: (1) Sludge volume, (2) treatment volume, (3) volume of manure and wastewater between drawdown events, (4) total volume for runoff and precipitation, and (5) the minimum duration and intensity rainfall event portion of (4).

For the land application area, the permitting authority must consider permit requirements that place technology-based limits on discharges resulting from the application of manure, litter, and process wastewater to land under the control of the CAFO owner or operator, including restrictions on the rates of application to ensure appropriate agricultural utilization of nutrients. In today's final rule, all CAFOs must develop and implement a nutrient management plan (as described in the next section).

4. Will CAFOs Be Required To Develop and Implement a Nutrient Management Plan?

Under today's final rule, NPDES permits for all CAFOs will require the development and implementation of a nutrient management plan. At a minimum, a nutrient management plan must include BMPs and procedures necessary to achieve effluent limitations and standards. The plan must, to the extent applicable, address the following minimum elements:

- 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 animal mortalities (i.e., dead animals) to ensure that they are not disposed of in any 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 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, or process wastewater, or storm water storage or treatment system, unless specifically designed to treat such chemicals and other 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.

For Large CAFOs these minimum elements of a nutrient management plan must also meet the more detailed requirements in the part 412 effluent guidelines. For Small and Medium CAFOs, or other operations not otherwise subject to part 412 requirements for land application, the minimum elements of a nutrient management plan will be further specified in the permit, on a site specific basis, based on the best professional judgment of the permitting authority.

What did EPA propose? In the proposed rule, EPA introduced the concept of a "Permit Nutrient Plan" ("PNP"), and proposed that permits for all CAFOs would require the development and implementation of a PNP. For CAFOs not subject to the ELGs, the proposal called for the permitting authority to consider the need for a PNP.

The concept of a PNP, as opposed to the use of the term CNMP, was used by EPA to identify those specific aspects of a CNMP that would be required under

the proposed regulatory program. In the proposal EPA included a discussion documenting the relationship between a CNMP and a PNP. EPA also prepared, and made available for public review as a supporting document, a draft guidance document entitled *Managing Manure Nutrients at Concentrated Animal Feeding Operations* which provided information concerning the content of a PNP. The PNP was considered to be the subset of activities in a USDA defined CNMP that relate to compliance with the effluent discharge limitations and other requirements of the NPDES permit. EPA also proposed that it be developed, or reviewed and modified, by a certified specialist. The proposal would have required the PNP to be developed within 3 months of submitting either an NOI for coverage under an NPDES general permit or an application for an NPDES individual permit. CAFO operators would be required to notify the permitting authority when the PNP had been developed. EPA's position was that the content of a PNP was consistent with that of a CNMP and could be addressed in a single plan for a given operation.

What were the key comments? In general, commenters supported the concept of requiring the development and implementation of nutrient management plans by CAFOs. Although commenters generally supported the overall concept, many did not endorse the specific approach taken by EPA in the proposed rule. There was significant comment from stakeholders that the PNP would require the development of a separate plan in addition to a CNMP. Although EPA had intended the PNP to be a subset of information contained within a typical CNMP, not an independent or separate plan, a number of commenters misunderstood that point, and otherwise felt that the proposal would result in confusion in the regulated community.

The SBAR Panel noted the concerns of some small business representatives regarding the practical difficulties of ensuring that manure is always applied at agronomic rates. The Panel recommended that EPA continue to work with USDA to explore ways to limit permitting requirements to the minimum necessary to deal with such threats and to define what is "appropriate" land application consistent with the agricultural storm water exemption. The Panel agreed that if manure and wastewater are applied to land at agronomic rates and a facility is designed to contain the discharge from a 25-year, 24-hour storm, that facility would have minimal potential to discharge or adversely affect water

quality. However, it is also possible that an operation might land apply in excess of agronomic rates but still not discharge, depending on such factors as annual rainfall, local topography, and distance to the nearest stream. The Panel recommended that EPA consider such factors as it develops requirements related to land application.

The SBAR Panel also raised concerns related to the development and implementation of CNMPs, as well as specific requirements for applying nutrients at a phosphorous-based rather than a nitrogen-based rate in certain circumstances. Small business representatives expressed concerns about application of manure at phosphorus-based rates. The Panel noted the high cost of phosphorus-based application relative to nitrogen-based application and supported EPA's intent to require the use of phosphorus-based application rates only where necessary to protect water quality, if at all, keeping in mind its legal obligations under the Clean Water Act. If the soil is not phosphorus-limited, nitrogen-based application should be allowed. The Panel recommended that EPA consider leaving the determination of whether to require the use of phosphorus-based rates to BPJ, and continue to work with USDA in exploring such an option.

Rationale. In the March 1999 USDA/EPA *Unified National Strategy for Animal Feeding Operations* EPA and USDA endorsed the concept of CNMPs for all AFOs. The Strategy acknowledged that the vast majority of these plans would be developed under voluntary programs while a limited number would be prepared under the regulatory program. In today's final rule, CAFOs, which represent only a small proportion of all AFOs, are required to have a nutrient management plan, and the nutrient management plan represents a subset of activities within a CNMP that are necessary for CWA regulatory purposes. EPA believes that this approach is consistent with the concepts in the Strategy.

EPA explained in section IV.C.2.b above that the BMPs specified in today's regulation, including the requirement to develop and implement a nutrient management plan, represent the minimum elements of an effective BMP program and are necessary to control the discharges of pollutants to surface waters. As discussed there, non-numeric effluent limitations consisting of BMPs are particularly suited to the regulation of CAFOs. In particular, EPA believes that it is generally infeasible to establish a numeric effluent limitation for discharges of land-applied CAFO waste. The factors that make a numeric

limitation infeasible include, among other things, that storm water discharges can be highly intermittent, are usually characterized by very high flows occurring over relatively short time intervals, and carry a variety of pollutants whose nature and extent vary according to geography and local land use. Accordingly, the final regulations at section 122.42(e) specify the need for a nutrient management plan for all CAFOs and the general elements that the plan must address.

For Large CAFOs, EPA has specified the need for a nutrient management plan as a non-numeric effluent limitation in the form of a BMP requirement under the final ELGs. For Small and Medium CAFOs, and other operations that are not subject to the CAFO effluent guidelines, authority to require a nutrient management plan exists under Clean Water Act sections 402(a)(1) and (2) and 40 CFR 122.44(k). EPA believes that a nutrient management plan requirement for the Small and Medium CAFOs is necessary in order to appropriately control discharges of pollutants and otherwise carry out the purposes and intent of the CWA. For these operations, EPA found it was appropriate for the final rule to specify, on a national basis, the requirement for a nutrient management plan and the general elements that the plan must address. In turn, the final rule allows the permitting authority to include, on a best professional judgment basis in light of more localized factors, more specific nutrient management plan requirements as necessary to ensure appropriate agricultural utilization of nutrients at the operation.

EPA has addressed the SBAR panel concerns by defining the scope of a nutrient management plan with reference to those elements necessary to ensure that manure is managed effectively insofar as they are related to possible discharges to surface water. Further, today's final rule requires land application rates based on the site-specific technical standards established by the Director.

EPA agrees that the use of the term PNP created unintended confusion. While EPA remains a strong advocate of the development of CNMPs the Agency recognized the need to address this confusion. In response to comments, EPA is relying on the more generic term, "nutrient management plan" in today's rule. By way of clarification, the nutrient management plan is a separate and distinct term that applies to the subset of activities in a USDA-defined CNMP that are required by the CAFO effluent guidelines or NPDES permit regulations. These requirements are

defined in today's rule as the minimum elements that all nutrient management plans, developed as a special condition of an NPDES permit, must meet. EPA expects that many CAFOs will satisfy the requirement to develop a nutrient management plan by developing a full CNMP, although a full CNMP is not required in today's regulations. The minimum measures of a nutrient management plan in today's final rule are consistent with the content of both the PNP as proposed by EPA and the CNMP as defined by USDA. EPA's position remains that the development and implementation of a full CNMP is one of the most effective methods for a permitted operation to demonstrate compliance with the nutrient management plan requirements required by this rule.

In today's rule, EPA is requiring all CAFOs to develop and implement a nutrient management plan by December 31, 2006, except that CAFOs seeking to obtain coverage under a permit subsequent to that date must have a nutrient management plan developed and implemented upon the date of permit coverage. This is consistent with the dates being established for the ELG. As discussed in section IV.C.2.b of this preamble, the ELGs promulgated today require Large CAFOs that are existing sources to implement the land application requirements at 40 CFR 412.4(c) by December 31, 2006 because that is the date when EPA is assured that the required planning is in fact available to the great number of regulated sources. For Large CAFOs that are new sources (*i.e.*, those commencing construction after the effective date of this rule), the land application requirements at 40 CFR 412.4(c) apply immediately.

EPA has similarly concluded that Small and Medium CAFOs subject to the NPDES provisions for nutrient management plans also, in general, will be unable to develop and implement a nutrient management plan by the date they will need to seek permit coverage under the requirements of this rule, for reasons of insufficient infrastructure. Therefore, EPA is requiring Small and Medium CAFOs to develop and implement NMP plans by December 31, 2006. As discussed in section IV.C.2.b, among other things, this time frame allows reasonable time for States to update their NPDES programs and issue permits to reflect the nutrient management plan requirements of today's rule and provides flexibility for permit authorities to establish permit schedules based on specific circumstances, including prioritization of nutrient management plan

development and implementation based on site-specific water quality risks and the available infrastructure for development of nutrient management plans. Refer to section IV.C.2.b for additional discussion on the time frame by which CAFOs must implement the land application requirements of 40 CFR 412.4(c).

Through the permit application process (every five years), a nutrient management plan will have to be reviewed and updated by the CAFO owner or operator. EPA recognizes that the nutrient management plan will be a dynamic document that might require updates more frequently than every five years. A site-specific nutrient management plan that reflects the current CAFO operation must be maintained on-site by the CAFO owner/operator. The most obvious factor that would necessitate an update to the nutrient management plan is a substantial change in the number of animals at the CAFO. A substantial increase in animal numbers (for example an increase of greater than 20 percent) would significantly increase the volume of manure and total nitrogen and phosphorus produced on the CAFO. As a result, the CAFO would need to reevaluate animal waste storage facilities to ensure adequate capacity and may need to reexamine the land application sites and rates. Another example of a reason for updating the nutrient management plan is a change in a CAFO's cropping program, which could significantly alter land application of animal waste. Changes in crop rotation or crop acreage, for instance, could significantly alter land application rates for fields receiving animal waste.

5. Does EPA Require Nutrient Management Plans To Be Developed or Reviewed by a Certified Planner?

Although EPA promotes and supports the use of certified specialists to help ensure the quality of nutrient management plans, the Agency is not requiring such plans to be developed or reviewed by a certified planner as part of this final rule.

What did EPA propose? EPA proposed the Permit Nutrient Plans be developed, or reviewed and modified, by a certified specialist. A certified planner was defined as someone who has been certified to prepare CNMPs by USDA or a USDA sanctioned organization.

What were the key comments? EPA received a number of comments on this provision. Many States support a State certification program where they would have the flexibility to develop their own

program. Some producers and environmental groups supported certified plans as outlined in the proposal. Many comments related to the cost of having a specialist develop or review a plan and whether there are enough specialists across the country to handle the volume of work. Some said that a certified plan would not achieve the goal of improved water quality. Others said that operators should be able to develop their own plan, noting that USDA tools and other resources are available to operators and a specialist is not needed. There was also concern that EPA was limiting the type of specialist by listing, in the proposal, examples of who might be a specialist.

Rationale. EPA agrees that certification programs are more appropriately developed by USDA or at the State level. State resources, coordination with local stakeholders, and State requirements relating to nutrient management are some of the factors that may influence State specific certification programs. EPA shares the concerns regarding the current capacity to develop up to 15,500 certified plans for CAFOs and meet the demands from a universe of 222,000 other AFOs requesting CNMPs through USDA's voluntary program. Currently, EPA does not have a reliable estimate on the number of certified specialists available for developing and implementing nutrient management plans. However, EPA recognizes that some States already have certification programs in place for nutrient management planning, and expects that the USDA and EPA guidance for AFOs and CAFOs will provide additional impetus for new and improved State certification programs. These programs provide an excellent foundation for producing qualified specialists for nutrient management planning. When all of these State certification programs are in place, EPA expects that there will be sufficient capacity to develop and implement the required nutrient management plans by the required regulation implementation date of December 31, 2006.

Although not required, EPA encourages CAFOs to make use of certified specialists with the expertise to develop high quality nutrient management plans. The purpose of using certified specialists is to ensure that effective nutrient management plans are developed and/or reviewed and modified by persons who have the requisite knowledge and expertise to develop nutrient management plans that meet the regulatory requirements and that are appropriately tailored to the site-specific needs and conditions at each CAFO. Interested parties should

consult with USDA, State Agricultural Departments, and their NPDES permitting authority regarding the availability of certified specialists and opportunities to be certified.

Under today's final rule operators may develop and implement their own nutrient management plan, and may themselves become certified nutrient management planners. In fact, EPA indicated in the SBAR Panel Report that it expected that many operators could become certified through USDA or land grant universities to prepare their own nutrient management plans. While no definitive number is currently available, results from preliminary draft studies indicate that the average CNMP cost per farm was \$7,276 per year. The list of sources in the proposal of who can provide CNMP certified specialists is there only as a sample list. It in no way precludes or prevents an operator from obtaining a CNMP from an alternate source.

6. What Are the Special Conditions Applicable to All NPDES CAFO Permits?

In today's rule EPA is defining two special conditions that are to be required in all NPDES CAFO permits: (1) CAFO owners or operators must develop and implement a nutrient management plan that addresses specific minimum elements and (2) the CAFO owner or operator must maintain permit coverage for the CAFO until there is no remaining potential for a discharge of manure, litter, or associated process wastewater other than agricultural storm water from land application areas, that was generated while the operation was a CAFO (*i.e.* proper closure). The special conditions in an NPDES permit are used primarily to supplement effluent limitations and ensure compliance with the Clean Water Act.

A discussion of the specific nutrient management plan requirements of today's rule, the key public comments and EPA rationale for requiring nutrient management plans is included in section IV.C.4 of this preamble.

In today's rule, EPA is adopting as final the proposal to require permitted CAFOs that lose their status as CAFOs (*e.g.*, they cease operations, or reduce their number of animals below the regulatory thresholds) to retain an NPDES permit until there is no remaining potential for a CAFO-generated discharge other than agricultural storm water from the land application areas. Should the facility's permit expire, the owner/operator would be required to reapply for an NPDES permit if the facility has not

been properly closed (*i.e.*, the facility still has a potential to discharge). Proper facility closure includes but is not limited to removal of water from lagoons and proper disposal or reuse of manure removed from storage areas such as pens, lagoons, and stockpiles. For CAFO facilities that down-size to become AFOs, proper closure of the CAFO is achieved when there is no longer a potential to discharge any manure, litter, or process wastewater generated while the operation was a CAFO.

What did EPA propose? In the proposal, the Agency discussed a variety of options for ensuring proper closure of CAFOs, including applying financial instruments, preparing closure plans, and, as adopted today, retaining an NPDES permit until the facility is properly closed.

EPA proposed two additional special conditions that are not being included in today's final rule. EPA proposed that the permit writer must consider whether to include special conditions to address (1) Timing restrictions on land application of manure or litter and wastewater to frozen, snow-covered, or saturated ground, and (2) conditions to control discharges to ground water with a direct hydrologic connection to surface water. Although today's rule does not include a national requirement for either of these issues to be regulated in the permit, the permitting authority may impose permit terms and conditions that address either of these issues on a case-by-case basis as appropriate. See section IV.C.2.b above for a discussion of the key comments on these two issues and EPA's reasons for not including either of them as national requirements in today's rule.

What were the key comments? Industry comments largely supported the proposal to require facilities to retain an NPDES permit until properly closed. Some environmental groups, U.S. Fish and Wildlife Service, some States and citizens preferred a closure plan with financial assurance, expressing concern that taxpayers end up paying to clean up abandoned lagoons, whereas this should be the responsibility of the CAFO operator. Some commenters opposed the closure requirement, stating that it was inconsistent with and more restrictive than NPDES requirements for other industry sectors. Others questioned the practical meaning of closure, as well as the practical ability of permit authorities to track such closed facilities.

Rationale. EPA's establishment of a minimum national standard for closure will help ensure the environmental risks associated with CAFO manure and

wastewater are minimized upon closure. Although EPA is not establishing financial surety measures, States may want to implement them as appropriate under their own authorities to prevent the environmental damage caused by facilities that are no longer in business. EPA concluded that requiring retention of an NPDES permit provides a far more effective tool for environmental protection than would simply requiring a closure plan that might, or might not, be effectively implemented.

In practical terms, how clean a facility must be to meet closure requirements that the operation no longer has a potential to discharge will be left to the permitting authority. EPA is not requiring CAFO facilities to post bonds to obtain an NPDES permit, nor does EPA calculate that closure costs are necessarily high. EPA assumes that disposal methods normal to the operation will be used to close out the facility.

The need to maintain NPDES coverage until proper closure of the CAFO is a result of the unique nature of CAFO facilities. As a part of their normal operation CAFOs may, among other things, have manure and litter storage structures, lagoons, and feed storage areas. The abandonment of any one of these has the potential for catastrophic environmental damage to waters of the U.S. As a result, to protect against unauthorized discharges, there is a need to maintain coverage of the facility under the NPDES permit until the facility is properly closed. Upon verification of the proper closure of the facility by the permitting authority there will be no need to retain the NPDES permit. The NPDES permit can then be terminated and there would be no longer any need to track the facility. EPA expects that the State permitting authority will cease to issue a permit based on evidence that the facility is properly closed. It is not expected that this will be a major burden to the States.

7. Standard Conditions Applicable to All NPDES CAFO Permits

Standard conditions in an NPDES permit are preestablished conditions that apply to all NPDES permits, as specified in 40 CFR 122.41. They include Duty to Comply, Duty to Reapply, Need to Halt or Reduce Activity Not a Defense, Duty to Mitigate, Proper Operation and Maintenance, Permit Actions, Property Rights, Duty to Provide Information, Inspection and Entry, Monitoring and Records, Signatory Requirement, Reporting Requirements, Bypass and Upset. Today's action does not make any changes to the standard permit

conditions, with respect to NPDES permits issued to CAFOs.

D. What Records and Reports Must Be Kept On-Site or Submitted?

Today's rule specifies the types of records to be kept on-site at the CAFO in accordance with the recordkeeping requirements section of the permit. Today's rule also specifies 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 in accordance with the monitoring and reporting section of the permit.

The specific recordkeeping, monitoring, and reporting requirements in today's rule balance the need for information documenting permit compliance and minimizing the burden on the permittee to collect and record data. State permit authorities have the option to include more stringent requirements if they find such an action necessary. The minimum recordkeeping, monitoring, and reporting requirements that must be included in each NPDES permit are as follows:

Recordkeeping requirements. All CAFO operators must maintain a copy of the site specific nutrient management plan on site, and records documenting the implementation of the best management practices and procedures identified in the nutrient management plan.

In addition, Large CAFOs must maintain operation and maintenance records that document (a) visual inspections, inspection findings, and preventive maintenance needed or undertaken in response to the findings; (b) the date, rate, location, and methods used to apply manure or litter and wastewater to land under the control of the CAFO operator; (c) the results of annual manure or litter and wastewater sampling and analysis to determine the nutrient content; and (d) the results of representative soil sampling and analyses conducted at least every five years to determine nutrient content.

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

Today's rule requires all CAFOs to submit an annual report that includes the following information:

- Number and type of animals confined (open confinement and housed under roof).
- Estimated amount of total manure, litter, and process wastewater generated

by the CAFO in the previous 12 months (tons/gallons);

- Estimated amount of total manure, litter, and process wastewater transferred to other persons by the CAFO in the previous 12 months (tons/gallons);
- Total number of acres for land application covered by the nutrient management plan;
- 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;
- Summary of all manure and wastewater discharges from the production area that have occurred in the previous 12 months, including date, time, and approximate volume; and
- A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner.

What did EPA propose? EPA proposed requirements to keep, maintain for five years, and make available to the Director or the Regional Administrator, records of inspections and manure sampling and analysis, records related to the development and implementation of a PNP, and records of off-site transfers of manure. EPA proposed that CAFO operators maintain records of off-site transfer and provide the recipient with a brochure on proper land application practices. EPA also proposed a small quantity exemption limit below which an operator would not have to keep records of manure transfers. EPA proposed operators submit a cover sheet and executive summary of their permit nutrient plans to the permitting authority. In addition, the Agency proposed to require operators to submit a written notification to the permitting authority, signed by a certified planner, that the PNP has been developed or amended and is being implemented. The proposal required annual review of the PNP and re-submission of the executive summary if there were any changes to the PNP.

Today's final rule changes the recordkeeping and reporting requirements that were proposed in the following ways: EPA is not requiring the CAFO owner or operator to provide the recipient of the manure with a brochure that describes the recipient's responsibilities for appropriate manure management, and EPA is not adopting the proposal to set a minimum quantity exemption, such that records of manure transfer would not be required below a certain quantity. In addition, EPA is no longer requiring CAFO operators to submit with the NOI a copy of the cover

sheet and executive summary of the CAFO operator's current Permit Nutrient Plan (PNP).

What were the key comments? EPA received a number of comments on the proposed recordkeeping, monitoring, and reporting requirements. The operators commented that monitoring and reporting programs are difficult to establish, expensive, and burdensome on the operator. They also claimed that these requirements would necessitate a significant amount of operator time and labor, and would provide opportunities for "technical" permit violations, with no benefit to water quality. Environmental groups and a majority of citizen commenters stated that these provisions are long overdue and any records submitted should be made available for public review.

The SBAR Panel recommended that EPA give careful consideration to all proposed recordkeeping requirements and explore options to streamline these requirements for small entities. Regarding the requirement to provide nutrient content information to manure recipients, the Panel believed that this would be minimally burdensome if analysis of this content is already required as part of the CNMP to ensure proper land application. The Panel suggested that EPA consider limiting any requirement to provide nutrient content analysis to situations where such analysis is required as part of the CNMP to ensure proper on-site land application, or possibly where the operator transfers manure to multiple recipients. Finally, the Panel noted that under the Paperwork Reduction Act and its implementing regulations, all reporting and recordkeeping requirements must be certified by the issuing agency to have practical utility and to reduce, to the extent practicable and appropriate, the burden on those required to comply, including small entities (5 CFR 1320.9).

Rationale. The recordkeeping, reporting, and monitoring requirements adopted today are necessary to demonstrate compliance with the requirements of today's rule and assure protection of water quality.

EPA is not requiring Small and Medium CAFOs to maintain records of the of the manure transferred off-site, or provide the recipient with an analysis of the nutrient content of the manure. As a result, these categories of CAFOs are relieved of the burden of keeping records of off-site transfer. EPA chose to provide regulatory relief for the Medium CAFOs by not requiring them to keep records of their manure transferred to third parties. EPA believes these CAFOs have more land and therefore ship less

manure off-site. EPA's goal is to track the majority of the manure that is transferred to third parties. This information kept by the large operations is sufficient for EPA needs.

EPA decided not to include a small quantity exemption for off-site transfer of manure in the final rule. The reason for the proposed exemption was to provide record keeping relief to small operators. However, EPA determined that effective implementation of the small-quantity exemption would itself have required considerable recordkeeping by the operator. Practically, then, including this exemption would not have significantly reduced the record keeping burden to small operators.

The annual report, which includes seven elements that are readily available to the CAFO owner/operator in the nutrient management plan, is being required in today's rule rather than the proposed PNP written notification, cover sheet and executive summary. The annual report gives the permitting authority information on the number of overflows occurring in a year (in order to verify compliance with the production area design requirements), the amount of manure generated, the amount of manure transferred off-site, and the number of acres available for land application. The annual report also provides information, such as the degree to which CAFOs are expanding and accounting for increased manure production, which is important to evaluate changes that might be needed to comply with permitting requirements. The final rule requires the permittee to indicate whether its plan was either written or reviewed by a certified CNMP planner. EPA is not requiring that a certified planner be used to develop or review the plan required under this rule. However, EPA believes that certified planners provide a valuable service in plan development such as consistency and improved plan quality. Knowledge of which plans were developed by a certified planner will help EPA focus its compliance assistance efforts and help States determine level of permit review needed for each facility. EPA has concluded that the annual report is a more effective method for ensuring permitting authorities and EPA have basic information documenting CAFO performance relative to permit requirements.

EPA disagrees with the public comments suggesting that the monitoring and reporting requirements do not provide any benefit to water quality. Monitoring and reporting provide the basis for CAFO operators

and permitting authorities to evaluate compliance with the requirements of today's rule and the associated environmental implications. Monitoring provides valuable benchmark information and subsequent data that a permittee can use to adjust its activities, better comply with the requirements of the permit, and thereby better control its runoff or potential runoff. Monitoring also provides documentation of the operation's activities, which is essential to determine whether regulatory requirements are being implemented effectively and the success of those activities in protecting water quality. Monitoring allows the permittee and the permitting authority to know what, if any, contribution the permittee is making to the degradation of water quality. Such information is also helpful in determining the improvements in water quality as a result of permit compliance activities.

In this final rule, EPA has made great efforts to reduce burden beyond what is noted above. EPA has eliminated all certifications that were proposed, which include middle category certification that a facility is not a CAFO, certification of off-site manure recipients, and the use of certified CNMP planners. In addition, EPA is not including a national requirement for operators to document that there is no direct hydrological connection from groundwater beneath their production area to surface waters (or add controls where there is such a connection).

V. States' Roles and Responsibilities

A. What Are the Key Roles of the States?

State regulatory agencies with authorized NPDES programs are principally responsible for implementing and enforcing today's rule. This final rule obligates NPDES permit authorities to revise their NPDES programs expeditiously and to issue new or revised NPDES permits to include the revised effluent guidelines and other permit requirements adopted today. In authorized States, their role would also include determinations for no potential to discharge (*see* section IV.B.2 of this preamble) and CAFO designation (*see* section IV.A.7 of this preamble) of AFOs as CAFOs.

Various State organizations, such as environmental agencies, agricultural agencies, conservation districts, play a central role in implementing voluntary and other programs (*e.g.*, technical assistance, funding, public involvement, legal access to information, and setting protocols) that support the goal of protecting water quality through proper management of animal manure. EPA

fully expects and promotes effective cooperation between voluntary and regulatory programs to achieve this goal. In designing this final rule, EPA has placed the principal emphasis on Large CAFOs which are part of the base NPDES program. With this in mind, EPA is promoting and encouraging States to use the full range of voluntary and regulatory tools to address medium and small operations.

B. Who Will Implement These New Regulations?

The requirements of today's rule will be implemented by issuing NPDES permits. Today's rule will be implemented by States with authorized NPDES permit programs for CAFOs. As of the date of this final rule, there are 45 States and 1 Territory with authorized NPDES permit programs for CAFOs. In States without an authorized NPDES program for CAFOs and in Indian Country, EPA will implement the rule.

C. When and How Must a State Revise Its NPDES Permit Program?

NPDES regulations require State NPDES permitting programs to be revised to reflect today's changes within one year of the date of promulgation of final changes to the Federal CAFO regulations (*see* 40 CFR 123.62(e)). In cases where a State must amend or enact a statute to conform with the revised CAFO requirements, such revisions must take place within two years of promulgation of today's regulations. States that do not have an existing authorized NPDES permitting program but who seek NPDES authorization after these CAFO regulatory provisions are promulgated must have authorities that meet or exceed the revised federal CAFO regulations at the time authorization is requested.

Today's regulation requires States to have technical standards for nutrient management consistent with 40 CFR 412.4(c)(3). If the State already has nutrient management standards in place, it is sufficient to provide those to EPA along with the State's submission of regulatory revisions to conform to today's changes. If the State has not already established technical standards for nutrient management, the Director shall establish such standards by the date specified in § 123.62(e) and provide those to EPA along with the State's submission of regulatory revisions.

The NPDES program modification process is described at 40 CFR 123.62. Opportunities for public input into the process of review and approval of State program revisions and approvals is

described in section V.C of this preamble.

D. When Must States Issue New CAFO NPDES Permits?

EPA does not typically establish requirements for when States must develop and issue NPDES permits. However, today's regulations require CAFOs to seek NPDES permit coverage under general permits within certain time frames, and CAFOs may not discharge any pollutants to waters of the United States without a permit. Thus, it is in States' interests to issue new or revised NPDES permits in a timely manner. It is EPA's expectation that new general permits will be available no later than the date on which CAFOs have a duty to apply for an NPDES permit. See section IV.B.3 for a full description of when CAFOs must seek permit coverage.

E. What Types of NPDES Permits Are Appropriate for CAFOs?

The NPDES regulations provide the permitting authority with the discretion to determine the most appropriate type of permit for a CAFO. The two basic types of NPDES permits are individual and general permits. An individual permit is a permit specifically tailored for a specific facility, while a general permit is developed and issued by a permitting authority to cover multiple facilities with similar characteristics.

EPA recognizes that most CAFOs will likely be covered by NPDES general permits; however, there are some circumstances where an individual permit might be appropriate (e.g., exceptionally large facilities, facilities that have a history of noncompliance, or facilities applying for approval to use an alternative performance standard in lieu of baseline technology-based effluent guidelines). The decision whether to issue a general or individual permit lies with the NPDES permitting authority. Section VI of the preamble discusses opportunity for public involvement in the NPDES permitting process.

As permit authorities explore innovative permitting approaches, the use of "watershed-based NPDES permits" might become more prevalent. For example, a watershed-based permit could be issued to CAFOs within a specific watershed. EPA is currently promoting pilot projects to help evaluate the benefits of watershed-based permitting and encourages States to use such a flexible tool to address the varied needs of specific watersheds.

F. What Flexibility Exists for States To Use Other Programs To Support the Achievement of the Goals of This Regulation?

In designing this final rule, EPA has striven to maximize the flexibility for States to implement appropriate and effective programs to protect water quality and public health by ensuring proper management of manure and related wastewater. This rule establishes binding legal requirements for Large CAFOs and maintains substantial flexibility for States to set other site-specific requirements for CAFOs as needed to achieve State program objectives. EPA encourages States to maximize use of voluntary and other non-NPDES programs to support efforts by medium and small operations to implement appropriate measures and correct problems that might otherwise cause them to be defined or designated as a CAFO. EPA encourages States to use the flexibility available under the rule so that their State non-NPDES programs complement the required regulatory program. The following examples can illustrate opportunities for this State flexibility:

- States are encouraged to work with State agriculture agencies, conservation districts, USDA and other stakeholders to create proactive programs to fix the problems of small and medium operations in advance of compelling the facilities to apply for NPDES permits.
- Where a small or medium facility has been covered by an NPDES permit, the permitting authority may allow the facility to exit the permit program at the end of the 5-year permit term if the problems that caused the facility to be defined or designated as a CAFO have been corrected to the satisfaction of the permitting authority.
- A small or medium AFO might be taking early voluntary action in good faith to develop and implement a comprehensive nutrient management plan, yet might have an unexpected situation that could be the basis for the facility's being defined or designated as a CAFO. EPA encourages the permitting authority to provide an opportunity to address the cause of the discharge before defining or designating the operation a CAFO.

These examples are intended to illustrate the flexibility that EPA is promoting with regard to medium and small operations. They are not applicable to Large CAFOs.

What did EPA propose? EPA's proposed rule included an option to expand substantially the criteria for when medium and small AFOs could be defined or designated as CAFOs. The

effect of these proposed changes to the structure and definition of a CAFO was to require a substantially larger number of medium and small operations to be brought into the NPDES regulatory program. EPA estimated that as many as 30,000 medium and small AFOs could be brought into the regulatory program under this option. Another option presented in the proposal was to structure the permitting requirements to build in inherent flexibility for the medium facilities. In addition, the proposal and the subsequent 2001 Notice introduced a variety of more specific options for State flexibility, including one under which a State with an effective non-NPDES program could request to operate under a simplified permitting structure.

What were the key comments? The proposed expansion of the NPDES program for medium and small operations caused great concern, particularly among the States. Many comments from both States and facility operators centered on the desire that EPA recognize the effectiveness of existing State CAFO programs. More specifically, many States wanted EPA to allow effective State non-NPDES programs to operate in lieu of a State-run NPDES program, particularly in the event that EPA in the final rule expanded the criteria for defining medium facilities as CAFOs.

In general, comments from environmental groups expressed opposition to most types of flexibility because of concerns regarding potential loss of accountability at facilities and reduced public participation. Industry commenters generally supported State flexibility as necessary to address factors such as soil, climate, and site and regional characteristics that vary within and among States. Commenters maintained that State flexibility promotes those program elements States have found to be most effective and allows States and industry to achieve workable solutions to water quality issues. States also supported maintaining a high degree of flexibility both to accommodate State-specific characteristics and priorities and to preserve their investment in existing good quality programs. Some State and industry commenters asserted that EPA's options for flexibility were too limited.

Rationale. EPA recognizes that EPA's proposed expansion of the criteria for when medium and small AFOs would be defined or designated as CAFOs would have had the effect of eliminating the flexibility for States to use voluntary and other programs. EPA is also aware that many of the States authorized to

implement the NPDES program supplement their NPDES CAFO requirements with additional State requirements. Some States currently regulate or manage CAFOs predominantly under State non-NPDES programs, or in conjunction with other water quality protection programs through participation in the CWA section 401 certification process (for permits) as well as through other means (e.g., development of water quality standards, development of TMDLs, and coordination with EPA). Several States have effective alternative or voluntary programs that are intended to help small and medium operations fix potential problems that could cause them to be defined or designated as a CAFO.

EPA is encouraging States to use their non-NPDES programs to help small and medium AFOs to reduce water quality impacts and to ensure that they do not become point sources under this regulation. To the extent the voluntary program eliminates the practice that results in the AFO's being defined or designated a CAFO, the AFO may not be required to obtain NPDES permit coverage. Given that EPA has not expanded the criteria for when AFOs would be defined as CAFOs, the Agency believes that States will have the flexibility necessary to leverage effective non-NPDES programs for medium and small AFOs. EPA has also offered specific examples of flexibility that permitting authorities can exercise.

Once a facility is determined to be a CAFO, however, coverage under a permit issued by a non-NPDES program will not satisfy the NPDES permit requirement. EPA is committed to work with States to modify existing non-NPDES State programs that currently regulate CAFOs to gain EPA's approval as NPDES-authorized programs. Such a change would require a formal modification of the State's authorized NPDES program, and the State would have to demonstrate that its program meets all of the minimum criteria specified in 40 CFR part 123, Subpart B, for substantive and procedural regulations. Among other things, these criteria include the restriction that permit terms may not exceed five years, procedures for public participation, and provisions for enforcement, including third party lawsuits and federal enforceability.

VI. Public Role and Involvement

The public has an important role in the entire implementation of the NPDES Program, including the implementation of NPDES permitting of CAFOs. The NPDES regulations in 40 CFR parts 122, 123, and 124 establish public

participation in EPA and State permit issuance, in enforcement, and in the approval and modification of State NPDES Programs. The purpose of this section is to provide a brief review of the key areas where the public has opportunities for substantial involvement. These opportunities for public involvement are long-standing elements of the NPDES Program. Nothing in today's final rule is intended to inhibit public involvement in the NPDES Program.

A. How Can the Public Get Involved in the Revision and Approval of State NPDES Programs?

Sections 123.61 and 123.62 of the NPDES regulations specify procedures for review and approval of State NPDES Programs. In the case of State authorization or a substantial program modification, EPA is required to issue a public notice, provide an opportunity for public comment, and provide for a public hearing if there is deemed to be significant public interest. To the extent that these final regulations require a substantial modification to a State's existing NPDES Program authorization, the public will have an opportunity to comment on the proposed modifications.

B. How Can the Public Get Involved if a State Fails To Implement Its CAFO NPDES Permit Program?

Section 123.64 of the NPDES regulations provides that any individual or organization having an interest may petition EPA to withdraw a State NPDES Program for alleged failure of the State to implement the NPDES permit program, including failure to implement the CAFO permit program.

C. How Can the Public Get Involved in NPDES Permitting of CAFOs?

Section 124.10 establishes public notice requirements for NPDES permits, including those issued to CAFOs. Under these existing regulations, the public may submit comments on draft individual and general permits and may request a public hearing on such a permit. Various sections of part 122 and § 124.52 allow the Director to determine on a case-by-case basis that certain operations may be required to obtain an individual permit rather than coverage under a general permit. Section 124.52 specifically lists CAFOs as an example point source where such a decision may be made. Furthermore, § 122.28(b)(3) authorizes any interested person to petition the Director to require an entity authorized by a general permit to apply for and obtain an individual permit. Section 122.28(b)(3) also provides

example cases where an individual permit may be required, including where the discharge is a significant contributor of pollutants. See § 122.23(f)(3) for opportunities for public involvement in the process for making a "no potential to discharge" determination (refer to section IV.B.2 of this preamble for further discussion). Nothing in today's final rule is intended to change these provisions.

D. What Information About CAFOs Is Available to the Public?

Today's rule requires that all CAFOs, Large, Medium, and Small, and whether covered by a general or an individual permit, report annually to the permitting authority the following information:

- The number and type of animals, whether in open confinement or housed under roof;
- The estimated amount of total manure, litter and process wastewater generated by the CAFO in the previous 12 months;
- The estimated amount of total manure, litter and process wastewater transferred to other person by the CAFO in the previous 12 months;
- The total number of acres for land application covered by the nutrient management plan;
- The 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;
- A 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
- A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner.

EPA expects that the permitting authority will make this information available to the public upon request. This should foster public confidence that CAFOs are complying with the requirements of the rule. In particular, the information in the annual report will confirm that CAFOs have obtained coverage under an NPDES permit, are appropriately controlling discharges from the production area, and have developed and are implementing a nutrient management plan. The annual report will also provide summary information on discharges from the production area and the extent of manure production and available land application area. This will help foster public confidence that the manure is being land applied at rates that ensure

appropriate agricultural utilization of nutrients.

Today's rule makes no changes to the existing regulations concerning how CAFOs may make Confidential Business Information (CBI) claims with respect to information they must submit to the permitting authority and how those claims will be evaluated. Under the existing regulations at 40 CFR Part 2, Subpart B, a facility may make a claim of confidentiality for information it must submit and EPA must evaluate this claim if it receives a request for the information from the public. Among the factors that EPA considers in evaluating such a claim are:

- Must the information be legally provided to the public under the Clean Water Act, its implementing regulations, or other authorities? If so, a claim of confidentiality will be denied.
- Has the facility adequately shown that the information satisfies the requirements for treatment as CBI? If yes, the claim of confidentiality will be upheld.

Claims of confidentiality with respect to information submitted to the State will be processed and evaluated under State regulations.

What was proposed? In the proposal, EPA discussed submission of the PNP to the permitting authority and its availability to the public. The proposed regulations would have required the cover sheet and executive summary of each CAFO's PNP to be made publicly available. EPA proposed that the information contained in these items could not be claimed as CBI. The proposed regulations indicated that anything else in the PNP could be claimed as confidential by the CAFO, and any such claim would be subject to EPA's normal CBI procedures in 40 CFR Part 2. See § 122.23(l) of the proposal.

Key comments. Industry commenters claimed that the PNP would contain proprietary information. They stated that EPA should protect these plans as CBI where requested by the CAFO. They claimed that making the PNP publicly available would discourage innovation in developing waste management technologies and could make CAFOs vulnerable to unwarranted lawsuits. Environmental groups stated that the PNP must be publicly available, or

citizens would have no way of ensuring that CAFOs are adequately developing and implementing the PNPs. They also expressed concerns about the burden of traveling to the permitting authority's offices to gain access to the plans. They stated that the plans should be made more accessible to them by the permitting authority, either by mail or by posting on the internet.

Rationale. The final CAFO regulations require that various types of information on the operation and waste management practices of the facility be made available to the permitting authority, either routinely or upon request. The permitting authority has discretion, subject to applicable regulations, to determine how much of this information to make available to the public and in what manner. The Annual Report that all CAFOs must submit is designed to provide the permitting authority with summary information about the implementation of the nutrient management plan. EPA believes that the information the public is most interested in seeing is contained in the Annual Reports.

With respect to the contents of the nutrient management plan, specifically, today's rule requires that the nutrient management plan be maintained on-site at the CAFO and submitted only at the request of the permitting authority. Upon submission of the nutrient management plan to the permitting authority, the CAFO operator can assert a confidential business information claim over the plan, in accordance with applicable regulations. If the permitting authority receives a request for the information, it will determine the validity of the claim and provide the requester with information in accordance with the findings of the determination and applicable regulations.

As noted, today's rule makes no changes to the existing regulations concerning how facilities may make CBI claims with respect to information they must submit to the permitting authority and how those claims will be evaluated. Any changes to how the Agency handles the issue of confidential business information are beyond the scope of today's rule and would have broad implications across a number of EPA

programs. Instead EPA will evaluate future CBI claims based on the applicable laws and regulations (see, e.g., CWA Section 402(j), 40 CFR Part 2, Subpart B, and 40 CFR 122.7).

VII. Environmental Benefits of the Final Rule

A. Summary of the Environmental Benefits

This section presents EPA's estimates of the environmental and human health benefits, including pollutant reductions, that will occur from this rule. Table 7.1 shows the annualized benefits EPA projects will result from the revised ELG requirements for Large CAFOs. (Monetized values for benefits associated with the revised NPDES requirements for Small and Medium CAFOs are not included in the table.) The total monetized benefits associated with the ELG requirements for Large CAFOs range from \$204 to \$355 million annually. The values presented in the range represent those benefits for which EPA is able to quantify and determine an economic value. These benefit value estimates reflect only those pollutant reductions and water quality improvements attributable to Large CAFOs. EPA also developed estimates of the pollutant reductions that will occur due to the revised requirements for Small and Medium CAFOs, but analysis of the monetized value of the associated water quality improvements was not completed in time for benefits estimates to be presented here. As discussed later in this section, EPA has also identified additional environmental benefits that will result from this rule but is unable to attribute a specific economic value to these additional nonmonetized or nonquantified benefits.

Detailed information on the estimated pollutant reductions is provided in the *Technical Development Document*, which is in the docket for today's rule. EPA's detailed assessment of the environmental benefits that will be gained by this rule, as well as the benefits estimates for other regulatory options considered during this rulemaking, is presented in the *Benefits Analysis*, which is also available in the rulemaking docket.

TABLE 7.1.—ANNUALIZED BENEFITS OF ELG REQUIREMENTS FOR LARGE CAFOS
[Millions of 2001\$]

Types of benefits	Total for all CAFOS
Recreational and non-use benefits from improved water quality in freshwater rivers, streams, and lakes.	\$166.2 to \$298.6.
Reduced fish kills	\$0.1.
Improved shellfish harvests	\$0.3 to \$3.4.

TABLE 7.1.—ANNUALIZED BENEFITS OF ELG REQUIREMENTS FOR LARGE CAFOS—Continued
[Millions of 2001\$]

Types of benefits	Total for all CAFOs
Reduced nitrate contamination of private wells	\$30.9 to \$45.7.
Reduced eutrophication & pathogen contamination of coastal & estuarine waters (Case study of potential fishing benefits to the Albemarle-Pamlico estuary)	Not monetized [\$0.2].
Reduced public water treatment costs	\$1.1 to \$1.7.
Reduced livestock mortality from nitrate and pathogen contamination of livestock drinking water	\$5.3.
Reduced pathogen contamination of private & public underground sources of drinking water	Not monetized.
Reduced human & ecological risks from antibiotics, hormones, metals, salts	Not monetized.
Improved soil properties	Not monetized.
Reduced cost of commercial fertilizers for non-CAFO operations	Not monetized.
Total benefits	\$204.1 + [B] to \$355.0 + [B].

[B] represents non-monetized benefits of the rule.

B. What Pollutants Are Present in Manure and Other CAFO Wastes, and How Do They Affect Human Health and the Environment?

1. What Pollutants Are Present in Animal Waste?

The primary pollutants associated with animal wastes are nutrients (particularly nitrogen and phosphorus), organic matter, solids, pathogens, and odorous/volatile compounds. Animal waste is also a source of salts and trace elements and, to a lesser extent, antibiotics, pesticides, and hormones. The composition of manure at a particular operation depends on the animal species, size, maturity, and health, as well as on the composition (e.g., protein content) of animal feed. The sections below introduce the main constituents in animal manure and include information from the *National Water Quality Inventory: 2000 Report* (hereinafter the “2000 Inventory”). This report is prepared every 2 years under section 305(b) of the Clean Water Act, and it summarizes State reports of impairment to their water bodies and the suspected sources of those impairments.

a. Nutrients. Animal wastes contain significant quantities of nutrients, particularly nitrogen and phosphorus. The 2000 Inventory lists nutrients as the leading stressor of impaired lakes, ponds, and reservoirs. Nutrients are also ranked as the fifth leading stressor for impaired rivers and streams, are among the top 10 stressors of impaired estuaries, and are the second leading stressor reported for the Great Lakes. Manure nitrogen occurs in several forms, including ammonia and nitrate. Ammonia and nitrate have fertilizer value for crop growth, but these forms of nitrogen can also produce adverse environmental impacts when they are transported in excess quantities to the environment. Ammonia is of environmental concern because it is

toxic to aquatic life and it exerts a direct BOD on the receiving water, thereby reducing dissolved oxygen levels and the ability of a water body to support aquatic life. Excessive amounts of ammonia can lead to eutrophication, or nutrient overenrichment, of surface waters. Nitrate is a valuable fertilizer because it is biologically available to plants. Excessive levels of nitrate in drinking water, however, can produce adverse human health impacts.

Phosphorus is of concern in surface waters because it is a nutrient that can lead to eutrophication and the resulting adverse impacts—fish kills, reduced biodiversity, objectionable tastes and odors, increased drinking water treatment costs, and growth of toxic organisms. At concentrations greater than 1.0 milligrams per liter, phosphorus can interfere with the coagulation process in drinking water treatment plants thus reducing treatment efficiency. Phosphorus is of particular concern in fresh waters, where plant growth is typically limited by phosphorus levels. Under high pollutant loads, however, fresh water may become nitrogen-limited. Thus, both nitrogen and phosphorus loads can contribute to eutrophication.

b. Organic matter. Livestock manures contain many carbon-based, biodegradable compounds. Once these compounds reach surface water, they are decomposed by aquatic bacteria and other microorganisms. During this process dissolved oxygen is consumed, which in turn reduces the amount of oxygen available for aquatic animals. The 2000 Inventory indicates that low dissolved oxygen levels caused by organic enrichment (oxygen-depleting substances) are the third leading stressor in impaired estuaries. They are the fourth greatest stressor in impaired rivers and streams, and the fifth leading stressor in impaired lakes, ponds, and reservoirs. Severe reductions in dissolved oxygen levels can lead to fish

kills. Even moderate decreases in oxygen levels can adversely affect water bodies through decreases in biodiversity characterized by the loss of fish and other aquatic animal populations, and a dominance of species that can tolerate low levels of dissolved oxygen.

c. Solids. The 2000 Inventory indicates that dissolved solids are the fourth leading stressor in impaired lakes, ponds, and reservoirs. Solids from animal manure include the manure itself and any other elements that have been mixed with it. These elements can include spilled feed, bedding and litter materials, hair, and feathers. In general, the impacts of solids include increasing the turbidity of surface waters, physically hindering the functioning of aquatic plants and animals, and providing a protected environment for pathogens. Increased turbidity reduces penetration of light through the water column, thereby limiting the growth of desirable aquatic plants that serve as a critical habitat for fish, shellfish, and other aquatic organisms. Solids that settle out as bottom deposits can alter or destroy habitat for fish and benthic organisms. Solids also provide a medium for the accumulation, transport, and storage of other pollutants, including nutrients, pathogens, and trace elements.

d. Pathogens. Pathogens are defined as disease-causing microorganisms. A subset of microorganisms, including species of bacteria, viruses, and parasites, can cause sickness and disease in humans and are known as human pathogens. The 2000 Inventory indicates that pathogens (specifically bacteria) are the leading stressor in impaired rivers and streams and the fourth leading stressor in impaired estuaries. Livestock manure may contain a variety of microorganism species, some of which are human pathogens. Multiple species of pathogens can be transmitted directly from a host animal's manure to surface

water, and pathogens already in surface water can increase in number because of loadings of animal manure nutrients and organic matter.

More than 150 pathogens found in livestock manure are associated with risks to humans, including the six human pathogens that account for more than 90% of food and waterborne diseases in humans. These organisms are: *Campylobacter spp.*, *Salmonella spp.* (non-typhoid), *Listeria monocytogenes*, *Escherichia coli* O157:H7, *Cryptosporidium parvum*, and *Giardia lamblia*. All of these organisms may be rapidly transmitted from one animal to another in CAFO settings. An important feature relating to the potential for disease transmission for each of these organisms is the relatively low infectious dose in humans. The protozoan species *Cryptosporidium parvum* and *Giardia lamblia* are frequently found in animal manure. Bacteria such as *Escherichia coli* O157:H7 and *Salmonella spp.* are also often found in livestock manure and have been associated with waterborne disease. The bacteria *Listeria monocytogenes* is ubiquitous in nature and is commonly found in the intestines of wild and domestic animals.

e. Other potential contaminants. Animal wastes can contain other chemical constituents that could adversely affect the environment. These constituents include salts, trace elements, and pharmaceuticals, including antibiotics and hormones. Although salts are usually present in waste regardless of animal or feed type, trace elements and pharmaceuticals are typically the result of feed additives to help prevent disease or promote growth. Accordingly, concentrations of these constituents vary with operation type and from facility to facility. The other constituents present in animal wastes are summarized below. Additional information on animal wastes is presented in the preamble for the proposed rule (see 66 FR 2976–2979) and the *Technical Development Document*.

Salts. The salinity of animal manure is directly related to the presence of dissolved mineral salts. In particular, significant concentrations of soluble salts containing sodium and potassium remain from undigested feed that passes unabsorbed through animals. Other major constituents contributing to manure salinity are calcium, magnesium, chloride, sulfate, bicarbonate, carbonate, and nitrate. Salt buildup may deteriorate soil structure, reduce permeability, contaminate ground water, and reduce crop yields. In fresh waters, increasing salinity can

disrupt the balance of the ecosystem, making it difficult for resident species to remain. Salts may also contribute to degradation of drinking water supplies.

Trace elements. The 2000 *Inventory* indicates that metals are the leading stressor in impaired estuaries and the second leading stressor in impaired lakes. Trace elements in manure that are of environmental concern include arsenic, copper, selenium, zinc, cadmium, molybdenum, nickel, lead, iron, manganese, aluminum, and boron. Of these, arsenic, copper, selenium, and zinc are often added to animal feed as growth stimulants or biocides. Trace elements can also end up in manure through use of pesticides, which are applied to livestock to suppress houseflies and other pests. Trace elements have been found in manure lagoons and in drainage ditches, agricultural drainage wells, and tile line inlets and outlets. They have also been found in rivers adjacent to hog and cattle operations. Trace elements in agronomically applied manures are generally expected to pose little risk to human health and the environment. However, repeated application of manures above agronomic rates could result in cumulative metal loadings to levels that potentially affect human health and the environment. There is some evidence that this is happening. For example, in 1995, zinc and copper were found building to potentially harmful levels on the fields of a hog farm in North Carolina.

Antibiotics. Antibiotics are used in AFOs and can be expected to appear in animal wastes. Antibiotics are used both to treat illness and as feed additives to promote growth or to improve feed conversion efficiency. Between 60 and 80 percent of all livestock and poultry receive antibiotics during their productive lifespan. The primary mechanisms of elimination are in urine and bile, so essentially all of an antibiotic administered is eventually excreted, whether unchanged or in metabolite form. Little information is available regarding the concentrations of antibiotics in animal wastes, or on their fate and transport in the environment. One concern regarding the widespread use of antibiotics in animal manure is the development of antibiotic-resistant pathogens. Use of antibiotics, especially broad-spectrum antibiotics, in raising animals is increasing. This could be contributing to the emergence of more strains of antibiotic-resistant pathogens, along with strains that are growing more resistant.

Pesticides and hormones. Pesticides and hormones are compounds used at AFOs and they can be expected to

appear in animal wastes. These types of pollutants may be linked with endocrine disruption. The 2000 *Inventory* indicates that pesticides are the second leading stressor in impaired estuaries. Pesticides are applied to livestock to suppress houseflies and other pests. There has been very little research on losses of pesticides in runoff from manured lands. A 1994 study showed that losses of cyromazine (used to control flies in poultry litter) in runoff increased with the rate of poultry manure and litter applied and the intensity of rainfall. Specific hormones are used to increase productivity in the beef and dairy industries. Several studies have shown hormones are present in animal manures. Poultry manure has been shown to contain both estrogen and testosterone. Runoff from fields with land-applied manure has been reported to contain estrogens, estradiol, progesterone, and testosterone, as well as their synthetic counterparts. In 1995, an irrigation pond and three streams in the Conestoga River watershed near the Chesapeake Bay had both estrogen and testosterone present. All of these sites were affected by fields receiving poultry litter.

2. How Do These Pollutants Reach Surface Waters?

Pollutants in animal waste and manure can enter the environment through a number of pathways, including surface runoff and erosion, direct discharges to surface water, spills and other dry-weather discharges, leaching into soil and ground water, and volatilization of compounds (e.g., ammonia) and subsequent redeposition to the landscape. These discharges of manure pollutants can originate from animal confinement areas, manure handling and containment systems, manure stockpiles, and cropland where manure is spread.

Runoff and erosion occur during rainfall when rainwater fails to be absorbed into the ground and when the soil surface is worn away by water or wind. Runoff of animal wastes is more likely when rainfall occurs soon after application (particularly if the manure was not injected or incorporated) and when manure is overapplied or misapplied. Erosion can be a significant transport mechanism for land applied pollutants, such as phosphorus, that are strongly bonded to soils.

Pollutants are directly discharged to surface water when animals are allowed access to water bodies and when manure storage areas overflow. Dry weather discharges to surface waters associated with CAFOs have been reported to occur through spills or other

accidental discharges from lagoons and irrigation systems, or through intentional releases. Other reported causes of discharge to surface waters are overflows from containment systems following rainfall, catastrophic spills from failure of manure containment systems, and washouts from floodwaters when lagoons are sited on floodplains or from equipment malfunction, such as pump or irrigation gun failure, and breakage of pipes or retaining walls.

It is well established that in many agricultural areas shallow ground water can become contaminated with manure pollutants. This occurs as a result of water traveling through the soil to the ground water and taking with it pollutants such as nitrate from livestock and poultry wastes on the surface. Leaking lagoons are also a potential source of manure pollutants in ground water, based on findings reported in the scientific and technical literature.

Pollutants from CAFO wastes are released to air through volatilization of manure constituents and the products of manure decomposition. Other ways that manure pollutants can enter the air is from spray irrigation systems and as wind-borne particulates in dust. Once airborne, these pollutants can find their way into nearby streams, rivers, and lakes as they are subsequently redeposited on the landscape. More detailed information on the transport of animal wastes is presented in the *Benefits Analysis* and the record.

3. How Is Water Quality Impaired by Animal Wastes?

EPA has made significant progress in implementing Clean Water Act programs and in reducing water pollution. Despite such progress, however, serious water quality problems persist throughout the country. Sources of information on these problems include reports from States to EPA, documented in the *2000 Inventory*, and the U.S. Geological Survey's National Water Quality Assessment (NAWQA) Program.

a. EPA's national water quality inventory. Agricultural operations, including CAFOs, are a significant contributor to the remaining water pollution problems in the United States, as reported by the *2000 Inventory*. EPA's *2000 Inventory* data indicate that the agricultural sector—including crop production, pasture and range grazing, concentrated and confined animal feeding operations, and aquaculture—is the leading contributor to identified water quality impairments in the nation's rivers and streams, lakes, ponds, and reservoirs. Agriculture is also identified as the fifth leading

contributor to identified water quality impairments in the nation's estuaries. While the *2000 Inventory* does not generally separate effects of CAFOs from agriculture generally, EPA's data indicate that water quality concerns tend to be greatest in regions where crops are intensively cultivated and where livestock operations are concentrated.

The *2000 Inventory* data indicate that the agricultural sector contributes to the impairment of at least 129,000 river miles, 3.2 million lake acres, and more than 2,800 estuarine square miles. Forty-eight States and tribes identified agricultural sector activities contributing to water quality impacts on rivers; 40 States identified such impacts to lakes, ponds, and reservoirs; and 14 States reported such impacts on estuaries. AFOs are only a subset of the agriculture category, but 29 States specifically identified them as contributing to water quality impairment.

The leading pollutants impairing surface water quality in the United States as identified in the *2000 Inventory* data include nutrients, pathogens, sediment/siltation, and oxygen-depleting substances. These pollutants can originate from various sources, including the animal production industry. Animal production facilities may also discharge other pollutants, such as metals and pesticides, and can contribute to the growth of noxious aquatic plants due to the discharge of excess nutrients.

These data provide a general indication of national surface water quality, highlighting the magnitude of water quality impairment from agriculture and the relative contribution compared to other sources. Moreover, the findings of this report are corroborated by numerous reports and studies conducted by government and independent researchers that identify agriculture's predominance as an important contributor of surface water pollution, as summarized in the *Environmental Assessment of Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*, which is available in EPA's rulemaking record.

b. Other documented impacts on water quality. Data collected by NAWQA also identify agriculture among the leading contributor of nutrients to U.S. watersheds. A national water quality assessment program conducted by the U.S. Geologic Survey found that agricultural use of fertilizers, manure, and pesticides has degraded stream and shallow ground water

quality in agricultural areas and has resulted in high concentrations of nitrogen. Subsequent measurements in specific major river basins suggest that animal feeding operations may play a significant role in observed water quality degradation in those basins (*e.g.*, Kalkhoff *et al.*, 2000; Groschen *et al.*, 2000). Finally, a 1997 study by Smith *et al.* characterizing spatial and temporal patterns in water quality identified animal waste as a significant source of in-stream nutrient concentrations in many watershed outlets, relative to other local sources, particularly in the central and eastern United States. The findings of this report suggest that livestock waste contributes more than commercial fertilizer use to local total phosphorus yield, whereas the use of commercial fertilizer is the leading source of local total nitrogen yield.

Numerous local, regional, and national evaluations also indicate that animal manure can be a significant source of pollutants that contribute to water quality degradation. A literature survey conducted for the proposed rule identified more than 150 reports of discharges to surface waters from hog, poultry, dairy, and cattle operations. Over 30 separate incidents of discharges from swine operations between the years 1992 and 1997 in Iowa alone were reported by that State's Department of Natural Resources. The incidents resulted in fish kills ranging from about 500 to more than 500,000 fish killed per event. Fish kills or other environmental impacts have also been reported by agencies in other States, including Nebraska, Maryland, Ohio, Michigan, and North Carolina.

Runoff of nutrients and other contaminants in animal manure and wastewater also contributes to degradation of U.S. waters. For example, nutrients originating from livestock and poultry operations in the Mississippi River Basin have been identified as contributing to the largest hypoxic zone in U.S. coastal waters in the northern Gulf of Mexico. (Hypoxia is the condition in which dissolved oxygen is below the level necessary to sustain most animal life.) According to a report conducted by the National Science and Technology Council in 2000, adverse impacts of eutrophication might be of concern for ecologically and commercially important species in the Gulf, whose fishery resources generate \$2.8 billion annually. Animal manure also contributes to eutrophication, or nutrient overenrichment, which is also a serious concern for the Nation's coastal and estuarine resources.

More detailed information is presented in the 2001 proposal (66 FR

2972–2974) and in the record for this rulemaking.

4. What Ecological and Human Health Impacts Have Been Caused by CAFO Wastes?

Among the reported environmental problems associated with animal manure are surface and ground water quality degradation, adverse effects on estuarine water quality and resources in coastal areas, and effects on soil and air quality. The scientific literature, which spans more than 30 years, documents how these problems can contribute to increased risk to aquatic and wildlife ecosystems, for example, the large number of fish kills in recent years. Human health might also be affected, for example, by high nitrate levels in drinking water and exposure to waterborne human pathogens and other pollutants in manure. The record for this rule provides more detailed information on the scientific and technical research to support these findings.

a. Ecological impacts. Manure pollutants in surface waters contribute to eutrophication, the disruption of a water body due to overenrichment. Eutrophication is the most documented impact of nutrient pollution and is a serious concern for coastal and estuarine resources. Another negative impact generated by excess nutrients in surface water is algae blooms, which also result from overenrichment from nutrients. Such blooms depress oxygen levels and contribute further to eutrophication. Many lake and coastal problems are linked to eutrophication, including red tides, fish kills, outbreaks of shellfish poisonings, loss of habitat, coral reef destruction, and hypoxia.

Many of the constituents in manure, especially organic matter, also decrease the oxygen concentrations in surface waters, sometimes below the levels fish and invertebrates require to survive. Nitrites and pathogens in manure can also pose risks to aquatic life. If sediments are enriched by nutrients, the concentrations of nitrites in the overlying water may be raised enough to cause nitrite poisoning in fish. There is substantial information in the record for this rule that describes local, regional, and national evaluations indicating that animal manure is a significant source of pollutants that contribute to water quality degradation. Many of these evaluations note a high incidence of fish kills. EPA's analysis shows that between 1981 and 1999, 19 States reported 4 million fish killed from both runoff and spills at CAFOs.

In addition, excess nitrogen can contribute to water quality decline by

increasing the acidity of surface waters. Pathogens can accumulate in fish and shellfish, resulting in a pathway for transmission to higher trophic organisms; they can also contribute to avian botulism and avian cholera. Additional information on fish kills and other adverse impacts is presented in the 2001 proposal (66 FR 2972–2974) and in the record for this rulemaking.

b. Human health impacts from affected drinking water. Pollution originating from an animal production facility can have multiple impacts on drinking water. Nitrogen in manure is easily transformed into the nitrate form, which can be transported to drinking water sources and present a range of health risks. These health risks include methemoglobinemia in infants, spontaneous abortions, and increased incidence of stomach and esophageal cancers. Nitrate is not removed by conventional drinking water treatment processes but requires additional, relatively expensive treatment units. California's Chino Basin estimates a cost of more than \$1 million per year to remove nitrates from drinking water due to loadings from local dairies. Generally, people drawing water from domestic wells are at greater risk of nitrate poisoning than those drawing from public water sources, because domestic wells are typically shallower and not subject to wellhead protection monitoring or treatment requirements.

Salts in animal wastes can also pose a health hazard. At low levels, salts can increase blood pressure in salt-sensitive individuals, increasing their risk of stroke and heart attacks. The salt load into the Chino Basin from local dairies is more than 1,500 tons per year, which costs the drinking water treatment system between \$320 and \$690 per ton to remove.

To the extent that nutrients contribute to algae blooms in surface water through accelerated eutrophication, algae can affect drinking water by clogging treatment plant intakes, producing objectionable tastes and odors, and increasing production of harmful chlorinated by-products (e.g., trihalomethanes) by reacting with chlorine used to disinfect drinking water. In Wisconsin, the City of Oshkosh has spent an extra \$30,000 per year on copper sulfate treatment to kill the algae in the waters from Lake Winnebago, which is attributed to excess nutrients from animal manure, commercial fertilizers, and soil. In Tulsa, Oklahoma, excessive algae growth in Lake Eucha, associated with poultry farming, costs the city \$100,000 per year to address taste and odor problems in the drinking water.

c. Other human health impacts. In addition to threats to human health through drinking water exposures, pathogens from animal manure can also threaten human health through shellfish consumption and recreational contact such as swimming in contaminated waters. Relatively low-dose exposures to *Cryptosporidium parvum* and *Giardia* spp. can cause infection in humans. Other bacteria found in livestock manure have also been associated with waterborne disease. Pathogens from animal wastes can readily enter water sources, resulting in contamination of surface waters. Some pathogens are able to survive and remain infectious in the environment for relatively long periods of time. U.S. federal agencies and other independent researchers have recognized the potential public health risks from pathogens originating from CAFOs. At this time, however, the magnitude of the human health risk from pathogenic organisms that directly originate from CAFOs and are transported through U.S. waters has not been established.

According to a United Nations report, the use of antibiotics in food-producing animals has the potential to affect human health because of the presence of drug residues in foods and also because of the selection of resistant bacteria in animals. However, the impact of antimicrobial metabolic products and nonmetabolized drugs in animal wastes that are released into the environment remains unclear. The emergence of resistant bacteria is of particular concern because such infections are more difficult to treat and require drugs that are often less readily available, more expensive, and more toxic. In the U.S., pilot studies coordinated by EPA, USDA, and the Centers for Disease Control have been initiated to assess the extent of environmental contamination by antimicrobial drug residues and drug-resistant organisms that enter the soil or water from human and animal waste.

C. How Will Water Quality and Human Health Be Improved by This Rule?

1. What Reductions in Pollutant Discharges Will Result From This Rule?

EPA's pollutant reductions for this rule focus to a large degree on estimating the amount of pollutants in the runoff from land where manure has been applied. These estimates of pollutant discharges, referred to as the "edge-of-field" loadings, were made for nutrients, metals, pathogens, and sediment for both pre-rule conditions (baseline) and post-rule conditions. The reductions in pollutant discharges were

estimated using an environmental model (Groundwater Loading Effects of Agricultural Management Systems, or GLEAMS) that simulates hydrologic transport, erosion, and biochemical processes such as chemical transformation and plant uptake. The GLEAMS model uses information on soil characteristics and climate, along with characteristics of the applied manure and commercial fertilizers, to model losses of nutrients, metals, pathogens, and sediment in surface runoff, sediment, and ground water leachate. EPA's analysis also developed estimates of changes in pollutant discharges occurring at the production area.

The pollutant reduction estimates were developed for each type of model farm included in EPA's cost models. The model farms were developed to represent the various animal types, farm sizes, and geographic regions. Model farms were developed for each animal type across a range of size classes, and model farms were located in each geographic region. The pollutant estimates for the model farms were combined with published data from USDA's 1997 *Census of Agriculture* and then refined into national, regional, State, and county level pollutant loading estimates that were used to determine in-stream surface water and ground water concentrations. These

values were then used in the water quality models and other environmental benefits assessment models to estimate the human health and environmental benefits accruing from this rule.

EPA quantified the reduction of nitrogen and phosphorus loads associated with this rule. Reductions of discharges of the metals zinc, copper, cadmium, nickel, lead, and arsenic were also analyzed for the final rule. Fecal coliform and fecal streptococcus were used as surrogates to estimate pathogen reductions that would be achieved by this rule. Other pathogens would likely be reduced to a similar degree. Table 7.2 presents the pollutant reductions expected to result from this rule.

TABLE 7.2.—POLLUTANT REDUCTIONS: COMBINED TOTAL FOR ALL ANIMAL SECTORS

Parameter	Baseline pollutant loading (Pre-regulation)	Post-regulation pollutant loading	Pollutant reduction
Large CAFOs:			
Nutrients (million lb)	658	503	155 (24%)
Metals (million lb)	20	19	1 (5%)
Pathogens (10 ¹⁹ cfu)	5,784	3,129	2,655 (46%)
Sediment (million lb)	35,493	33,434	2,059 (6%)
Medium CAFOs:			
Nutrients (million lb)	65	54	11 (17%)
Metals (million lb)	2.0	1.9	0.1 (5%)
Pathogens (10 ¹⁹ cfu)	1,456	779	677 (46%)
Sediment (million lb)	3,119	3,015	104 (3%)

2. Approach for Determining the Benefits of This Rule

EPA has analyzed the water quality improvements expected to result from the new requirements being promulgated today and has estimated the environmental and human health benefits of the pollutant reductions that will result. The benefits described in this section are primarily associated with direct improvements in water quality (both surface water and ground water), but this new rule will also create certain non-water quality environmental effects, such as improved soil conditions, changes in energy consumption, and changes in emissions of air pollutants.

For this rule, EPA conducted seven benefit studies to estimate the impacts of reductions in pollutant discharges from CAFOs. The first study used a national water quality model (National Water Pollution Control Assessment Model, or NWPCAM) that estimates runoff from land application areas to rivers, streams, and, to a lesser extent, lakes in the U.S. This study estimated the value society places on improvements in surface water quality associated with today's rule. The second study examined the expected

improvements in shellfish harvesting resulting from the new CAFO rule. A third study looked at incidences of fish kills that are attributed to AFOs and estimated the cost of replacing the lost fish stocks. The fourth study estimated the benefits associated with reduced ground water contamination. Reduced public water treatment costs were evaluated in the fifth study, and reduced livestock mortality from nitrate and pathogen contamination of livestock drinking water was evaluated in the sixth study. In the seventh study, a case study of potential fishing benefits for the Albemarle-Pamlico estuary is presented to provide some insight to the potential benefits for estuaries and coastal waters. Each of the seven studies, as well as benefits results, are briefly described in the following sections. Benefits results associated with reduced pollutant discharges from Large CAFOs are also summarized in Table 7.1. The benefit value estimates presented in this section reflect only those pollutant reductions and water quality improvements attributable to Large CAFOs. EPA also developed estimates of the pollutant reductions that will occur due to the revised requirements for Small and Medium

CAFOs, but analysis of the monetized value of the associated water quality improvements was not completed in time for benefits estimates to be presented here.

In this analysis, EPA estimates the effect of pollutant reductions and other environmental improvements on human health and the ecosystem and assigns a monetary value to these benefits to the extent possible. In some cases, EPA was able to identify certain types of improvements that will result from this rule, but was unable to either estimate the monetary value of the improvement or quantify the amount of improvement that will occur. These non-monetized and non-quantified benefits are included in the discussion below. Given the limitations in assigning monetary values to some of the improvements, the economic benefit values described below and in the *Benefits Analysis* should be considered a subset of the total benefits of this rule. These monetized benefits should be evaluated along with descriptive qualitative assessments of the non-monetized benefits. For example, the economic valuation used for this rule assigns monetary values to the water quality improvements due to reductions of the

most significant pollutants originating from CAFOs (e.g., nitrogen, phosphorus, pathogens, and sediment), but it does not include values for potential water quality improvements expected due to reduced discharges of certain other pollutants discharged in lesser amounts, such as metals or hormones.

Research documented in the record and summarized in the *Benefits Analysis* shows that CAFO wastes may affect the environment and human health in a variety of ways beyond those for which benefits have been monetized. The following are examples of other types of potential impacts or potential benefits:

- Human health and ecological effects of metals, antibiotics, hormones, salts, and other pollutants associated with CAFO manure.
- Eutrophication of coastal and estuarine waters due to both nutrients in runoff and deposition of ammonia volatilized from CAFOs.
- Reduced human illness due to pathogen exposure during recreational activities in estuaries and coastal waters.
- Improvements to soil properties due to reduced overapplication of manure, together with increased acreage receiving manure applications at agronomic rates.
- Reduced pathogen contamination in private drinking water wells.
- Reduced cost of commercial fertilizers for non-CAFO operations.

EPA's *Benefits Analysis* does not include monetary values for these other areas of environmental improvements because data limitations preclude quantifiable estimates of the magnitude of improvement or it is difficult to ascribe an economic value to these benefits. Nevertheless, these environmental benefits may result in improved ecological conditions and reduced risk to human health.

3. Benefits From Improved Surface Water Quality

a. Freshwater recreational benefits.

EPA used NWPCAM to estimate the national economic benefits to surface water quality that will result as CAFOs implement the requirements of this rule. NWPCAM is a national-scale water quality model that simulates the water quality and benefits for various water pollution control approaches. NWPCAM is designed to characterize water quality for the Nation's network of rivers and streams, and, to a more limited extent, its lakes. NWPCAM can translate spatially varying water quality changes (improvements or degradation) resulting from different pollution control policies into terms that reflect the value

individuals place on water quality improvements. In this way, NWPCAM is able to derive the economic benefit of the water quality improvements that will result from reducing CAFO discharges.

For this rule, EPA used NWPCAM to simulate impacts due to reductions in pollutant loadings from Large CAFOs (nitrogen, phosphorus, pathogen indicators, BOD5, and TSS) on water quality in the Nation's surface waters. NWPCAM's national-scale framework allows hydraulic transport, routing, and connectivity of surface waters to be simulated for the entire continental United States with the exception of coastal and estuarine waters. Pollutant loadings from the CAFOs were used as inputs to NWPCAM. The CAFO loadings were processed through the NWPCAM water quality modeling system to estimate in-stream pollutant concentrations on a detailed spatial scale to provide estimates of changes in water quality that will result as CAFOs implement this new rule. The NWPCAM modeling output, simulating the improved water quality in the Nation's surface waters, was used as the basis for monetizing improvements to water quality, and as input to several of the other benefits analyses described later in this section.

The monetary value of the benefits associated with the changes in water quality are estimated using two valuation techniques. The first technique relates water quality changes to changes in the category of use the water quality can support (e.g., boatable uses versus fishable uses, or fishable uses versus swimmable uses), also referred to as the "water quality ladder" approach, and also considers the size of population benefitting from the changes in the types of use the water quality can support. The second method is similar to the first, but it uses a composite measure of water quality that is calculated from six water quality parameters (referred to as the "water quality index" approach). A key difference in the two approaches is that the water quality ladder approach assesses improvements using a step-function that attributes a monetary value to the water quality improvement only when changing from one use category to another (e.g., a change from boatable use to fishable use), while the water quality index method assigns values along a continuum of water quality improvement (e.g., the water use may remain designated as "boatable use," but improvements within that use category are assigned a monetary value). For both valuation approaches, the monetary value assigned to the benefits

is based on what the public is willing to pay for improvements to water quality.

Based on the NWPCAM analysis using the water quality ladder approach, the benefits of improved surface water quality resulting from reduced pollutant discharges from Large CAFOs are estimated to be \$166 million annually (2001 dollars). Using the water quality index approach, the benefits of improved surface water quality are estimated at \$298 million annually (2001 dollars).

b. *Shellfish beds.* Pathogen contamination of coastal waters is a leading cause of shellfish bed harvest restrictions and closures. Sources of pathogens include runoff from agricultural land and activities. Using *The 1995 National Shellfish Register of Classified Growing Waters* published by the National Oceanic and Atmospheric Administration, EPA estimated the improvements to shellfish bed harvesting that will result as CAFO discharges of pathogens are reduced by this rule. These data were used to determine the average per-acre yield of shellfish from harvested waters and to estimate the area of shellfish-growing waters that are currently unharvested as a result of pollution from AFOs. By combining the per-acre yield data with estimates of the acreage of currently unharvested shellfish beds that will become available for harvesting as discharges of pathogens from Large CAFOs are reduced, EPA calculates the value of improved shellfish harvests at \$0.3 to \$3.4 million annually.

c. *Fish kills.* Episodic fish kill events resulting from spills, manure runoff, and other discharges of manure from AFOs continue to remain a serious problem in the United States. The impacts from these incidents range from immediate and dramatic kill events to less dramatic but more widespread events. Manure dumped into and along the West Branch of the Pecatonica River in Wisconsin resulted in a complete kill of smallmouth bass, catfish, forage fish, and all but the hardiest insects in a 13-mile stretch of the river. Less immediate, but equally important, catastrophic impacts on water quality from manure runoff are increased algae growth or algae blooms, which remove oxygen from the water and can result in the death of fish. Manure runoff into a shallow lake in Arkansas resulted in a heavy algae bloom that depleted the lake of oxygen, killing many fish.

While the modeled estimates of surface water quality improvements have been used to monetize benefits associated with freshwater bodies, water quality modeling (i.e., NWPCAM) does

not include estuaries, coastal areas or other marine water bodies, and fish kills are noted to occur in these areas as well. Parts of the Eastern Shore of the United States have been plagued with problems related to *Pfiesteria*, a dinoflagellate algae that exist in rivers at all times, but is known to cause fish kills in estuarine and coastal environments under certain conditions. Fish attacked by *Pfiesteria* have lesions or large, gaping holes on them as their skin tissue is broken down; the lesions often result in death. The conditions under which *Pfiesteria* can harm fish are believed to be related to high levels of nutrients. Fish kills related to *Pfiesteria* in the Neuse River in North Carolina have been blamed on the booming hog industry and the associated waste spills and runoff from the hog farms. Preliminary evidence suggests that human health problems might also be associated with exposure to *Pfiesteria*. As a result, people most likely would limit or avoid recreational activities in coastal waters with *Pfiesteria*-related fish kills. The town of New Bern, a popular summer vacation spot along the Neuse River in North Carolina, experienced several major fish kills in the summer of 1995. During this event, people became ill after swimming and fishing in the impacted areas, and there were reports that people swimming in the waters reported welts and sores on their bodies. Summer camps canceled boating classes, children were urged to stay out of the water, and warnings were issued about swimming and eating fish that were diseased. Many blame the heavy rainfall, which pumped pollutants from overflowing sewage plants and hog lagoons into the river, creating algae blooms, low oxygen, and *Pfiesteria* outbreaks as the cause of the fish kills.

EPA obtained reports on fish kill events in the United States, with data for nineteen States showing historical and current fish kills. Using these data, EPA estimates the benefits of reducing fish kills through implementation of the ELG requirements in today's rule for Large CAFOs at \$0.1 million annually.

d. Reduced public water treatment costs. Total suspended solids (TSS) entering the surface waters from CAFOs can hinder effective drinking water treatment by interfering with coagulation, filtration, and disinfection processes. EPA used the NWPCAM model to predict how pollutant reductions from Large CAFOs would affect the ambient concentration of TSS in the source waters of public water supply systems. To measure the value of reductions in TSS concentrations, EPA estimated the extent to which lower TSS concentrations reduce the operation and

maintenance (O&M) costs associated with the conventional treatment technique of gravity filtration. EPA estimates reduced drinking water treatment costs of \$1.1 to \$1.7 million annually due to reduced discharges of pollutants at Large CAFOs.

4. Benefits From Improved Ground Water Quality

a. Human health benefits. CAFO wastes can contaminate ground water and thereby cause health risks and welfare losses to people relying on ground water sources for their potable supplies or other uses. Of particular concern are nitrogen and other constituents that leach through the soils and the unsaturated zone and ultimately reach ground waters. Nitrogen loadings convert to elevated nitrate concentrations at household and community system wells, and elevated nitrate levels in turn pose a risk to human health in households with private wells. (Nitrate levels in community wells are regulated to protect human health.)

This rule is expected to reduce nitrate levels in private drinking wells by reducing the rate at which manure is spread on cropland, thus reducing the rate at which pollutants will leach through soils and reach ground water. The federal health-based National Primary Drinking Water Standard for nitrate is 10 milligrams per liter (mg/L), and this Maximum Contaminant Level (MCL) applies to all community water supply systems. Households relying on private wells are not subject to the federal MCL for nitrate, but levels above 10 mg/L are considered unsafe for sensitive subpopulations (e.g., infants). Several economic studies indicate a considerable willingness-to-pay by households to reduce the likelihood of nitrate levels exceeding 10 mg/L, and to reduce nitrate levels even when baseline concentrations are considerably below the MCL.

EPA used U.S. Geological Survey data on nitrate levels in wells throughout the country to predict how nitrate concentrations in private drinking wells would be reduced by this rule. Based on these data, EPA estimates that 9.2 percent of households that currently rely on private wells with nitrate concentrations exceeding the MCL will have these concentrations reduced to levels below the MCL because of the ELG requirements for Large CAFOs. EPA estimates the value of these reductions based on willingness-to-pay studies to be \$583 annually per household (2001\$) resulting in benefit estimates of \$30.2 to \$44.6 million nationally on an annual basis for this

component of ground water improvements. Another 5.8 million households that currently have nitrate levels in their private wells below the MCL will experience further reductions in nitrate levels because of the ELG requirements for Large CAFOs. Studies also show that people are willing to pay \$2.09 per mg/L reduced annually (2001\$) to get these additional reductions once they are already below the MCL for nitrate. This gives benefits estimates of \$0.7 million to \$1.1 million annually for the nation for this component of ground water improvements. The total benefits of reduced nitrate contamination of private drinking wells as a result of reducing pollutant discharges at Large CAFOs are estimated to range from approximately \$30.9 to \$45.7 million annually (2001\$).

Research documented in the record and summarized in the *Benefits Analysis* shows that CAFO wastes affect the environment and human health in ways beyond those for which benefits have been monetized. Additional ground water benefits that may result from this rule include reduced pathogen contamination of private drinking water wells and community drinking water supplies. EPA's *Benefits Analysis* does not include monetary values for these additional ground water improvements because data limitations preclude quantifiable estimates of the magnitude of improvement or because it is difficult to ascribe an economic value to these benefits. EPA also recognizes that CAFO operators have strong private incentives to avoid contaminating their own private drinking water sources.

b. Animal health benefits. Land application of manure can result in leaching of nitrates and enteric pathogens to ground water, which in many cases is used as the source of drinking water for livestock in rural communities. Excessive nitrate in livestock watering sources, particularly in conjunction with feeds containing nitrogen such as alfalfa, can contribute to increased morbidity and mortality due to acute and chronic nitrate poisoning in cattle which would have the ability to convert nitrate to toxic nitrite. In addition, studies have found that nearly 20% of rural water wells are contaminated with enteric pathogens such as fecal coliform and fecal streptococcus, common indicators of enteric pathogens, at ratios which suggest the source of contamination may be animal waste. Consumption of water by livestock contaminated with enteric pathogens could result in increased morbidity and mortality due to waterborne illness, particularly gastrointestinal disorders.

EPA used data from scientific literature, USDA data on beef and dairy mortality from poisoning and gastrointestinal illness, EPA data on rural groundwater quality, and published recommendations for livestock drinking water quality, to estimate the potential to reduce on-farm beef and dairy cattle mortality associated with pathogens and nitrates in ground water. From this, EPA estimated the avoided cost of replacing cattle mortalities. The ELG requirements are expected to reduce nitrate and pathogen contamination of ground water at Large CAFOs and, as a result, reduce annual cattle mortality from nitrate poisoning and pathogens at Large CAFOs by approximately 4,300 mature cattle and 3,900 calves. Using a replacement value of \$1,185 for mature cattle and \$54 for day-old calves (2002 dollars), the monetary benefit of reduced on-farm beef and dairy cattle mortality at Large CAFOs is estimated at \$5.3 million annually.

D. Other (Non-Water Quality) Environmental Impacts and Benefits

In analyzing the effects of this rule, EPA also considered how the requirements promulgated today would affect the amount and form of compounds released to air, as well as the energy that is required to operate the CAFO. In addition to the water quality impacts and benefits discussed above, EPA's analyses for this rule have also evaluated these other types of environmental impacts, often referred to as non-water quality environmental impacts. These non-water quality environmental impacts include changes in air emissions from CAFO production areas and land where CAFO-generated manure is spread, changes in energy use, and improvements in soil properties. EPA's estimates of changes in air emissions and energy use are described in more detail in the *Technical Development Document*.

To assess the potential changes in air emissions resulting from this rule, EPA quantified the releases from the production area, including animal housing and animal waste storage and treatment areas; land application activities; and emissions from vehicles, including the off-site transport of waste and on-site composting operations.

EPA projects increased emissions of criteria air pollutants (particulate matter, volatile organic compounds, nitrogen oxides, and carbon monoxide) related to increased fuel consumption as excess manure is transported away from the CAFO. The contribution of these projected increases is limited compared to the national criteria pollutant

inventory. For example, for the year 2000, the total national inventory for nitrogen oxides was 25 million tons. The contribution of the projected increase in CAFO emissions of nitrogen oxides is less than 0.01 percent of that amount. The national inventory values for other criteria pollutants are also much larger than the projected changes in emissions from CAFOs.

CAFOs are a source of ammonia, which is a contributor to the formation of fine particulate matter. This rule is not expected to significantly alter ammonia emissions from CAFOs. During the rulemaking, EPA evaluated a number of regulatory options and, as part of those analyses, considered the potential air quality benefits associated with changes in ammonia emissions. For further discussion of those analyses, refer to Chapter 13 of the *Technical Development Document* and Section 22 of the rulemaking record.

CAFOs are also a source of hydrogen sulfide emissions. EPA's calculations indicate that today's rule will reduce hydrogen sulfide emissions from Large CAFOs by 12 percent nationally. Reductions in hydrogen sulfide emissions are expected to lead to human health benefits, but EPA has not been able to calculate the economic value of these reductions.

Finally, CAFOs are a source of greenhouse gases. Emissions of nitrous oxide at CAFOs arise mainly from the feedlot area during denitrification of nitrogen compounds during waste storage on the drylot and from fields where animal wastes are land applied. Emissions of methane also mainly arise during waste storage, created during the anaerobic decomposition of carbon compounds. CAFOs currently contribute approximately 3 percent of all U.S. nitrous oxide emissions and a similar percentage of U.S. methane emissions. EPA estimates that emissions of nitrous oxide at Large CAFOs will increase by 4 percent as the requirements of today's rule are implemented, and emissions of methane will decrease by 11 percent.

EPA also expects that the properties of the soil at a number of land application areas might improve because of reduced overapplication of manure. The soil properties of cropland that does not currently receive manure, but becomes a recipient as additional manure is hauled away from CAFOs that have excess manure are also expected to benefit from the organic matter content (improving tilth) and the micronutrients present in manure.

VIII. Costs and Economic Impacts

This section presents EPA's estimate of the total annual costs and the economic impacts that would be incurred by the livestock and poultry industry as a result of today's rule. This section also discusses EPA's estimated effects on small businesses and presents the results of the Agency's cost-effectiveness and cost-benefit analysis. All costs presented in this section are reported in pre-tax 2001 dollars (unless otherwise indicated).

EPA estimates the total monetized social costs of the final regulations at about \$335 million annually. These costs include compliance costs borne by CAFOs and also administrative costs to federal and State governments. EPA estimates the total compliance cost for Large CAFOs at \$283 million per year (pre-tax, \$2001). Costs to Medium CAFOs are estimated at \$39 million per year. Costs to Medium and Small operations that are designated as CAFOs are estimated at \$4 million per year. EPA estimates that the administrative cost to federal and State governments to implement this rule is \$9 million per year.

For the veal, dairy, turkey, and egg laying sectors, the final regulations are not expected to result in any CAFO level business closures. In the beef cattle, heifer, hog, and broiler sectors, however, the final rule is expected to cause some existing CAFOs to experience financial stress. These operations might be vulnerable to closure as a result of complying with the final regulations. Across all sectors, an estimated 285 existing Large CAFOs might be vulnerable to facility closure. This accounts for approximately 3 percent of all Large CAFOs. By sector, EPA estimates that 49 beef operations (3 percent of affected beef CAFOs), 22 heifer operations (9 percent), 204 hog operations (5 percent of affected hog CAFOs), and 10 broiler operations (1 percent) might close as a result of complying with the final regulations. These results are based on an analysis that does not consider the longer-term effects on market adjustment and also available cost share assistance from federal and State governments.

Detailed information on estimated compliance costs are provided in the *Technical Development Document* and the *Cost Support Document*, which are in the administrative record for today's rule. EPA's detailed economic assessment can be found in *Economic Analysis* which is also in the administrative record.

A. Costs of the Final Rule

1. Method for Estimating the Costs of This Rule

For the purpose of estimating the total costs and economic impacts CAFOs will bear in complying with this rule, EPA estimated costs associated with four broad cost components: nutrient management planning, facility upgrades, land application, and technologies for balancing on-farm nutrients. Nutrient management planning costs include manure and soil testing, record-keeping, and plan development. Facility upgrades reflect costs for additional or improved manure storage, mortality handling, runoff controls, reduction of fresh water use where appropriate, and additional farm management practices. Land application costs address agricultural application of nutrients, including hauling of excess manure off-site and adjusting for changes in commercial fertilizer needs, and reflect differences among operations based on cropland availability for manure application.

EPA evaluated compliance costs using a representative facility approach based on approximately 1,600 farm level cost models to depict conditions and to evaluate compliance costs for select representative CAFOs. The major factors used to differentiate individual model CAFOs include the commodity sector, the farm production region, and the facility size (based on herd or flock size or the number of animals on-site). EPA's model CAFOs primarily reflect the major animal sector groups, including beef cattle, dairy, hog, broiler, turkey, and egg laying operations. Practices at other subsector operations are also reflected in the cost models, such as replacement heifer operations, veal operations, flushed-cage layers, and hog grow-finish and farrow-finish facilities.

Another key distinguishing factor incorporated into EPA's cost models is information on the availability of

cropland and pastureland for land application of manure nutrients. For this analysis, nitrogen and phosphorus rates of land application were evaluated for three categories of cropland availability: (1) CAFOs with sufficient cropland for all manure generated on-site; (2) CAFOs with some, but not enough, cropland to accommodate all of the manure produced at the facility; and (3) CAFOs with no cropland. EPA used USDA data to determine the number of CAFOs within each of these categories. This information takes into account which nutrient (nitrogen or phosphorus) is used as the basis to assess land application and nutrient management costs.

The data and information used to develop EPA's cost estimates were compiled with the assistance of USDA, in combination with other information collected by EPA from extensive literature searches, more than 100 farm site visits, and numerous consultations with industry, universities, and agricultural extension agencies. Additional detailed information on the data and assumptions used to develop EPA's cost estimates is provided in the *Technical Development Document*. Refer to the preamble for the proposed rule for a summary of EPA's data collection activities and the sources of data that the Agency used to estimate compliance costs (66 FR 3079–3080).

For the purpose of estimating costs and financial effects to Medium CAFOs, EPA assumes that costs that will be incurred by those sized operations to comply with BPJ-based limitations under the revised NPDES regulations are similar to the estimated costs that would be incurred if Medium CAFOs had to comply with the ELG.

2. Estimated Annual Costs of the Final CAFO Regulations

a. *Costs borne by CAFOs.* Table 8.1 summarizes the total annualized compliance costs to CAFOs. The table

shows these costs broken out by sector and broad facility size category. As shown in the table, EPA estimates the total cost of the final rule to CAFOs at \$326 million annually. (Total monetized estimated social costs of the rule include an additional \$9 million to federal and State governments.) Roughly one-half of this cost is incurred by the dairy sector, with another roughly 30 percent incurred within the cattle sectors (including the beef, veal, and heifer sectors).

Of this total, EPA estimates that Large CAFOs will incur costs of \$283 million per year. Total annualized costs to facilities defined as Medium CAFOs are estimated at \$39 million annually. Table 8.1 also shows estimated total cost to Small and Medium AFOs that might incur costs if designated as CAFOs, which EPA estimates at about \$4 million annually. More information on these costs and how they were calculated is provided in the *Economic Analysis*.

EPA has estimated the cost of land application based on nitrogen-based application rates, except in those instances where EPA believes that phosphorus-based rates are likely to be appropriate. The final rule specifies that the determination of application rates is to be based on the technical standards established by the Director and EPA expects that these standards will require phosphorus-based application, where appropriate. The rule also provides for these standards to include appropriate flexibilities in the use of phosphorus-based rates, such as multi-year phosphorus application, but the potential costs savings resulting from these flexibilities are not reflected in the analysis. As a result, the cost and economic impacts of this rule may have been overestimated.

TABLE 8.1.—ANNUAL PRE-TAX COST OF THE RULE, \$2001

Sector	No. operations		Aggregate incremental costs			
	Large CAFOs	Medium CAFOs	Total	Large CAFOs	Medium CAFOs	Designated CAFOs
	(number)		(\$2001, millions, pre-tax)			
Fed Cattle	1,766	174	\$88.2	\$85.8	\$1.9	\$0.5
Veal	12	230	0.0	<0.1	<0.1	0.0
Heifer	242	7	6.3	3.8	2.4	0.1
Dairy	1,450	1,949	151.1	128.2	22.0	0.9
Hogs	3,924	1,485	34.8	24.9	9.5	0.4
Broilers	1,632	520	20.5	16.8	2.4	1.3
Layers: Dry ¹	729	26	7.5	7.2	0.1	0.2
Layers: Wet ¹	383	24	8.9	8.4	0.5	<0.1
Turkeys	388	37	8.7	8.1	0.3	0.3

TABLE 8.1.—ANNUAL PRE-TAX COST OF THE RULE, \$2001—Continued

Sector	No. operations		Aggregate incremental costs			
	Large CAFOs	Medium CAFOs	Total	Large CAFOs	Medium CAFOs	Designated CAFOs
Total	10,526	4,452	326.0	283.2	39.1	3.8

Source: USEPA. May not add due to rounding. Number of operations do not include designated facilities. Assumes that the estimated costs for Medium CAFOs to comply with BPJ-based limitations under the revised NPDES regulations are similar to the costs that would be incurred by those sized operations if they had to comply with the ELG.

¹ "Layers: dry" are operations with dry manure systems. "Layers: wet" are operations with liquid manure systems.

b. Costs to the NPDES permitting authority. The NPDES permitting authority will incur additional costs to alter existing State programs and obtain EPA approval to develop new permits, review new permit applications, and issue revised permits that meet the final regulatory requirements. EPA expects that NPDES permitting authorities will incur administrative costs related to the development, issuance, and tracking of general or individual permits.

State and federal administrative costs to issue a general permit include costs for permit development, public notice and response to comments, and public hearings. States and EPA may also incur costs each time a facility operator applies for coverage under a general permit due to the expenses associated with a NOI. These per-facility administrative costs include initial facility inspections and annual record-keeping expenses associated with tracking NOIs. Administrative costs for an individual permit include application review by a permit writer, public notice, and response to comments. An initial facility inspection might also be necessary.

EPA assumes that under the final regulations an estimated 15,500 CAFOs would be permitted. This estimate consists of about 15,000 CAFOs covered by State permits and about 500 CAFOs covered by federal permits. Administrative costs incurred by State permitting authorities are expected to be \$8.7 million. EPA permitting authorities will incur the remaining \$0.3 million. EPA has expressed these costs in 2001 dollars, annualized over the 5-year permit term using a 7 percent discount rate. A summary of this analysis is available in section X.D of this preamble. More detailed information is in the *Technical Development Document*.

B. Economic Effects

1. Effects on the CAFO Operation

To estimate the impacts of the final regulations, EPA examined the economic effects on regulated CAFOs and national markets. This section

presents EPA's analysis of financial impacts on both existing and new CAFOs that will be affected by the final regulations. Results presented here focus on economic effects from the CAFO regulations affecting Large CAFOs because only large facilities will be subject to the effluent guidelines and NSPS. This section also presents EPA's analysis of the economic effects on existing operations that are small businesses. More detailed information on those effects are presented in the *Economic Analysis*.

The preamble to the proposed rule summarizes EPA's data collection activities and the sources of data that the Agency used to estimate economic effects for the final regulations (66 FR 3079–3080). Both the 2001 Notice (66 FR 58556) and the 2002 Notice (67 FR 48099) describe the public comments received by EPA on the baseline financial data and the methodological approach developed by the Agency to evaluate financial effects. More detailed information on these comments and how EPA addressed them is in section 2 of the final *Economic Analysis*. EPA's detailed responses to these public comments, and the comments themselves, are contained in the *Comment Response Document* in the administrative record for today's rule. Both Notices also present new data received following proposal that EPA used in conducting its final analysis.

a. Methodology used to assess impacts to the CAFO operation. EPA assessed financial effects on regulated CAFOs based on predicted changes to select financial criteria. The economic model that EPA used to evaluate financial impacts on CAFOs uses a representative farm approach. Under this general framework, EPA constructed a series of model facilities ("model CAFOs") that reflect EPA's estimated compliance costs and readily available financial data. EPA used these model CAFOs to develop an average characterization for a group of operations based on certain distinguishing characteristics for each sector, such as facility size and production region, that can be shared across a broad range of facilities.

EPA evaluated the economic achievability of the rule at existing operations based on changes in representative financial conditions across three financial criteria: (1) An initial screening comparing incremental post-tax costs to total gross revenue ("sales test"), (2) projected post-compliance cash flow over a 10-year period ("discounted cash flow analysis"), and (3) an assessment of an operation's debt-to-asset ratio under a post-compliance scenario ("debt-asset test"). EPA notes that its discounted cash flow analysis likely understates impacts because it does not include any allowance for depreciation or replacement of capital in its definition of cash flow. However, EPA has conducted a sensitivity analysis that shows that the number of estimated CAFO closures would not be different if allowances for replacement of capital are made (see section 3.3 of the *Economic Analysis*).

EPA used the results from these analyses to divide affected CAFOs into three financial impact categories: Affordable, Moderate, and Stress. CAFOs experiencing affordable or moderate impacts are considered to have some financial impact on operations, but EPA does not expect the costs of complying with this rule to make these operations vulnerable to closure. EPA considers that for CAFOs in both the "Affordable" and "Moderate" impact categories the final requirements are likely to be economically achievable. Operations experiencing financial stress, however, are considered to be vulnerable to closure because of the costs of this rule. EPA considers that for CAFOs in the "Stress" impact category, the final requirements are likely not economically achievable. EPA notes, as discussed below, that there may be mitigating factors that could reduce the number of facilities experiencing financial stress, such as the availability of cost-share assistance and long-run market adjustment.

EPA conducted its analysis first at the farm level based on data reflecting financial conditions for the entire farm

operation (e.g., reflecting income and cost information spanning the entire operation, thus considering the operation's primary livestock production, along with other income sources such as secondary livestock and crop production, government payments, and other farm-related income). Based on the farm level results, EPA also assessed the financial effects on CAFOs at the enterprise level (e.g., limiting the scope of the assessment to the operation's livestock or poultry enterprise, and excluding other non CAFO-related sources of income from the analysis). By evaluating the financial criteria at both the farm level and the enterprise level, EPA's analyses address comments expressed by many commenters, including FAPRI, other land grant university researchers, and industry, as well as USDA.

Starting with the farm level analysis, EPA considers the regulations to be economically achievable for a representative model CAFO if the average operation has a post-compliance sales test estimate within an acceptable range, a positive post-compliance cash flow over a 10-year period, and a post-compliance debt-to-asset ratio not exceeding a benchmark value. Specifically, if the sales test shows that compliance costs are less than 3 percent of sales, or if post-compliance cash flow is positive and the post-compliance debt-to-asset ratio does not exceed a benchmark (depending on the baseline data) and compliance costs are less than 5 percent of sales, EPA considers the options to be "Affordable" for the representative CAFO group. (Although a sales test result of less than 3 percent does indicate "Affordable" in the farm level analysis, further analysis is conducted to determine the effects at the operation's livestock or poultry enterprise.) The benchmark values assumed for the debt-asset test are sector-specific. EPA assumes a 70 percent benchmark value for the debt-asset test to indicate financial stress in the hog and dairy sectors, and an 80 percent benchmark for the debt-asset test to indicate financial stress in the beef cattle sector. These benchmark values address public comment received and alternative debt and asset data submitted for the livestock sectors. For the poultry sectors, however, EPA did not obtain alternative debt and asset data and continues to evaluate data used for proposal against a 40 percent benchmark value. See the Economic Analysis and EPA response to comment on this issue for more information.

A sales test of greater than 5 percent but less than 10 percent of sales with positive cash flow and a debt-to-asset

ratio of less than these sector-specific debt-asset benchmark values is considered indicative of some impact at the CAFO level, but at a level not as severe as those indicative of financial distress or vulnerability to closure. These impacts are labeled "Moderate" for the representative CAFO group. EPA considers both the "Affordable" and "Moderate" impact categories to be economically achievable by the CAFO, subject to the enterprise analysis (see below). If, with a sales test of greater than 3 percent, post-compliance cash flow is negative or the post-compliance debt-to-asset ratio exceeds these sector-specific debt-asset benchmarks, or if the sales test shows costs equal to or exceeding 10 percent of sales, EPA considers the final regulations to be associated with potential financial stress for the entire representative CAFO group. In such cases, each of the operations represented by that group might be vulnerable to closure. For operations that are determined to experience financial "Stress" at the farm level, the final requirements are likely not economically achievable.

The enterprise level analysis builds on the farm level analysis, evaluating effects at a farm's livestock or poultry enterprise. If the farm level analysis shows that the regulations impose "Affordable" or "Moderate" effects on the operation, the enterprise level analysis is conducted to determine whether the enterprise's cash flow is able to cover the cost of regulations. This analysis uses a discounted cash flow approach similar to that used to assess the farm level effects, in which the net present value of cash flow is compared to the net present value of the total cost of the regulatory options over the 10-year time frame of the analysis. Over the analysis period, if an operation's livestock or poultry enterprise maintains a cash flow stream that both exceeds the cash costs of the rule (operating and maintenance costs plus interest) and covers the net present value of the principal payments on the capital, EPA concludes that the enterprise will likely not close because of the CAFO rule. This analysis is conducted on a pass/fail basis. If the net present value of cash flow minus the net present value of the rule's costs is greater than zero, the enterprise passes the test and the enterprise is assumed to continue to operate. EPA considers these results to indicate that the final requirements are economically achievable. If the net present value of cash flow is not sufficient to cover the net present value of the cost of the rule, EPA assumes that the CAFO operator

would consider shutting down the livestock or poultry enterprise. That is, if an operation fails the enterprise level analysis, these operations are determined to experience financial "Stress" and the final requirements are likely not economically achievable.

In response to comments, EPA conducted additional supplemental analysis to determine the effects of the regulation under two different scenarios. One scenario takes into consideration the effects of long-run market adjustment following implementation of the final regulations. This analysis is conducted using simulated changes in producer revenue given changes in market prices as depicted by EPA's market model, which uses estimates of price and quantity response in these markets. A second scenario takes into consideration potential cost share assistance under federal and State conservation programs, assuming that a portion of costs are covered by cost sharing subject to programmatic constraints. Given the uncertainty of whether CAFO income will rise in response to long-run market adjustment or whether available cost share dollars will effectively offset compliance costs at regulated CAFOs, EPA's analysis to determine whether the regulation is "economically achievable" does not rely on such assumptions as part of its regulatory analysis and therefore reflects the highest level of impacts projected. However, EPA presents the results of this analysis assuming both some degree of cost passthrough and no cost passthrough, as well as some degree of cost share assistance and no cost share assistance, along with the results of its lead analysis. Additional detailed information on this decision framework is provided in section 2 of the *Economic Analysis*.

b. Economic effects on existing CAFOs affected by the Effluent Guidelines. Table 8.2 presents the results of EPA's analysis of the estimated CAFO financial effects in terms of the number of operations that will experience affordable, moderate, or stress impact because of this rule. Results are shown by sector for Large CAFOs.

EPA's analysis indicates that, for all Large CAFOs in the veal, dairy, turkey, and egg laying sectors, the impacts due to this rule are characterized as "Affordable" or "Moderate" and no facility closures are projected for these facilities. Therefore, EPA determined the rule being promulgated today is economically achievable for existing facilities in these animal sectors. In the beef cattle, heifer, hog and broiler sectors, however, EPA's analysis

indicates that the final rule will cause some existing CAFOs to experience financial stress, making these operations vulnerable to facility closure. Across all sectors, an estimated 285 existing Large CAFOs might be vulnerable to facility closure. This accounts for approximately 3 percent of all Large CAFOs. By sector, EPA estimates that 49 beef operations (3 percent of affected beef CAFOs), 22 heifer operations (9 percent), 204 hog operations (5 percent of affected hog CAFOs), and 10 broiler operations (1 percent) might close as a result of complying with the final regulations. These estimates of the number of potential CAFO closures are cumulative and reflect the results of both the farm level analysis and the enterprise level analysis. These estimated closure rates are generally consistent with the findings of economic achievability of previous

effluent guidelines for other industrial point source categories. Based on the results of this analysis, EPA concludes that the final rule is economically achievable for existing CAFOs. More detailed information is provided in the *Economic Analysis*.

The results described above do not reflect long-run market adjustment and cost share assistance through federal and State conservation programs due to uncertainties associated with these considerations, for reasons discussed in the *Economic Analysis*. Although EPA concluded, based on the results in Table 8.2, that the final regulation is economically achievable, the *Economic Analysis* presents the results of alternative analyses under varying assumptions of long-run market adjustment and potential cost share assistance. Under assumptions of long run market adjustment, as reflected in eventual increases in CAFO revenue

and producer prices, the number of potential facility closures is reduced from 285 closures to a single facility closure in the beef sector. All operations in the heifer, hog, and broiler sectors are expected to be able to absorb the estimated compliance costs under an assumption that incorporates long run market adjustment. Under assumptions of partial cost share assistance, assumed for this analysis to cover 50 percent of the capital expenditure to comply with the revised regulations, the number of potential closures is reduced only somewhat from 285 closures to 261 closures (comprised of 43 beef, 11 heifer, 204 hog, and 3 broiler operations). EPA conducted these analyses only for the beef, heifer, hog and broiler sectors since all Large CAFOs in the other sectors are estimated to be able to absorb costs associated with the final rule.

TABLE 8.2.—FINANCIAL EFFECTS ON LARGE CAFOs: FINAL REGULATIONS

Sector	Number large CAFOs	Number			Percent of total operations		
		Affordable	Moderate	Stress	Affordable	Moderate	Stress
Fed Cattle	1,766	1,717	49	97	0	3
Veal	12	12	0	0	100	0	0
Heifer	242	220	0	22	91	0	9
Dairy	1,450	1,019	431	0	70	30	0
Hogs	3,924	3,249	470	204	83	12	5
Broilers	1,632	1,032	590	10	63	36	1
Layers: Dry ¹	729	729	0	0	100	0	0
Layers: Wet ¹	383	383	0	0	100	0	0
Turkeys	388	388	0	0	100	0	0
Total	10,526	8,749	1,491	285	83	14	3

Source: USEPA. See *Economic Analysis*. May not add due to rounding.

¹“Layers: dry” are operations with dry manure systems. “Layers: wet” are operations with liquid manure systems.

c. *Economic effects to existing CAFOs that are small businesses.* (1) Number of affected small businesses. This section presents EPA’s analysis of the economic effects on CAFOs that are small businesses. It summarizes the estimated number of small entities to which the rule will apply and describes the potential effects of the final rule on these businesses.

The SBA defines a “small business” in the livestock and poultry sectors in terms of average annual receipts (or gross revenue). SBA size standards for these industries define a “small business” as one with average annual revenues over a 3-year period of less than \$0.75 million for dairy, hog, broiler, and turkey operations; \$1.5 million for beef feedlots; and \$9.0 million for egg operations. EPA defines a “small” egg laying operation for purposes of its regulatory flexibility assessments as an operation that

generates less than \$1.5 million in annual revenue. EPA consulted with SBA on the use of this alternative definition. A summary of EPA’s rationale and supporting analyses pertaining to this alternative definition is provided in the administrative record and in Section 4 of the *Economic Analysis*.

Given these considerations, EPA defines a “small business” for this rule as an operation that houses or confines less than 1,400 fed beef cattle (includes fed beef, veal, and heifers); 300 mature dairy cattle; 2,100 market hogs; 37,500 turkeys; 61,000 layers; or 375,000 broilers. The approach used to derive these estimates is described in the *Economic Analysis* and the administrative record.

EPA estimates that of the approximately 238,000 animal confinement facilities in 1997, roughly 95 percent are small businesses. Not all

of these operations will be affected by the final rule. Table 8.3 shows EPA’s estimates of the number of “small business CAFOs that are expected to be affected by this rule. For this analysis, EPA estimates that about 6,200 affected CAFOs across all size categories are small businesses, accounting for more than 40 percent of the estimated 14,515 affected facilities. EPA estimates that among Large CAFOs about 2,330 operations are small businesses (accounting for about one-fourth of all Large CAFOs). Most affected small businesses are in the broiler sector. Among Medium CAFOs, EPA estimates about 3,870 operations are small businesses (accounting for the majority of operations in this size category), and most of the affected small businesses are in the hog, dairy, and broiler sectors.

For reasons noted in the administrative record, EPA believes that the number of small broiler operations

is overestimated and might actually include a number of medium and large broiler operations that should not be considered small businesses.

(2) Estimated financial effects on small businesses. For the 2001 proposal, EPA conducted a preliminary assessment of the potential impacts on small business CAFOs based on the results of a costs-to-sales test (66 FR 3101). This screen test indicated the need for additional analysis to characterize the nature and extent of impacts on small entities. Based on the results of this initial assessment, EPA projected that it would likely not certify that the proposal, if promulgated, would not impose a significant economic impact on a substantial number of entities. Therefore, EPA convened a SBAR Panel and prepared an Initial Regulatory Flexibility Analysis (IRFA) pursuant to sections 609(b) and 603 of the RFA, respectively. The 2001 proposal provides more information on EPA's small business outreach and the Panel activities during the development of this rulemaking (66 FR 3121). Section XI of this preamble presents EPA's Final Regulatory Flexibility Analysis (FRFA),

as required under section 604 of the RFA. More detailed information on this analysis is provided in section 4 of the *Economic Analysis*.

In examining the effects on small businesses for the final rule, EPA followed the same approach used to evaluate the impacts on other existing CAFOs, described in section VIII.B.1(a). For the purposes of this analysis, EPA assumes that the costs that will be incurred by those sized operations to comply with BPJ-based limitations under the revised NPDES regulations are similar to the estimated costs that would be incurred if Medium CAFOs had to comply with the ELG.

For past regulations, EPA has often analyzed the potential impacts to small businesses by evaluating the results of a costs-to-sales test, measuring the number of operations that will incur compliance costs at varying threshold levels (including ratios where costs are less than 1 percent, between 1 and 3 percent, and greater than 3 percent of gross income). EPA conducted such an analysis at the time of the 2001 proposal, indicating that about 80 percent of the estimated number of

small businesses directly subject to the rule as CAFOs might incur costs in excess of three percent of sales.

EPA believes that its more refined analysis used for its general analysis (presented here) better reflects the potential impacts to regulated small businesses. Using this approach, EPA's analysis indicates that the final rule could cause financial stress to some small businesses, making these businesses vulnerable to closure. Among the estimated 6,200 small businesses, EPA estimates that 262 Large and Medium CAFOs might be vulnerable to facility closure (Table 8.3). Thus, EPA estimates that potential facility closures associated with this rule constitutes about 4 percent of all affected small business CAFOs. Medium CAFOs comprise the majority (about 85 percent) of these estimated number of closures. These results do not consider long-run market adjustment or cost share assistance through federal and State conservation programs. More detailed information is provided in the *Economic Analysis*.

TABLE 8.3.—FINANCIAL EFFECTS ON SMALL BUSINESS CAFOs

Sector	Number of small businesses	Number			Percent of total operations		
		Affordable	Moderate	Stress	Affordable	Moderate	Stress
CAFOs >1,000 AU:							
Fed Cattle	538	522	0	16	97	0	3
Veal	5	5	0	0	100	0	0
Heifer	97	88	0	9	91	0	9
Dairy	0	—	—	—	—	—	—
Hogs	0	—	—	—	—	—	—
Broilers	1,303	763	532	9	58	41	1
Layers: Dry ¹	0	—	—	—	—	—	—
Layers: Wet ¹	383	383	0	0	100	0	0
Turkeys	0	—	—	—	—	—	—
Total	2,326	1,795	532	34	76	23	1
Operations 300–1,000 AU (Defined as CAFOs):							
Fed Cattle	174	7	0	167	4	0	96
Veal	7	7	0	0	100	0	0
Heifer	230	189	0	41	82	0	18
Dairy	1,330	1,306	24	0	98	2	0
Hogs	1,485	1,483	2	0	100	0	0
Broilers	520	263	248	10	51	48	1
Layers: Dry ¹	24	24	0	0	100	0	0
Layers: Wet ¹	24	24	0	0	100	0	0
Turkeys	31	31	0	0	100	0	0
Total	3,825	3,334	274	228	87	7	6

Source: USEPA. See *Economic Analysis*. May not add due to rounding. Assumes that the costs that will be incurred by those sized operations to comply with BPJ-based limitations under the revised NPDES regulations are similar to the estimated costs that would be incurred if Medium CAFOs had to comply with the ELG.

¹ "Layers: dry" are operations with dry manure systems. "Layers: wet" are operations with liquid manure systems.

d. Economic effects to new CAFOs.
EPA evaluated impacts on new source CAFOs by comparing the costs borne by

new source CAFOs to those estimated for existing sources. That is, if the expected cost to new sources is similar

to or less than the expected cost borne by existing sources (and that cost was considered economically achievable for

existing sources), EPA considers that the regulations for new sources do not impose requirements that might grant existing operators a cost advantage over new CAFO operators and further determines that the NSPS requirements are affordable and do not present a barrier to entry for new facilities. In general, costs to new sources from NSPS requirements are lower than the costs for retrofitting the same technologies at existing sources since new sources are able to apply control technologies more efficiently than existing sources that might incur high retrofit cost. New sources will be able to avoid the retrofit costs that will be incurred by existing sources. Furthermore, new sources might be able to avoid the other various control costs facing some existing producers through careful site selection. The requirements promulgated in today's rule do not give existing operators a cost advantage over new CAFO operators; therefore, the NSPS do not present a barrier to entry for new facilities. Examples of avoided retrofit costs and costs of total containment systems and waste management, including land application, for both existing and new sources are provided in Section IV.C of this preamble. More detailed information is provided in the *Cost Report* and the *Economic Analysis* supporting the final regulations.

2. Market Analysis

EPA's market analysis evaluates the effects of the final regulations on national markets. This analysis uses a linear partial equilibrium model adapted from the COSTBEN model developed by USDA's Economic Research Service. The modified EPA model provides a means to conduct a long-run static analysis to measure the market effects of the final regulations in terms of predicted changes in farm and retail prices and product quantities. Market data used as inputs to this model are from a wide range of USDA data and land grant university research. Once price and quantity changes are predicted by the model, EPA uses national multipliers that relate changes in sales to changes in total direct and indirect employment and also to national economic output. These estimated relationships are based on the Regional Input-Output Modeling System (RIMS II) from the U.S. Department of Commerce. The details of the market analysis are described in the *Economic Analysis*.

a. Commodity prices and quantities. EPA's market model predicts that the final rule will not result in significant industry-level changes in production and prices for most sectors. Predicted

changes in animal production might raise producer prices as the market adjusts to the final regulatory requirements. For most sectors, EPA estimates that producer price changes will rise by less than one percent of the pre-regulation baseline price. The exception is in the hog sector, where estimated compliance costs slightly exceed one percent of the baseline price. At the retail level, EPA expects that the final rule will not have a substantial impact on overall production or consumer prices for value-added meat, eggs, and fluid milk and dairy products. EPA estimates that retail price increases resulting from this rule will be less than one percent of baseline prices in all sectors, averaging below the rate of general price inflation for all foods. In terms of retail level price changes, EPA estimates that poultry and red meat prices will rise about one cent per pound. EPA also estimates that egg prices will rise by about one cent per dozen and that milk prices will rise by about one cent per gallon.

b. Aggregate employment and national economic output. EPA does not expect the final rule to cause significant changes in aggregate employment or national economic output, measured in terms of Gross Domestic Product (GDP). EPA expects, however, that there will be losses in employment and economic output associated with decreases in animal production due to rising compliance costs. These losses are estimated throughout the entire economy, using available modeling approaches, and are not attributable to the regulated community only. This analysis also does not adjust for offsetting increases in other parts of the economy and other sector employment that might be stimulated as a result of the final rule, such as the construction and farm services sectors.

Employment losses are measured in full-time equivalents (FTEs) per year, including both direct and indirect employment. EPA estimates that the reduction in total direct employment is about 1,600 FTEs. This projected change is compared to total national employment of about 129.6 million jobs in 1997. More detailed information on these results is presented in the *Economic Analysis*.

c. Regional and community impacts. EPA considered whether the final rule could have community level and/or regional impacts if it substantially altered the competitive position of livestock and poultry production across the nation, or led to growth or reduction in farm production (in- or out-migration) in different regions and communities. Ongoing structural and

technological changes in these industries have influenced where farmers operate and have contributed to locational shifts between the traditional production regions and the emergent, nontraditional regions. Production is growing rapidly in the emergent regions because of competitive pressures and because specialized producers tend to have the advantage of lower per-unit costs of production. This is especially true in hog and dairy production.

To evaluate the potential for differential impacts among farm production regions, EPA examined employment impacts by region. EPA also evaluated whether the final requirements could result in substantial changes in volume of production, given predicted facility closures, within a particular production region. EPA concludes from these analyses that regional and community level effects are estimated to be modest, but do tend to be concentrated within the more traditional agricultural regions. This analysis is discussed in the *Economic Analysis*.

EPA does not expect that this rule will have a significant impact on where animals are raised. On one hand, on-site improvements in waste management and disposal, as required by the final rule, could accelerate recent shifts in production to more nontraditional regions as higher-cost producers in some regions exit the market to avoid the relatively high retrofitting costs associated with bringing existing facilities into compliance. On the other hand, the final regulations might favor more traditional production systems where operators grow both livestock and crops, since these operations tend to have available cropland for land application of manure nutrients. These types of operations tend to be more diverse and less specialized and, generally, smaller in size. Long-standing farm services and input supply industries in these areas could likewise benefit from the final rule, given the need to support on-site improvements in manure management and disposal. Local and regional governments, as well as other nonagricultural enterprises, would also benefit.

d. Foreign trade impacts. Foreign trade impacts are difficult to predict because agricultural exports are determined by economic conditions in foreign markets and changes in the international exchange rate for the U.S. dollar. However, EPA predicts that foreign trade impacts as a result of the final rule will be minor given the relatively small projected changes in overall supply and demand for these products and the slight increase in

market prices, as described in section VIII.B.2(a). Measured as potential for changes in traded volumes, such as increases in imports and decreases in exports, EPA estimates that increases in imports and decreases in exports will each total less than 1 percent compared to baseline (pre-regulation) levels in each of the commodity sectors. Based on these results, EPA believes that any quantity and price changes resulting from the final rule will not significantly alter the competitiveness of U.S. export markets for meat, dairy foods, and poultry products.

C. Cost-Benefit and Cost-Effectiveness Analyses

1. Cost-Benefit Analysis

This section presents a comparison of the costs and benefits attributable to the final rule. As Table 8.4 shows, the

economic value of the environmental benefits EPA is able to monetize (*i.e.*, evaluate in dollar terms) is comparable to the estimated costs of the rule. As discussed in section VII, EPA estimates that the monetized benefits of the final rule range from \$204 million to \$355 million annually. Monetized benefit categories are primarily in the areas of improved surface water quality (measured in terms of enhanced recreational value), reduced nitrates in private wells, reduced shellfish bed closures from pathogen contamination, and reduced fish kills from episodic events. As discussed in Section VII of this preamble, EPA also identified a number of benefits categories that could not be monetized. These benefits are described in more detail in Section VII of this preamble and in the *Benefits Analysis* and other supporting

documentation provided in the administrative record.

This compares to EPA's estimate of the total social costs of the final regulations of about \$335 million annually. These costs cover compliance costs to all CAFOs (Large, Medium, and Small), and administrative costs to States and federal governments. Costs to all CAFOs are estimated at \$326 million per year (pre-tax, \$2001). EPA estimates the administrative cost to State and federal governments to implement this rule is \$9 million per year. There may be additional social costs that have not been monetized. For a detailed discussion of these costs, see the *Technical Development Document* and the *Economic Analysis*. A comparison of the total costs and benefits for other regulatory options considered and analyzed by EPA can be found in the *Economic Analysis*.

TABLE 8.4.—TOTAL ANNUAL MONETIZED SOCIAL COSTS AND BENEFITS

[Millions of 2001 dollars]

Category	Large CAFOs	All CAFOs
Social Costs:		
Industry Compliance Costs (pre-tax)	\$298	\$352
State/Federal Administrative Costs	6	9
Total	304	360
Benefits (Total for all CAFOs)	\$204 to \$355	(**)

**Benefits analysis does not reflect monetized benefits for Medium CAFOs. May not add due to rounding. See Table 7.1 for information on benefit categories that EPA was not able to monetize.

2. Cost-Effectiveness Analysis

As part of the process of developing effluent limitations guidelines and standards, EPA typically conducts a cost-effectiveness (C-E) analysis to compare the efficiencies of regulatory options for removing pollutants. This analysis defines cost-effectiveness as the incremental annualized cost of a regulatory control option per incremental pound of pollutant removed annually by that option.

The American Society of Agricultural Engineers reports that the constituents present in livestock and poultry manure include boron, cadmium, calcium, chlorine, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, sodium, sulfur, zinc, nitrogen and phosphorus species, TSS, and pathogens. Of these pollutants, EPA's standard C-E analysis is suitable to analyze only the removals of metals and metallic compounds. EPA's standard C-E analysis does not adequately address removals of nutrients, TSS, and pathogens. To account for the estimated removal of nutrients and sediments under the final

rule, the Agency developed an alternative approach to evaluate the pollutant removal effectiveness for nutrients and sediment relative to the cost of these pollutant removals.

The C-E analysis conducted for this rule evaluates the cost-effectiveness of removing select non-conventional and conventional pollutants, including nitrogen, phosphorus, and sediments. For this analysis, sediments are used as a proxy for TSS. This analysis compares the estimated compliance cost per pound of pollutant removed to a recognized benchmark, such as EPA's benchmark for conventional pollutants or other criteria for existing treatment, as reported in available cost-effectiveness studies. The research in this area has mostly been conducted at municipal facilities, including publicly owned treatment works (POTWs) and wastewater treatment plants (WWTPs). Additional information is available based on the effectiveness of various nonpoint source controls and BMPs and other pollutant control technologies that are commonly used to control runoff from agricultural lands. A summary of

this literature is provided in the *Economic Analysis*. Benchmark estimates were used to evaluate the efficiency of the final rule in removing a range of pollutants. This approach also allowed for an assessment of the types of management practices that will be implemented to comply with the final regulations.

For this analysis, EPA estimated average cost-effectiveness values that reflect the increment between no revisions to the current regulations and the final regulatory requirements promulgated today. All costs are expressed in pre-tax 2001 dollars. Estimated compliance costs used to calculate the cost-effectiveness of the final regulations include total estimated costs to CAFOs and costs to the permitting authority.

EPA estimates an average cost-effectiveness of nutrient removal at about \$3 per pound of nitrogen removed (pre-tax, 2001 dollars). For phosphorus removal, removal costs are estimated at about \$7 per pound of phosphorus removed. For nitrogen, EPA used a cost-effectiveness benchmark established by

its Chesapeake Bay Program to assess the costs to WWTPs to implement system retrofits to achieve biological nutrient removal. This nitrogen benchmark estimate is approximately \$4 per pound of nitrogen removed, based on a range of costs of \$0.80 to \$5.90 per pound of nitrogen removed. EPA's estimated cost-effectiveness to remove nitrogen falls within the estimated range of removal costs and is less than this average benchmark value assumed for this rule. For phosphorus, EPA assumed a cost-effectiveness benchmark of roughly \$10 per pound based on a review of values reported in the agricultural research of the costs to remove phosphorus using various nonpoint source controls and management practices. EPA's estimated cost-effectiveness to remove phosphorus under this rule also falls below this \$10 per pound benchmark value, indicating that the requirements are cost-effective. This is particularly true when compared to the reported cost to remove phosphorus at other industrial point source dischargers, where reported average costs are twice that for agricultural sources and often exceed \$100 per pound of phosphorus removed. Based on these results, EPA concludes that these values are cost-effective.

EPA also examined the cost-effectiveness of removing sediments under the regulations. EPA estimates a cost of less than \$0.30 per pound of sediment removal in this rule (pre-tax, 2001 dollars). This estimated per-pound removal cost is low compared to EPA's POTW benchmark for conventional pollutants. That benchmark measures the potential costs per pound of TSS and BOD removed for an "average" POTW (see 51 FR 24982). Indexed to 2001 dollars, EPA's benchmark costs are about \$0.73 per pound of TSS and BOD removed. For information on EPA's cost-effectiveness, see the *Economic Analysis*.

IX. Coordination With Other Federal Programs

A. How Does Today's Rule Function in Relation to Other EPA Programs?

The relationship between animal agriculture and water quality is affected by existing programs other than the CAFO regulations. This section of the preamble presents today's action in the context of some of these other programs.

1. Water Quality Trading

EPA proposed a water quality trading policy on May 15, 2002, for public review and comment. The proposed policy lays out guidelines for States and

local governments/municipalities to consider when implementing a water quality trading program to maintain or reduce pollutant loading and achieve the goals of the Clean Water Act. Water quality trading is considered by some to be a more efficient and quicker pollution reduction process to meet water quality standards than conventional Clean Water Act methods. The proposed trading policy encourages currently regulated and nonregulated sources of pollution to interact more and make mutually beneficial agreements to reduce pollutant loading they might otherwise not be motivated to make. CAFOs may find mutually beneficial opportunities for water quality pollutant trading with other point and nonpoint sources in their watershed. For CAFOs interested in more details about Water Quality Trading, please go <http://www.epa.gov/ow>. The trading policy includes a general EPA water quality trading policy statement and identifies elements that define a successful trading program and provisions that should ensure consistency with the Clean Water Act.

2. Total Maximum Daily Load (TMDL)

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 study must be conducted for each pollutant that causes a water body 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 water body can receive without exceeding water quality standards. A TMDL allocates the amount of pollution that can be contributed by the pollutant 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. Wasteload allocations for point sources

are enforced through NPDES discharge permits. Load allocations for nonpoint sources are not federally enforceable, but can be met through voluntary approaches. 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 requirements contained in today's final rule.

3. Watershed Permitting

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 multiple pollutant sources and stressors, including the level of nonpoint source control needed. 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 water quality-based permits and development of TMDLs 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. The implementation of the approach is being developed (NC DWQ, 1998, 2002). A watershed permit approach was also used for municipal discharges in Connecticut contributing nutrients to the Long Island Sound (CTDEP, 2001).

An approach similar to those used in North Carolina and Connecticut can be used for permitting CAFOs within a specific watershed.

4. Coastal Zone Act Reauthorization Amendments of 1990 (CZARA)

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 which facilities 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 contains 15,000 head or more, a small layer or broiler 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 for defining CAFOs under today's rules. Thus, in coastal States the CZARA management measures potentially apply to a greater number of small facilities than today's CAFO definition. 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. CZARA applies to nonpoint source

dischargers. Any CAFO facility, as defined by 40 CFR Part 122, that has an NPDES CAFO permit, is a point source discharger and thus not subject to CZARA. Similarly, if a facility subject to CZARA management measures is later designated a CAFO by an NPDES permitting authority, the facility is no longer subject to CZARA. With respect to AFOs, some of these facilities may be subject to both NPDES and CZARA requirements, if they have both point and nonpoint source discharges. EPA's CZARA guidance provides that new confined animal facilities and existing large confined animal facilities should limit the discharge of facility wastewater and runoff to surface waters 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 constitute a 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 in 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. Clean Water Act Sec. 319 Program

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 NPS pollution management practices.

6. Source Water Protection Program

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.

7. What Is EPA's Position Regarding Environmental Management Systems?

The Agency supports the voluntary adoption of environmental management systems (EMSs) by CAFOs. On May 15, 2002, the Administrator announced the Agency'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 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. The Agency 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 CNMP, but would also include policies and practices designed to address other significant environmental problems. 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.

In the 2001 Notice, EPA outlined options for how an EMS program may be incorporated into the rule. These options were based on ISO 14000 criteria, an international standard. EPA received a number of comments on these options. Industry was split in support of EMS: some groups thought that use of EMSs in the proposal exceeded authorities provided under the Clean Water Act, whereas others

welcomed EMSs as an alternative to co-permitting. Environmental groups were concerned that reliance on EMS constituted a roll-back of rule requirements.

EPA is not including an EMS as an option in this final rule. EPA recognizes, based on comments, that offering an EMS alternative made the rule more complex and was not entirely consistent with the Agency's goal to keep the rule simple, easy to understand and easy to implement. However, EPA supports the use of EMS by States, as appropriate. In today's rule, EPA is requiring that CAFOs develop and implement nutrient management plans that can help CAFOs manage manure and protect water quality. 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.

B. How Is EPA Coordinating With Other Federal Agencies?

EPA and USDA are committed to working together to provide coordinated assistance to animal agriculture for the betterment of animal agriculture and the environment. The agencies are working together to educate farmers, suppliers, USDA field representatives, consultants, and others on these new regulations. Both EPA and USDA believe in the importance of providing education, training and technical assistance to all involved in animal agriculture that can play a role in helping farmers understand the new requirements and how they can meet them. EPA and USDA have different roles and different constituencies. EPA sets the requirements, works toward compliance by industry, and enforces against noncompliance. USDA provides technical assistance, education, and training to farmers, growers, and allied industries. This education, training, and technical assistance will be vitally important to CAFO operators as they work to come into compliance with the new regulations. The Natural Resource Conservation Service and the Cooperative State Research, Education, and Extension Service are the key USDA agencies that will work with farmers to educate them on the requirements of the EPA CAFO rule. USDA will continue to educate EPA personnel on the intricacies of animal agriculture so that

the Agency can improve its communication with this vital sector.

There was significant comment on the proposed rule on how EPA and USDA should work together with farmers to implement this rule. Some thought the implementation should be left to USDA NRCS and CSREES. Others thought EPA and USDA should work together in the field in a coordinated effort to educate, regulate and assist AFOs and CAFOs. One commenter suggested that EPA monitor water quality and NRCS provide technical assistance. A few comments asked that EPA join other federal agencies and conduct a comprehensive examination of the problems generated by CAFOs.

EPA and USDA believe that only by working in close partnership will the federal government provide the best service to farmers and the rest of the American public. It is EPA's intent and commitment to communicate and coordinate effectively across Agencies and Departments. Animal agriculture is important to this country, as is a sound, healthy environment. EPA and USDA believe these two goals can be jointly achieved.

X. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether a regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines a "significant regulatory action" as one that is likely to result in a rule that may:

1. Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or Tribal governments or communities;
2. Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
3. Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
4. Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined that this rule is a "significant regulatory action" under the terms of Executive Order 12866. As such, this action was submitted to OMB for review. Changes

made in response to OMB suggestions or recommendations will be documented in the public record.

B. Paperwork Reduction Act

The Office of Management and Budget (OMB) has approved the information collection requirements contained in this rule under the provisions of the *Paperwork Reduction Act*, 44 U.S.C. 3501 *et seq.* and has assigned OMB control number 2040-0250.

The information collection requirements affect operations that are defined or designated as CAFOs under the final rule and, therefore, are subject to the record keeping, data collection, and reporting requirements associated with applying for and complying with an NPDES permit. They also affect the 43 States with approved NPDES programs that administer NPDES permits for CAFOs ("approved States"). EPA and approved States use the information routinely collected through NPDES permit applications and compliance evaluations in the following ways: to issue NPDES permits with appropriate limitations and conditions that comply with the Clean Water Act; to update information in EPA's databases that permitting authorities use to determine permit conditions; to calculate national permit issuance, backlog, and compliance statistics; to evaluate national water quality; to assist

EPA in program management and other activities that ensure national consistency in permitting; to assist EPA in prioritizing permit issuance activities; to assist EPA in policy development and budgeting; to assist EPA in responding to Congressional and public inquiries; and to ensure compliance with the terms and conditions of the permit.

The responses to the information collection requirements are mandatory for CAFOs. CAFOs are defined as point sources under the NPDES program (33 U.S.C. 1362). Under 33 U.S.C. 1311 and 1342, a CAFO must obtain an NPDES permit and comply with the terms of that permit, which include appropriate record keeping and reporting requirements. Furthermore, 33 U.S.C. 1318 provides authority for information collection (*i.e.*, record keeping, reporting, monitoring, sampling, and other information as needed), which applies to point sources. Approved States will also incur burden for record keeping, data collection, and reporting requirements when they revise and implement any program changes necessitated by the final rule. Under 40 CFR 123.62(e), State NPDES programs must at all times be in compliance with federal regulations.

CAFOs must develop their nutrient management plans, retain them onsite, and make them available to the

permitting authority on request. These plans may contain confidential business information. When this is the case, the respondent can request that such information be treated as confidential. All confidential data will be handled in accordance with 40 CFR 122.7, 40 CFR Part 2 (40 CFR 2.201 *et seq.*), and EPA's Security Manual Part III, Chapter 9, dated August 9, 1976.

EPA estimates that the average annual public burden for this rule making will be 1.9 million hours. This estimate includes 0.3 million hours for State respondents and 1.6 million hours for CAFO respondents. It includes the time required to review instructions, search existing data sources, gather and maintain all necessary data, and complete and review the information collection. Table 10.1 provides the breakdown of these estimates by type of response. Average annual capital and O&M costs will total \$5.9 million. This estimate includes \$1.3 million in CAFO capital costs to purchase sampling equipment, install depth markers, and purchase services for the engineering portion of the nutrient management plan. Average annual CAFO O&M costs of \$2.9 million include laboratory analyses of soil and manure samples, tractor rental, and record keeping costs. Average annual State O&M costs of \$1.7 million pay for public notifications.

TABLE 10.1.—BURDEN ESTIMATES PER RESPONSE

Activities	Response frequency	Average annual burden (hours)	Average annual responses ¹	Labor cost (\$ millions)
CAFO Respondents				
Start-up Activities	One time	14,493	4,831	\$0.32
Permit Application Activities and NOIs	Every 5 years	43,479	4,831	0.95
ELG and NPDES Data Collection and Record Keeping Activities:				
Visual inspections	Annual	152,260	11,712	1.67
Equipment inspection	Annual	32,238	8,060	0.35
Manure sampling	Annual	26,088	11,712	0.29
Soil sampling	Every 5 years	31,057	3,613	0.34
ELG and NPDES record keeping	Annual	936,982	11,712	10.31
Additional NPDES Record Keeping and Reporting Activities:				
Nutrient management plan	Every 5 years	250,168	4,831	9.06
Manure transfer record keeping	Annual	102,858	7,347	1.13
Annual report	Annual	11,712	11,712	0.26
Compliance inspections	Per inspection	9,370	2,342	0.20
State Respondents				
NPDES Program Modification Activities	One time	3,583	14	0.11
General Permit Activities	Annual	31,598	3,277	0.94
Individual Permit Activities	Annual	174,143	1,573	5.19
Compliance Evaluation:				
Inspections	Annual	36,317	2,270	1.08
Annual Reports	Annual	45,397	11,349	1.35

¹For CAFOs, the number of respondents for each type of response equals the number of responses. For approved States, these estimates differ. There are 43 approved States responding to the information collection requirements, but the number of responses for some activities can be greater because the estimate depends on the number of CAFOs submitting information or undergoing inspections. EPA is the permitting authority for some CAFOs, so the response estimates for CAFOs and States will differ.

These burden and cost estimates have been updated since the proposed rule to reflect changes in the final rule. The Agency received only a few comments on the PRA section of the preamble for the proposed rule. Most commenters believed that the number of affected operations was underestimated. EPA revised its estimate of total AFO operations and its estimate of affected CAFO operations. The final rule requirements results in fewer CAFOs compared to the proposed rule estimates.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15. EPA is amending the table in 40 CFR Part 9 of currently approved ICR control numbers issued by OMB for various regulations to list the information requirements contained in this final rule.

C. Regulatory Flexibility Act

1. Background

The RFA generally requires an agency to prepare a regulatory flexibility analysis for any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as (1) A small business based on annual revenue standards established by the Small Business Administration (SBA), with the

exception of one of the six industry sectors where an alternative definition to SBA's is used; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

For purposes of assessing the impacts of today's rule on small entities in the egg-laying sector, EPA considered small entities in this sector as an operation that generates less than \$1.5 million in annual revenue. A summary of EPA's rationale and supporting analyses pertaining to this alternative definition is provided in the record and in section 4 of the *Economic Analysis*. See discussion under "Use of Alternative Definition" later in this section. Because this definition of small business is not the definition established under the RFA, EPA proposed using this alternative definition in the **Federal Register** and sought public comment. See 66 FR 3099. EPA also consulted with SBA Chief Counsel for Advocacy on the use of this alternative definition.

In accordance with section 603 of the RFA, EPA prepared an initial regulatory flexibility analysis (IRFA) for the proposed rule and convened a Small Business Advocacy Review (SBAR) Panel to obtain advice and recommendations of representatives of affected small entities in accordance with section 609(b) of the RFA. See 66 FR 3121–3124; 3126–3128 (January 12, 2001). A detailed discussion of the SBAR Panel's advice and recommendations can be found in the *Final Report of the Small Business Advocacy Review Panel on EPA's Planned Proposed Rule on National Pollutant Discharge Elimination System and Effluent Limitations Guideline Regulations for Concentrated Animal Feeding Operations*, April 7, 2000. This document is included in the public record (DCN 93001). The 2001 proposal provides a summary of the Panel's recommendations. (See 66 FR 3121–3124).

As required by section 604 of the RFA, EPA prepared a final regulatory flexibility analysis (FRFA) for today's final rule. The FRFA addresses the issues raised by public comments on the IRFA, which was part of the proposal for this rule. The FRFA is available for review in the docket and is summarized below.

2. Summary of Final Regulatory Flexibility Analysis

As required by section 604 of the RFA, EPA also prepared a final regulatory flexibility analysis (FRFA) for today's rule. The FRFA addresses the issues raised by public comments on the IRFA, which was part of the proposal of this rule. The FRFA is available for review in the docket (in section 4 of the final *Economic Analysis*). A summary is provided below.

a. Need for and objectives of the regulations. A detailed discussion of the need for the regulations is presented in section IV of the 2001 preamble (66 FR 2972–2976). A summary is also provided in section 4 of the final *Economic Analysis*. In summary, EPA's rationale for revising the existing regulations include the following: address reports of continued discharge and runoff from livestock and poultry operations in spite of the existing requirements; update the existing regulations to reflect structural changes in these industries over the past few decades; and improve the effectiveness of the existing regulations. A detailed discussion of the objectives and legal basis for the rule is presented in sections I and III of the proposal preamble (66 FR 2959).

b. Significant Comments on the IRFA. The significant issues raised by public comments on the IRFA address exemptions for small businesses, disagreement with SBA definitions and guidance on how to define small businesses for these sectors, and general concerns about EPA's financial analysis and whether it adequately captures potential financial effects on small businesses.

Commenters generally recommend that EPA exempt all small businesses from regulation, arguing in some cases that regulating small businesses could affect competition in the marketplace, discourage innovation, restrict improvements in productivity, create entry barriers, and discourage potential entrepreneurs from introducing beneficial products and processes. Several commenters claimed that EPA had misrepresented the number of small businesses. In particular, several commenters objected to SBA's small business definition for dairy operations, claiming it understates the number of small businesses in this sector. One commenter claimed that EPA's estimate of the total number of operations is understated and therefore must understate the number of small businesses. Some commenters objected to the consideration of total farm-level revenue to determine the number of

small businesses since this understates the number of small businesses (despite SBA guidance, which bases its definitions on total entity revenue for purposes of defining a small business). However, other commenters claimed that EPA's approach to its small business analysis does not only capture operations that are, in fact, small businesses but also larger corporate operations. Another commenter recommended that EPA simply consider any operation with fewer than 1,000 animal units a small business. EPA also received comments requesting that EPA consider use of regional-specific definitions of small business because of concerns that the revenue-based SBA definition might not be applicable to operations in Hawaii since producers in that State generally face higher cost of production and also higher producer prices relative to revenue and cost conditions at farms in the contiguous 48 States. Comments from SBA recommended that EPA adopt the Panel's recommendation not to consider changing the designation criteria for operations with fewer than 300 animal units as a means to provide relief to small businesses. SBA also recommended that EPA adopt the SBAR Panel's approach and allow permitting authorities to focus resources where there is greatest need. Finally, some commenters generally questioned the results of EPA's financial analysis, giving similarly stated concerns about EPA's financial data and models used for its main analysis.

In response, EPA notes that the projected impacts of today's final regulations on small businesses are lower than the projected impacts of the proposed rule. For example, the final rule does not extend the effluent guideline regulations to Medium CAFOs, as was proposed in the 2001 proposal. Instead, EPA is retaining the existing regulatory threshold, applying the effluent guideline to Large CAFOs only. Requirements for Medium CAFOs will continue to be subject to the BPJ requirements as determined by the permitting authority, thus requiring that fewer small businesses adopt the effluent guideline standards. More information on this topic is available in section IV of this preamble. Section IV discusses other regulatory changes since the 2001 proposal, indicating greater alignment with SBAR Panel recommendations. Refer to section IV of this preamble for more information on the comments and EPA's responses to those comments, as well as EPA's justification for final decisions on these options.

Regarding EPA's estimate of the number of small businesses, the Agency continues to follow SBA guidance and SBA definitions on how to define small businesses for these sectors. However, EPA has made substantial changes to the financial data and models used for its main analysis, which is also used to evaluate financial effects on small businesses. Both the 2001 Notice (66 FR 58556) and the 2002 Notice (67 FR 48099) describe the public comments received by EPA on the baseline financial data and the methodological approach developed by EPA to evaluate financial effects. These comments and how EPA has addressed them are discussed more fully in section 4 of the final *Economic Analysis*. EPA's detailed responses to comments, and the comments themselves, are contained in the *Comment Response Document* in response categories SBREFA and Small Business.

c. Description and estimation of number of small entities to which the regulations will apply. The small entities subject to this rule are small businesses. No nonprofit organizations or small governmental operations operate CAFOs. As discussed in section VIII.B.1(c) of this preamble, to estimate the number of small businesses affected by this final rule, EPA relied on the SBA size standards for these sectors, with the exception of size definitions for the egg sector. SBA defines a "small business" in these sectors as an operation with average annual revenues of less than \$0.75 million for dairy, hog, broiler, and turkey operations; \$1.5 million in revenue for beef feedlots; and \$9.0 million for egg operations. The definitions of small business for the livestock and poultry industries are in SBA's regulations at 13 CFR 121.201. For this rule, EPA proposed and solicited public comment on and is using an alternative definition for small business for egg-laying operations. EPA defines a "small" egg laying operation for purposes of its regulatory flexibility assessments as an operation that generates less than \$1.5 million in annual revenue. EPA consulted with SBA on the use of this alternative definition, as documented in the rulemaking record for the 2001 proposal. Given these definitions, EPA evaluates "small business" for this rule as an operation that houses or confines fewer than 1,400 fed beef cattle (includes fed beef, veal, and heifers); 300 mature dairy cattle; 2,100 market hogs; 37,500 turkeys; 61,000 layers; or 375,000 broilers. The approach used to derive these estimates is described in

the *Economic Analysis* and in the record.

Using these definitions and available data from USDA and industry, EPA estimates that 6,200 of affected CAFOs across all size categories are small businesses. Among Large CAFOs, EPA estimates that about 2,330 operations are small businesses. Among Medium CAFOs, EPA estimates that about 3,870 operations are small businesses. Table 8.3 in section VIII of this preamble shows EPA's estimates of the number of regulated small businesses across all industry sectors. Section VIII.B.1(c) provides more detail on the estimated financial effects on small businesses under the final rule.

d. Description of the reporting, record-keeping, and other compliance requirements. Today's rule would require all AFOs that meet the CAFO definition to apply for a permit, develop and implement a nutrient management plan, collect and maintain records required by applicable technology-based effluent discharge standards, and submit an annual report to the responsible NPDES permitting authority. (No nonprofit organizations or small governmental operations operate CAFOs.) All CAFOs would also be required to maintain records of off-site transfers of manure. Record-keeping and reporting burdens include the time to record and report animal inventories, manure generation, field application of manure (amount, method, date, weather conditions), manure and soil analysis results, crop yield goals, findings from visual inspections of feedlot areas, and corrective measures. Records may include manure spreader calibration worksheets, manure application worksheets, maintenance logs, and soil and manure test results. EPA believes the owner/operator has the skills necessary to keep these records and make reports to the permitting authority.

Section X.B further summarizes the expected reporting and record-keeping requirements under the final regulations based on information compiled as part of the ICR for the Final NPDES and ELG Regulatory Revisions for Concentrated Animal Feeding Operations (EPA ICR No. 1989.01) prepared by EPA.

e. Steps taken to minimize significant impacts on small entities. In today's final rulemaking, EPA has adopted an approach for a regulatory program that mitigates impacts on small business, recognizes and promotes effective non-NPDES State programs, and works in partnership with USDA to promote environmental stewardship through voluntary programs, and financial and technical assistance. EPA's proposal

included many options that were not finally adopted in deference to these principles.

Because of the estimated impacts on small entities EPA is not certifying that this rule will not impose a significant impact on a substantial number of small entities. EPA has complied with all RFA provisions and conducted outreach to small businesses, convened a SBAR panel, prepared an Initial Regulatory Flexibility Analysis (IRFA) and a Final Regulatory Flexibility Analysis (FRFA), and also prepared an economic analysis. The Agency's actions include the following efforts to minimize impacts on small businesses:

- Retained structure of existing regulations, which allows EPA and states to focus on the largest producers;
- Retained applicability of effluent guidelines for Large CAFOs only;
- Retained existing designation criteria and process;
- Retained existing definition of an AFO;
- Retained conditions for being defined as a Medium CAFO;
- Eliminated the "mixed" animal calculation for operations with more than a single animal type for determining which AFOs are CAFOs;
- Raised the duck threshold for dry manure handling duck operations; and
- Adopted a dry-litter chicken threshold higher than proposed.

EPA went to some length to explore and analyze a variety of ELG regulatory alternatives to minimize impacts on small businesses. The record for today's rule includes extensive discussions of the alternatives, EPA's analysis of those alternatives, and the rationale for the Agency's decisions. In large part, the Agency incorporated most of the alternative considerations to reduce the burden to small businesses. By way of example, today's regulations will affect fewer small businesses at significantly reduced costs, as compared to the estimates of the number of small businesses and expected costs to those businesses based on the requirements set forth in the 2001 proposal. For more information on EPA's option selection rationale, see section IV of this preamble.

3. Compliance Guide

As required by section 212 of SBREFA, EPA is also preparing a small entity compliance guide to help small businesses comply with this rule. To request a copy, contact one of the persons identified in the **FOR FURTHER INFORMATION CONTACT** section at the beginning of this preamble. EPA expects that the guide will be available in March 2003.

4. Use of Alternative Definition

The RFA defines small entities as including small businesses, small governmental jurisdictions, and small organizations. The statute provides default definitions for each type of small entity. It also authorizes an agency to use alternative definitions for each category of small entity, "which are appropriate to the activities of the agency" after proposing the alternative definition(s) in the **Federal Register** and taking comment. 5 U.S.C. 601(3)–(5). In addition to the above, to establish an alternative small business definition, agencies must consult with SBA's Chief Counsel for Advocacy.

As stated above, EPA proposed defining "small entity" for purposes of its regulatory flexibility assessments under the RFA as an operation that generates less than \$1.5 million in annual revenue. The Agency also consulted with SBA Chief Counsel for Advocacy. See 66 FR 2959, (January 12, 2001).

EPA received two comments from the same commenter requesting that EPA not use the alternative definition for egg-laying operations but instead consider regional-specific conditions for determining the number of small businesses. The commenter expressed concern that SBA's revenue-based definition might not be applicable to operations in Hawaii since producers in that State generally face higher cost of production and also higher producer prices relative to revenue and cost conditions at farms in the contiguous 48 States. There are a number of reasons why EPA did not use a regional-specific definition of small business for egg operations. First, consistent with the RFA, EPA uses small business definitions as defined by the SBA except in cases where EPA consults with the SBA Chief Counsel for Advocacy. Since size standards set by the SBA do not vary by region, EPA follows SBA's lead. Second, the regulations set requirements by the number of animal units at a farm, not the revenues associated with those animal units. An 82,000 bird egg-laying operation in the Midwest will be subject to the same effluent limitations guidelines as a 82,000 bird egg-laying operation in Hawaii and the territories. Third, the economic analysis, uses a representative farm approach. Only the broadest regional information could be obtained through USDA and other sources. Although some small subregions or localities might face unique issues, without performing a Section 308 survey of all regulated entities EPA must rely on the

representative farm approach. (*See also* response to comment DCN CAFO201246–C–6 regarding EPA's use of a representative farm approach, which is consistent with longstanding practices at USDA and the land grant universities.) Note however, that although EPA uses a single definition of small business across all regions, EPA's representative farm analysis of small business impacts does account for some regional variation in costs and revenues. Fourth, very few impacts are seen in the egg-laying sector, regardless of size. Even if EPA had classified the majority of egg-laying operations with less than 1,000 AU as small businesses, this would not have changed the outcome of the Agency's small business analysis in any material way. Finally, even if EPA were to classify all operations as small businesses in areas outside the contiguous 48 States (including Hawaii and Alaska), this would only raise the total number of small business by less than 10 operations. See response to comment DCN CAFO NODA 600053–5 regarding EPA's consideration of regional-specific definition of small business for the regulated sectors.

Today, EPA is establishing this alternative definition of "small entity" for the egg-laying sector for purposes of the regulatory flexibility analysis for this rule.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Pub. L. 104–4, established requirements for federal agencies to assess the effects of their regulatory actions on State, Tribal and local governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "federal mandates" that may result in expenditures to State, Tribal and local governments, in the aggregate, or to the private sector, of \$100 million or more in any one year.

Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative

was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with regulatory requirements.

EPA has determined that this rule contains a federal mandate that may result in expenditures of \$100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any one year. EPA revised the unfunded mandates analysis for State costs based on comments received. EPA expanded the categories of costs and increased the unit costs and hour burden while the final rule significantly decreased the number of potential permittees. Because the revisions were largely offsetting, there is little change in the overall burden estimated (\$8 million annually at proposal and \$9 million annually for the final rule). Accordingly, EPA has prepared under section 202 of the UMRA a written statement, which is summarized below. See section 5 of the *Economic Analysis* for the complete section 202 statement.

1. Private Costs

This statement provides quantitative cost-benefit assessment of the federal requirements imposed by today's final rules. In large part, the private sector, not other governments, will incur the costs. EPA estimates total compliance costs to industry of \$326 million per year (pre-tax, 2001 dollars). EPA estimates that the monetized benefits of the final regulations range from \$204 million to \$355 million annually. Section VIII.C.1 of this preamble provides additional information on EPA's analysis. The analysis is provided in section 5 of the *Economic Analysis* and other supporting information is provided in the *Benefits Analysis* supporting the final regulations. Both of these support documents are available in the administrative record for this rulemaking. A summary of these analyses is provided in section's VII and VIII of today's preamble.

2. State Local and Tribal Government Costs

Authorized States are expected to incur costs to update their State NPDES programs to conform to the final rule and implement the revised standards through issuing NPDES permits and inspecting CAFOs to ensure compliance. The total average annual State administrative cost to implement the permit program, approximately \$9 million, will not exceed the thresholds established by the UMRA. The analysis underlying this cost estimate is in the *NPDES Technical Support Document* found in the rule record. EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect local or Tribal governments. There are no local or Tribal governments authorized to implement the NPDES permit program and the Agency is unaware of any local or Tribal governments who are owners or operators of CAFOs. Thus today's rule is not subject to the requirements of Section 203 of UMRA.

3. Funding and Technical Assistance Available to CAFOs

The 2002 Farm Bill authorized cost-share funding for six years (2002 through 2007) for EQIP. Funding starts at \$400 million in 2002 and continually increases to \$1.3 billion in the last year. Sixty percent of this funding is to be targeted to animal agriculture, including large and small feedlots, as well as pasture and grazing operations. An operation is eligible for a total of up to \$450,000 over the six year time frame. This funding is open to both CAFOs and AFOs. Being defined as a CAFO does not make you ineligible for this funding.

4. Funding Available to States

States may be able to use existing sources of financial assistance to revise and implement the final rule. Section 106 of the Clean Water Act authorizes EPA to award grants to States, Tribes, intertribal consortia, and interstate agencies for administering programs for the prevention, reduction, and elimination of water pollution. These grants may be used for various activities to develop and carry out a water pollution control program, including permitting, monitoring, and enforcement. Thus, State and Tribal NPDES permit programs represent one type of State program that can be funded by section 106 grants.

Key comments received on Unfunded Mandates relate to the increased cost to farmers and States and the need for funds for CAFO compliance and State permitting. In the discussion above,

EPA outlines the funding available to CAFO owners (EQIP) and to States (CWA section 106 grants) to help meet this rule's mandates.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 19, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

This rule does not have Federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. EPA does not consider an annual impact of approximately \$9 million on States a substantial effect. In addition, EPA does not expect this rule to have any impact on local governments.

Further, the revised regulations would not alter the basic State-federal scheme established in the Clean Water Act under which EPA authorizes States to carry out the NPDES permitting program. EPA expects the revised regulations to have little effect on the relationship between, or the distribution of power and responsibilities among, the federal and State governments. Thus, Executive Order 13132 does not apply to this rule.

In the spirit of Executive Order 13132, and consistent with EPA's policy to promote communications between EPA and State and local governments, EPA specifically solicited comment on the proposed rule from State and local officials.

During public comment, EPA received comments on its analysis required under the Federalism Executive Order. The comments were that the Agency had underestimated the cost impacts of the rule on States. In response to these comments, EPA reanalyzed the impacts on States.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled "Consultation and Coordination with

Indian Tribal Governments” (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure “meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.” “Policies that have tribal implications” is defined in the Executive Order to include regulations that have “substantial direct effects on one or more Indian tribes, on the relationship between the federal government and Indian tribes, or on the distribution of power and responsibilities between the federal government and Indian tribes.”

This final rule does not have Tribal implications. It will not have substantial direct effects on Tribal governments, on the relationship between the federal government and Indian Tribes, or on the distribution of power and responsibilities between the federal government and Indian Tribes, as specified in Executive Order 13175. First, no Tribal governments have been authorized to issue NPDES permits. Second, few CAFO operations are located on Tribal lands. Accordingly, the requirements of Executive Order 13175 do not apply to this rule.

Although Executive Order 13175 does not apply to this rule, EPA has briefed Tribal communities about this rulemaking at the National Environmental Justice Advisory Committee meeting in Atlanta, Georgia in June, 2000 and through notices in Tribal publications. In addition, EPA Regional Offices discussed this rulemaking with the Tribes in their regions.

During the public comment period, the Agency received no comments from Tribes or comments relating to tribal issues.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be “economically significant” as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This final rule is subject to Executive Order 13045 because it is an economically regulatory action as

defined by Executive Order 12866, and we believe that the environmental health or safety risk addressed by this action may have a disproportionate effect on children. Accordingly, we have evaluated the environmental health or safety effects of increased nutrients, pathogens, and metals in surface water on children. The results of this evaluation are contained in the proposed *Environmental Assessment*, which is part of the public record for this final rule.

EPA has established a maximum contaminate level for nitrates in drinking water at 10 micrograms/liter. There is some evidence that infants under the age of six months may be at risk from methemoglobinemia caused by nitrates in private drinking water wells when ingesting water at nitrate levels higher than 10 micrograms/liter. The Agency has estimated the reduction in the number of households that will be exposed to drinking water with nitrate levels above 10 micrograms/liter in Chapter 8 of the *Benefits Assessment* (noting that the Agency does not have information on the number of households exposed to nitrates that also have infants). The Agency estimates that there are approximately 13.5 million households with drinking water wells in counties with animal feeding operations. Of these, the Agency estimates that approximately 1.3 million households are exposed to nitrate levels above 10 micrograms/liter. The Agency further estimates that approximately 112,000 households would have their nitrate levels brought below 10 micrograms/liter under the requirements of this final rule. The Agency estimates that options more stringent than these would provide only small incremental changes in pollutant loadings to groundwater (see the *Technical Development Document*). The Agency therefore does not believe that requirements more stringent than these in the rule would provide meaningful additional protection of children’s health risks from methemoglobinemia.

The Agency received no comments on the impacts to children’s health.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

The rule is not a “significant energy action” as defined in Executive Order 13211, *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use* (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. EPA has concluded that this rule is not likely to have any adverse energy

effects. While there will be a minor increase in energy use from increased hauling of manure to offsite locations, EPA has estimated the increased fuel usage associated with transporting manure, litter, and other process wastewaters off site is approximately 423,000 barrels annually for all CAFOs. EPA does not believe that this will have a significant impact on the energy supply.

I. National Technology Transfer and Advancement Act

As noted in the proposed rule, section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), (Pub L. 104–113 section 12(d), 15 U.S.C. 272 *note*) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This rulemaking does involve the use of technical standards. In this rulemaking, EPA has developed regulatory standards for controlling pollutant discharges from permitted CAFOs based on its expertise, professional judgment, and the extensive record developed, in part, through the APA’s notice and comment process. While we identified the American National Standards for Good Environmental Livestock Production Practices, developed by the National Pork Producers Council and certified by ANSI as an American National Standard on February 20, 2002 (GELPP 0001–2002; 0002–2002; 0003–2002; 0004–2002; 0005–2002), and a commenter has identified ANSI/ASCE 7–98, a separate voluntary consensus standard, as being potentially applicable, we have decided not to use them in this rulemaking. The use of these voluntary consensus standard would have been impractical because EPA’s rule establishes a regulatory framework in which decisions as to what specific best management practices must be applied at individual animal feeding operations is generally left to the State in the exercise of its authority to issue NPDES permits. In issuing permits, States may consider these ANSI-certified standards and include, or not include, various elements as they may deem appropriate. It would not have been consistent with

EPA's design for this rule to adopt these ANSI-certified standards as national minimum requirements for all States to incorporate into all permits for covered animal feeding operations. EPA received a number of comments suggesting that EPA should specifically include the GELPPs and ANSI/ASCE 7-98 as authorized alternative management standards in the final CAFO rule. EPA decided not to do so for the reasons discussed above.

In any event, it is important to note that the standards set out in this rule may be better characterized as representing regulatory decisions EPA is directed to make by the Clean Water Act, rather than as "technical standards". Consistent with Section 6(c) of OMB Circular A-119, EPA would not be obliged to consider the use of voluntary consensus standards as possible alternatives to the regulatory standards being adopted.

It should be noted that the effluent guideline rule (40 CFR 412) provides for voluntary alternative performance standards developed and applied in NPDES permits on a site-specific basis. CAFOs that voluntarily develop and adopt such performance standards in their NPDES permits may need to use previously approved technical

standards to analyze for some or all of the following pollutants: nitrogen, phosphorus, BOD, and TSS. Consensus standards have already been promulgated in tables at 40 CFR 136.3 for measurement of all of these analytes.

Further, the rule specifically provides that the determination of land application rates for manure is to be done in accordance with technical standards established by the State. In establishing such standards, States may rely on standards already established by USDA or other existing standards or may develop new standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

In implementing the requirements of the Environmental Justice Executive Order, EPA reviews the environmental effects of major federal actions significantly affecting the quality of the human environment. For such actions, EPA reviewers focus on the spatial distribution of human health, social and economic effects to ensure that agency decisionmakers are aware of the extent to which those impacts fall disproportionately on covered communities. EPA has determined that this rulemaking is a major federal

action. However, the Agency does not believe this rulemaking will have a disproportionate effect on minority or low-income communities. The proposed regulations will reduce the negative effects of CAFO waste in the nation's waters to benefit all of society, including minority communities.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule can not take effect until 60 days after it is published in the **Federal Register**. This will be effective April 14, 2003. This action is a "major rule" as defined by 5 U.S.C. 804(2).

BILLING CODE 6560-50-P

APPENDIX - 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 <input type="checkbox"/> Coverage Under General Permit <input type="checkbox"/>		
A. TYPE OF BUSINESS	B. CONTACT INFORMATION	C. FACILITY OPERATION STATUS
<input type="checkbox"/> 1. Concentrated Animal Feeding Operation (complete items B, C, D, and Section II) <input type="checkbox"/> 2. Concentrated Aquatic Animal Production Facility (complete items B, C, and section III)	Owner/or Operator Name: _____ Telephone: (____) _____ Address: _____ Facsimile: (____) _____ City: _____ State: ____ Zip Code: _____	<input type="checkbox"/> 1. Existing Facility <input type="checkbox"/> 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		B. Manure, Litter and/or Wastewater Production and Use
2. ANIMALS		a) How much manure, litter and wastewater is generated annually by the facility? _____ tons _____ gallons b) If land applied how many acres of land under the control of the applicant are available for applying the CAFOs manure/litter/wastewater? _____ acres c) 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)
1. TYPE	NO. IN OPEN CONFINEMENT NO. HOUSED UNDER ROOF	
<input type="checkbox"/> Mature Dairy Cows		
<input type="checkbox"/> Dairy Heifers		
<input type="checkbox"/> Veal Calves		
<input type="checkbox"/> Cattle (not dairy or veal)		
<input type="checkbox"/> Swine (55 lb. or over)		
<input type="checkbox"/> Swine (under 55 lb.)		
<input type="checkbox"/> Horses		
<input type="checkbox"/> Sheep or Lambs		

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<input type="checkbox"/> Turkeys			
<input type="checkbox"/> Chickens (Broilers)			
<input type="checkbox"/> Chickens (Layers)			
<input type="checkbox"/> Ducks			
<input type="checkbox"/> Other Specify _____			
3. TOTAL ANIMALS			
C. <input type="checkbox"/> TOPOGRAPHIC MAP			
D. TYPE OF CONTAINMENT, STORAGE AND CAPACITY			
1. Type of Containment	Total Capacity (in gallons)		
<input type="checkbox"/> Lagoon			
<input type="checkbox"/> Holding Pond			
<input type="checkbox"/> Evaporation Pond			
<input type="checkbox"/> Other: Specify _____			
2. Report the total number of acres contributing drainage: _____ acres			
3. Type of Storage	Total Number. of Days	Total Capacity (gallons/tons)	
<input type="checkbox"/> Anaerobic Lagoon			
<input type="checkbox"/> Storage Lagoon			
<input type="checkbox"/> Evaporation Pond			
<input type="checkbox"/> Aboveground Storage Tanks			
<input type="checkbox"/> Belowground Storage Tanks			
<input type="checkbox"/> Roofed Storage Shed			
<input type="checkbox"/> Concrete Pad			
<input type="checkbox"/> Impervious Soil Pad			
<input type="checkbox"/> Other: Specify _____			

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E. NUTRIENT MANAGEMENT PLAN A. Has a nutrient management plan been developed? <input type="checkbox"/> Yes <input type="checkbox"/> No B. Is a nutrient management plan being implemented for the facility? <input type="checkbox"/> Yes <input type="checkbox"/> No C. If no, when will the nutrient management plan be developed? Date: _____ D. The date of the last review or revision of the nutrient management plan. Date: _____ E. 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: <input type="checkbox"/> Buffers <input type="checkbox"/> Setbacks <input type="checkbox"/> Conservation tillage <input type="checkbox"/> Constructed wetlands <input type="checkbox"/> Infiltration field <input type="checkbox"/> Grass filter <input type="checkbox"/> 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.			B. Indicate the total number of ponds, raceways, and similar structures in your facility.		
1. Outfall No.	2. Flow (<i>gallons per day</i>)			1. Ponds	2. Raceways
	a. Maximum Daily	b. Maximum 30 Day	c. Long Term Average	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 (<i>pounds</i>)		a. Species	
		(1) Total Yearly	(2) Maximum	b. Harvestable Weight (<i>pounds</i>)	
				(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>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.</i>	
A. Name and Official Title (print or type)	B. Phone No. ()
C. Signature	D. Date Signed

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.

List of Subjects**40 CFR Part 9**

Environmental protection, Reporting and recordkeeping requirements.

40 CFR Parts 122 and 123

Administrative practice and procedure, Hazardous substances, Reporting and recordkeeping requirements, Water pollution control.

40 CFR Part 412

Feedlots, Livestock, Waste treatment and disposal, Water pollution control.

Dated: December 15, 2002.

Christine Todd Whitman,
Administrator.

For the reasons set out in the preamble title 40, chapter I of the Code of Federal Regulations is amended as follows:

PART 9—OMB APPROVALS UNDER THE PAPERWORK REDUCTION ACT

1. The authority for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 *et seq.*, 136–136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601–2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345(d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–1, 300j–2, 300j–3, 300j–4, 300j–9, 1857 *et seq.*, 6901–6992k, 7401–7671q, 7542, 9601–9657, 11023, 11048.

2. In § 9.1 the table is amended by adding entries in numerical order under the indicated heading and a new heading and entries to read as follows:

§ 9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *

40 CFR citation	OMB control No.
* * * * *	
EPA Administered Permit Programs: The National Pollutant Discharge Elimination System	
* * * * *	
122.21(f)	2040–0250
122.23(i)	2040–0250
* * * * *	
122.28(b)	2040–0250
* * * * *	
122.42(e)	2040–0250
* * * * *	
Feedlots Point Source Category	
412.31–412.37	2040–0250
412.41–412.47	2040–0250

PART 122—EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

1. The authority citation for part 122 continues to read as follows:

Authority: The Clean Water Act, 33 U.S.C. 1251 *et seq.*

2. Amend § 122.21 by adding a sentence to the end of paragraph (a)(1) and revising paragraph (i)(1) to read as follows:

§ 122.21 Application for a permit (applicable to State programs, see § 123.25).

(a) * * *

(1) * * * All concentrated animal feeding operations have a duty to seek coverage under an NPDES permit, as described in § 122.23(d).

* * * * *

(i) * * *

(1) For concentrated animal feeding operations:

(i) The name of the owner or operator;
(ii) The facility location and mailing addresses;

(iii) Latitude and longitude of the production area (entrance to production area);

(iv) 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 paragraph (f)(7) of this section;

(v) 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);

(vi) 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);

(vii) The total number of acres under control of the applicant available for land application of manure, litter, or process wastewater;

(viii) Estimated amounts of manure, litter, and process wastewater generated per year (tons/gallons);

(ix) Estimated amounts of manure, litter and process wastewater transferred to other persons per year (tons/gallons); and

(x) 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.

* * * * *

3. Section 122.23 is revised to read as follows:

§ 122.23 Concentrated animal feeding operations (applicable to State NPDES programs, see § 123.25).

(a) *Permit requirement for CAFOs.* Concentrated animal feeding operations, as defined in paragraph (b) of this section, are point sources that require NPDES permits for discharges or potential discharges. Once an operation is defined as a CAFO, the NPDES requirements for CAFOs apply with respect to all animals in confinement at the operation and all manure, litter and process wastewater generated by those animals or the production of those animals, regardless of the type of animal.

(b) Definitions applicable to this section:

(1) *Animal feeding operation* (“AFO”) 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.

(2) *Concentrated animal feeding operation* (“CAFO”) means an AFO that is defined as a Large CAFO or as a Medium CAFO by the terms of this paragraph, or that is designated as a CAFO in accordance with paragraph (c) of this section. Two or more AFOs under common ownership are considered to be a single AFO for the purposes of determining the number of animals at an operation, if they adjoin each other or if they use a common area or system for the disposal of wastes.

(3) The term *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.

(4) *Large concentrated animal feeding operation* (“Large CAFO”). An AFO is defined as a Large CAFO if it stables or confines as many as or more than the numbers of animals specified in any of the following categories:

(i) 700 mature dairy cows, 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).

(5) The term *manure* is defined to include manure, bedding, compost and raw materials or other materials commingled with manure or set aside for disposal.

(6) *Medium concentrated animal feeding operation* ("Medium CAFO"). The term Medium CAFO includes any AFO with the type and number of animals that fall within any of the ranges listed in paragraph (b)(6)(i) of this section and which has been defined or designated as a CAFO. An AFO is defined as a Medium CAFO if:

(i) The type and number of animals that it stables or confines falls within any of the following ranges:

(A) 200 to 699 mature dairy cows, whether milked or dry;

(B) 300 to 999 veal calves;

(C) 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;

(D) 750 to 2,499 swine each weighing 55 pounds or more;

(E) 3,000 to 9,999 swine each weighing less than 55 pounds;

(F) 150 to 499 horses;

(G) 3,000 to 9,999 sheep or lambs;

(H) 16,500 to 54,999 turkeys;

(I) 9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system;

(J) 37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;

(K) 25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system;

(L) 10,000 to 29,999 ducks (if the AFO uses other than a liquid manure handling system); or

(M) 1,500 to 4,999 ducks (if the AFO uses a liquid manure handling system); and

(ii) 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.

(7) *Process wastewater* means water directly or indirectly used in the operation of the AFO 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 any raw materials, products, or byproducts including manure, litter, feed, milk, eggs or bedding.

(8) *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.

(9) *Small concentrated animal feeding operation* ("Small CAFO"). An AFO that is designated as a CAFO and is not a Medium CAFO.

(c) *How may an AFO be designated as a CAFO?* The appropriate authority (*i.e.*, State Director or Regional Administrator, or both, as specified in paragraph (c)(1) of this section) may designate any AFO as a CAFO upon determining that it is a significant contributor of pollutants to waters of the United States.

(1) *Who may designate?*

(i) *Approved States.* In States that are approved or authorized by EPA under Part 123, CAFO designations may be made by the State Director. The Regional Administrator may also designate CAFOs in approved States, but only where the Regional Administrator has determined that one or more pollutants in the AFO's discharge contributes to an impairment in a downstream or adjacent State or Indian country water that is impaired for that pollutant.

(ii) *States with no approved program.* The Regional Administrator may designate CAFOs in States that do not have an approved program and in Indian country where no entity has expressly demonstrated authority and has been expressly authorized by EPA to implement the NPDES program.

(2) In making this designation, the State Director or the Regional Administrator shall consider the following factors:

(i) The size of the AFO and the amount of wastes reaching waters of the United States;

(ii) The location of the AFO relative to waters of the United States;

(iii) The means of conveyance of animal wastes and process waste waters into waters of the United States;

(iv) The slope, vegetation, rainfall, and other factors affecting the likelihood or frequency of discharge of animal wastes manure and process waste waters into waters of the United States; and

(v) Other relevant factors.

(3) No AFO shall be designated under this paragraph unless the State Director or the Regional Administrator 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, no AFO with numbers of animals below those established in paragraph (b)(6) of this section may be designated as a CAFO unless:

(i) Pollutants are discharged into waters of the United States through a manmade ditch, flushing system, or other similar manmade device; or

(ii) Pollutants are discharged directly into waters of the United States which originate outside of the facility and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

(d) *Who must seek coverage under an NPDES permit?*

(1) *All CAFO owners or operators must apply for a permit.* All CAFO owners or operators must seek coverage under an NPDES permit, except as provided in paragraph (d)(2) of this

section. Specifically, the CAFO owner or operator must either apply for an individual NPDES permit or submit a notice of intent for coverage under an NPDES general permit. If the Director has not made a general permit available to the CAFO, the CAFO owner or operator must submit an application for an individual permit to the Director.

(2) *Exception.* An owner or operator of a Large CAFO does not need to seek coverage under an NPDES permit otherwise required by this section once the owner or operator has received from the Director notification of a determination under paragraph (f) of this section that the CAFO has “no potential to discharge” manure, litter or process wastewater.

(3) *Information to submit with permit application.* A permit application for an individual permit must include the information specified in § 122.21. A notice of intent for a general permit must include the information specified in §§ 122.21 and 122.28.

(e) *Land application discharges from a CAFO are subject to NPDES requirements.* The discharge of manure, litter or process wastewater to waters of the United States from a CAFO as a result of the application of that manure, litter or process wastewater by the CAFO to land areas under its control is a discharge from that CAFO subject to NPDES permit requirements, except where it is an agricultural storm water discharge as provided in 33 U.S.C. 1362(14). For purposes of this paragraph, where the manure, litter or process wastewater has been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater, as specified in § 122.42(e)(1)(vi)–(ix), a precipitation-related discharge of manure, litter or process wastewater from land areas under the control of a CAFO is an agricultural stormwater discharge.

(f) *“No potential to discharge” determinations for Large CAFOs.*

(1) *Determination by the Director.* The Director, upon request, may make a case-specific determination that a Large CAFO has “no potential to discharge” pollutants to waters of the United States. In making this determination, the Director must consider the potential for discharges from both the production area and any land application areas. The Director must also consider any record of prior discharges by the CAFO. In no case may the CAFO be determined to have “no potential to discharge” if it has had a discharge within the 5 years prior to the date of the request submitted under paragraph (f)(2) of this section.

For purposes of this section, the term “no potential to discharge” means that there is no potential for any CAFO manure, litter or process wastewater to be added to waters of the United States under any circumstance or climatic condition. A determination that there is “no potential to discharge” for purposes of this section only relates to discharges of manure, litter and process wastewater covered by this section.

(2) *Information to support a “no potential to discharge” request.* In requesting a determination of “no potential to discharge,” the CAFO owner or operator must submit any information that would support such a determination, within the time frame provided by the Director and in accordance with paragraphs (g) and (h) of this section. Such information must include all of the information specified in § 122.21(f) and (i)(1)(i) through (ix). The Director has discretion to require additional information to supplement the request, and may also gather additional information through on-site inspection of the CAFO.

(3) *Process for making a “no potential to discharge” determination.* Before making a final decision to grant a “no potential to discharge” determination, the Director must issue a notice to the public stating that a “no potential to discharge” request has been received. This notice must be accompanied by a fact sheet which includes, when applicable: a brief description of the type of facility or activity which is the subject of the “no potential to discharge” determination; a brief summary of the factual basis, upon which the request is based, for granting the “no potential to discharge” determination; and a description of the procedures for reaching a final decision on the “no potential to discharge” determination. The Director must base the decision to grant a “no potential to discharge” determination 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. The Director must notify any CAFO seeking a “no potential to discharge” determination of its final determination within 90 days of receiving the request.

(4) *What is the deadline for requesting a “no potential to discharge” determination?* The owner or operator must request a “no potential to discharge” determination by the applicable permit application date specified in paragraph (g) of this section. If the Director’s final decision is to deny the “no potential to discharge”

determination, the owner or operator must seek coverage under a permit within 30 days after the denial.

(5) *The “no potential to discharge” determination does not relieve the CAFO from the consequences of an actual discharge.* Any unpermitted CAFO that discharges pollutants into the waters of the United States is in violation of the Clean Water Act even if it has received a “no potential to discharge” determination from the Director. Any CAFO that has received a determination of “no potential to discharge,” but who anticipates changes in circumstances that could create the potential for a discharge, should contact the Director, and apply for and obtain permit authorization prior to the change of circumstances.

(6) *The Director retains authority to require a permit.* Where the Director has issued a determination of “no potential to discharge,” the Director retains the authority to subsequently require NPDES permit coverage if circumstances at the facility change, if new information becomes available, or if there is another reason for the Director to determine that the CAFO has a potential to discharge.

(g) *When must a CAFO seek coverage under an NPDES permit?*

(1) *Operations defined as CAFOs prior to April 14, 2003.* For operations that are defined as CAFOs under regulations that are in effect prior to April 14, 2003, the owner or operator must have or seek to obtain coverage under an NPDES permit as of April 14, 2003, and comply with all applicable NPDES requirements, including the duty to maintain permit coverage in accordance with paragraph (h) of this section.

(2) *Operations defined as CAFOs as of April 14, 2003, who were not defined as CAFOs prior to that date.* For all CAFOs, the owner or operator of the CAFO must seek to obtain coverage under an NPDES permit by a date specified by the Director, but no later than February 13, 2006.

(3) *Operations that become defined as CAFOs after April 14, 2003, but which are not new sources.* For newly constructed AFOs and AFOs that make changes to their operations that result in becoming defined as CAFOs for the first time, after April 14, 2003, but are not new sources, the owner or operator must seek to obtain coverage under an NPDES permit, as follows:

(i) For newly constructed operations not subject to effluent limitations guidelines, 180 days prior to the time CAFO commences operation; or

(ii) For other operations (e.g., resulting from an increase in the number of animals), as soon as possible,

but no later than 90 days after becoming defined as a CAFO; except that

(iii) If an operational change that makes the operation a CAFO would not have made it a CAFO prior to April 14, 2003, the operation has until April 13, 2006, or 90 days after becoming defined as a CAFO, whichever is later.

(4) *New sources.* New sources must seek to obtain coverage under a permit at least 180 days prior to the time that the CAFO commences operation.

(5) *Operations that are designated as CAFOs.* For operations designated as a CAFO in accordance with paragraph (c) of this section, the owner or operator must seek to obtain coverage under a permit no later than 90 days after receiving notice of the designation.

(6) *No potential to discharge.* Notwithstanding any other provision of this section, a CAFO that has received a "no potential to discharge" determination in accordance with paragraph (f) of this section is not required to seek coverage under an NPDES permit that would otherwise be required by this section. If circumstances materially change at a CAFO that has received a NPDES determination, such that the CAFO has a potential for a discharge, the CAFO has a duty to immediately notify the Director, and seek coverage under an NPDES permit within 30 days after the change in circumstances.

(h) *Duty to Maintain Permit Coverage.* No later than 180 days before the expiration of the permit, the permittee must submit an application to renew its permit, in accordance with § 122.21(g). However, the permittee need not continue to seek continued permit coverage or reapply for a permit if:

(1) The facility has ceased operation or is no longer a CAFO; and

(2) The permittee has demonstrated to the satisfaction of the Director that there is no remaining potential for a discharge of manure, litter or associated process wastewater that was generated while the operation was a CAFO, other than agricultural stormwater from land application areas.

4. Section 122.28 is amended by adding one sentence to the end of paragraph (b)(2)(ii) to read as follows:

§ 122.28 General permits (applicable to State NPDES programs, see § 123.25).

* * * * *

(b) * * *

(2) * * *

(ii) * * * Notices of intent for coverage under a general permit for concentrated animal feeding operations must include the information specified in

§ 122.21(i)(1), including a topographic map.

* * * * *

5. Section 122.42 is amended by adding paragraph (e) to read as follows:

§ 122.42 Additional conditions applicable to specified categories of NPDES permits (applicable to State NPDES programs, see § 123.25).

* * * * *

(e) *Concentrated animal feeding operations (CAFOs).* Any permit issued to a CAFO must include:

(1) *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. The nutrient management plan must, to the extent applicable:

(i) Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;

(ii) 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;

(iii) Ensure that clean water is diverted, as appropriate, from the production area;

(iv) Prevent direct contact of confined animals with waters of the United States;

(v) 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 and other contaminants;

(vi) 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;

(vii) Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;

(viii) 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

(ix) Identify specific records that will be maintained to document the implementation and management of the minimum elements described in paragraphs (e)(1)(i) through (e)(1)(viii) of this section.

(2) *Recordkeeping requirements.*

(i) The permittee must create, maintain for five years, and make available to the Director, upon request, the following records:

(A) All applicable records identified pursuant paragraph (e)(1)(ix) of this section;

(B) In addition, all CAFOs subject to 40 CFR part 412 must comply with record keeping requirements as specified in § 412.37(b) and (c) and § 412.47(b) and (c).

(ii) A copy of the CAFO's site-specific nutrient management plan must be maintained on site and made available to the Director upon request.

(3) *Requirements relating to transfer of manure or process wastewater to other persons.* Prior to transferring manure, litter or process wastewater to other persons, Large CAFOs must provide the recipient of the manure, litter or process wastewater with the most current nutrient analysis. The analysis provided must be consistent with the requirements of 40 CFR part 412. Large CAFOs must retain for five years records of the date, recipient name and address, and approximate amount of manure, litter or process wastewater transferred to another person.

(4) *Annual reporting requirements for CAFOs.* The permittee must submit an annual report to the Director. The annual report must include:

(i) 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);

(ii) Estimated amount of total manure, litter and process wastewater generated by the CAFO in the previous 12 months (tons/gallons);

(iii) Estimated amount of total manure, litter and process wastewater transferred to other person by the CAFO in the previous 12 months (tons/gallons);

(iv) Total number of acres for land application covered by the nutrient management plan developed in accordance with paragraph (e)(1) of this section;

(v) 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;

(vi) 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

(vii) A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner.

Appendix B to Part 122 [Removed and Reserved]

6. Remove and reserve Appendix B to part 122.

PART 123—STATE PROGRAM REQUIREMENTS

1. The authority citation for part 123 continues to read as follows:

Authority: The Clean Water Act, 33 U.S.C. 1251 *et seq.*

2. Add a new § 123.36 to read as follows:

§ 123.36 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).

Part 412 is revised to read as follows:

PART 412—CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFO) POINT SOURCE CATEGORY

Sec.

412.1 General applicability.

412.2 General definitions.

412.3 General pretreatment standards.

412.4 Best management practices (BMPs) for land application of manure.

Subpart A—Horses and Sheep

412.10 Applicability.

412.11 [Reserved]

412.12 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

412.13 Effluent limitations attainable by the application of the best available control technology economically achievable (BAT).

412.14 [Reserved]

412.15 New source performance standards (NSPS).

Subpart B—Ducks

412.20 Applicability.

412.21 Special definitions.

412.22 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

412.23–412.24 [Reserved]

412.25 New source performance standards (NSPS).

412.26 Pretreatment standards for new sources (PSNS).

Subpart C—Dairy Cows and Cattle Other Than Veal Calves

412.30 Applicability.

412.31 Specialized definitions.

412.32 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

412.33 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

412.34 [Reserved]

412.35 New source performance standards (NSPS).

412.36 [Reserved]

412.37 Additional measures.

Subpart D—Swine, Poultry, and Veal Calves

412.40 Applicability.

412.41–412.42 [Reserved]

412.43 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

412.44 Effluent limitations attainable by the application of the best control technology for conventional pollutants (BCT).

412.45 Effluent limitations attainable by the application of the best available control technology economically achievable (BAT).

412.46 New source performance standards (NSPS).

412.47 Additional measures.

Authority: 33 U.S.C. 1311, 1314, 1316, 1317, 1318, 1342, 1361.

§ 412.1 General applicability.

This part applies to manure, litter, and/or process wastewater discharges resulting from concentrated animal feeding operations (CAFOs). Manufacturing and/or agricultural activities which may be subject to this part are generally reported under one or more of the following Standard Industrial Classification (SIC) codes: SIC 0211, SIC 0213, SIC 0214, SIC 0241, SIC 0251, SIC 0252, SIC 0253, SIC 0254, SIC 0259, or SIC 0272 (1987 SIC Manual).

§ 412.2 General definitions.

As used in this part:

(a) The general definitions and abbreviations at 40 CFR part 401 apply.
(b) *Animal Feeding Operation (AFO)* and *Concentrated Animal Feeding Operation (CAFO)* are defined at 40 CFR 122.23.

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

(d) *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.

(e) *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.

(f) *New source* is defined at 40 CFR 122.2. New source criteria are defined at 40 CFR 122.29(b).

(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.

(h) *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.

(i) *Ten (10)-year, 24-hour rainfall event, 25-year, 24-hour rainfall event, and 100-year, 24-hour rainfall event* mean precipitation events with a probable recurrence interval of once in ten years, or twenty five years, or one hundred years, respectively, 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.

(j) *Analytical methods.* The parameters that are regulated or referenced in this part and listed with approved methods of analysis in Table 1B at 40 CFR 136.3 are defined as follows:

(1) *Ammonia (as N)* means ammonia reported as nitrogen.

(2) *BOD5* means 5-day biochemical oxygen demand.

(3) *Nitrate (as N)* means nitrate reported as nitrogen.

(4) *Total dissolved solids* means nonfilterable residue.

(k) The parameters that are regulated or referenced in this part and listed with approved methods of analysis in Table 1A at 40 CFR 136.3 are defined as follows:

(1) *Fecal coliform* means fecal coliform bacteria.

(2) *Total coliform* means all coliform bacteria.

§ 412.3 General pretreatment standards.

Any source subject to this part that introduces process wastewater pollutants into a publicly owned treatment works (POTW) must comply with 40 CFR part 403.

§ 412.4 Best Management Practices (BMPs) for Land Application of Manure, Litter, and Process Wastewater.

(a) *Applicability.* This section applies to any CAFO subject to subpart C of this part (Dairy and Beef Cattle other than Veal Calves) or subpart D of this part (Swine, Poultry, and Veal Calves).

(b) *Specialized definitions.*

(1) *Setback* means a specified distance from surface waters or potential conduits to surface waters 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.

(2) *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 surface waters.

(3) *Multi-year phosphorus application* means phosphorus applied to a field in excess of the crop needs for that year. In multi-year phosphorus applications, no additional manure, litter, or process wastewater is applied to the same land in subsequent years until the applied phosphorus has been removed from the field via harvest and crop removal.

(c) *Requirement to develop and implement best management practices.* Each CAFO subject to this section that land applies manure, litter, or process wastewater, must do so in accordance with the following practices:

(1) *Nutrient Management Plan.* The CAFO must develop and implement a nutrient management plan that incorporates the requirements of paragraphs (c)(2) through (c)(5) of this section 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.

(2) *Determination of application rates.* Application rates for manure, litter, and other process wastewater applied to land under the ownership or operational control of the CAFO must minimize phosphorus and nitrogen transport from the field to surface waters in compliance with the technical standards for nutrient management established by the Director. Such technical standards for nutrient management shall:

(i) Include a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to surface waters, 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 surface waters; and

(ii) Include appropriate flexibilities for any CAFO to implement nutrient management practices to comply with the technical standards, including consideration of multi-year phosphorus application on fields that do not have a high potential for phosphorus runoff to surface water, phased implementation of phosphorus-based nutrient management, and other components, as determined appropriate by the Director.

(3) *Manure and soil sampling.* Manure must be analyzed a minimum of once annually for nitrogen and phosphorus content, and soil analyzed a minimum of 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.

(4) *Inspect land application equipment for leaks.* The operator must periodically inspect equipment used for land application of manure, litter, or process wastewater.

(5) *Setback requirements.* Unless the CAFO exercises one of the compliance alternatives provided for in paragraph (c)(5)(i) or (c)(5)(ii) of this section,

manure, litter, and process wastewater may not be applied closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters.

(i) *Vegetated buffer compliance alternative.* As a compliance alternative, the CAFO may substitute the 100-foot setback with a 35-foot wide vegetated buffer where applications of manure, litter, or process wastewater are prohibited.

(ii) *Alternative practices compliance alternative.* As a compliance alternative, the CAFO may demonstrate that a setback or buffer is not necessary because 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.

Subpart A—Horses and Sheep

§ 412.10 Applicability.

This subpart applies to discharges resulting from the production areas at horse and sheep CAFOs. This subpart does not apply to such CAFOs with less than the following capacities: 10,000 sheep or 500 horses.

§ 412.11 [Reserved]

§ 412.12 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, and subject to the provisions of paragraph (b) of this section, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT: There shall be no discharge of process waste water pollutants to navigable waters.

(b) Process waste pollutants in the overflow may be discharged to navigable waters whenever rainfall events, either chronic or catastrophic, cause an overflow of process waste water from a facility designed, constructed and operated to contain all process generated waste waters plus the runoff from a 10-year, 24-hour rainfall event for the location of the point source.

§ 412.13 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

(a) Except as provided in 40 CFR 125.30 through 125.32 and when the provisions of paragraph (b) of this section apply, any existing point source subject to this subpart must achieve the

following effluent limitations representing the application of BAT: There shall be no discharge of process waste water pollutants into U.S. waters.

(b) Whenever rainfall events cause an overflow of process wastewater from a facility designed, constructed, operated, and maintained to contain all process-generated wastewaters plus the runoff from a 25-year, 24-hour rainfall event at the location of the point source, any process wastewater pollutants in the overflow may be discharged into U.S. waters.

§ 412.14 [Reserved]

§ 412.15 Standards of performance for new sources (NSPS)

(a) Except as provided in paragraph (b) of this section, any new source subject to this subpart must achieve the following performance standards: There

must be no discharge of process wastewater pollutants into U.S. waters.

(b) Whenever rainfall events cause an overflow of process wastewater from a facility designed, constructed, operated, and maintained to contain all process-generated wastewaters plus the runoff from a 25-year, 24-hour rainfall event at the location of the point source, any process wastewater pollutants in the overflow may be discharged into U.S. waters.

Subpart B—Ducks

§ 412.20 Applicability.

This subpart applies to discharges resulting from the production areas at dry lot and wet lot duck CAFOs. This subpart does not apply to such CAFOs with less than the following capacities: 5,000 ducks.

§ 412.21 Special definitions.

For the purposes of this subpart:

(a) *Dry lot* means a facility for growing ducks in confinement with a dry litter floor cover and no access to swimming areas.

(b) *Wet lot* means a confinement facility for raising ducks which is open to the environment, has a small number of sheltered areas, and with open water runs and swimming areas to which ducks have free access.

§ 412.22 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

(a) Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the (BPT):

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.

(b) [Reserved]

§§ 412.23–412.24 [Reserved]

§ 412.25 New source performance standards (NSPS).

(a) Except as provided in paragraph (b) of this section, any new source subject to this subpart must achieve the following performance standards: There must be no discharge of process waste water pollutants into U.S. waters.

(b) Whenever rainfall events cause an overflow of process wastewater from a facility designed, constructed, operated, and maintained to contain all process-generated wastewaters plus the runoff from a 25-year, 24-hour rainfall event at the location of the point source, any process wastewater pollutants in the overflow may be discharged into U.S. waters.

§ 412.26 Pretreatment standards for new sources (PSNS).

(a) Except as provided in 40 CFR 403.7 and in paragraph (b) of this section, any new source subject to this subpart must achieve the following performance standards: There must be no introduction of process waste water pollutants to a POTW.

(b) Whenever rainfall events cause an overflow of process wastewater from a facility designed, constructed, operated,

and maintained to contain all process-generated wastewaters plus the runoff from a 25-year, 24-hour rainfall event at the location of the point source, any process wastewater pollutants in the overflow may be introduced to a POTW.

Subpart C—Dairy Cows and Cattle Other Than Veal Calves

§ 412.30 Applicability.

This subpart applies to operations defined as concentrated animal feeding operations (CAFOs) under 40 CFR 122.23 and includes the following animals: mature dairy cows, either milking or dry; cattle other than mature dairy cows or veal calves. Cattle other than mature dairy cows includes but is not limited to heifers, steers, and bulls. This subpart does not apply to such CAFOs with less than the following capacities: 700 mature dairy cows whether milked or dry; 1,000 cattle other than mature dairy cows or veal calves.

§ 412.31 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent

limitations representing the application of BPT:

(a) *For CAFO production areas.* Except as provided in paragraphs (a)(1) through (a)(2) of this section, there must be no discharge of manure, litter, or process wastewater pollutants into waters of the U.S. from the production area.

(1) Whenever precipitation causes an overflow of manure, litter, or process wastewater, pollutants in the overflow may be discharged into U.S. waters provided:

(i) The production area is designed, constructed, operated and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 25-year, 24-hour rainfall event;

(ii) The production area is operated in accordance with the additional measures and records required by § 412.37(a) and (b).

(2) *Voluntary alternative performance standards.* Any CAFO subject to this subpart may request the Director to establish NPDES permit effluent limitations based upon site-specific alternative technologies that 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 baseline

performance standards as provided by paragraph (a)(1) of this section.

(i) *Supporting information.* In requesting site-specific effluent limitations to be included in the NPDES permit, the CAFO owner or operator must submit a supporting technical analysis and any other relevant information and data that would support such site-specific effluent limitations within the time frame provided by the Director. The supporting technical analysis must include calculation of the quantity of pollutants discharged, on a mass basis where appropriate, based on a site-specific analysis of a system designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater, including the runoff from a 25-year, 24-hour rainfall event. The technical analysis of the discharge of pollutants must include:

(A) All daily *inputs* to the storage system, including manure, litter, all process waste waters, direct precipitation, and runoff.

(B) All daily *outputs* from the storage system, including losses due to evaporation, sludge removal, and the removal of waste water for use on cropland at the CAFO or transport off site.

(C) A calculation determining the predicted median annual overflow volume based on a 25-year period of actual rainfall data applicable to the site.

(D) Site-specific pollutant data, including N, P, BOD₅, TSS, for the CAFO from representative sampling and analysis of all sources of input to the storage system, or other appropriate pollutant data.

(E) Predicted annual average discharge of pollutants, expressed where appropriate as a mass discharge on a daily basis (lbs/day), and calculated considering paragraphs (a)(2)(i)(A) through (a)(2)(i)(D) of this section.

(ii) The Director has the discretion to request additional information to supplement the supporting technical analysis, including inspection of the CAFO.

(3) The CAFO shall attain the limitations and requirements of this paragraph as of the date of permit coverage.

(b) *For CAFO land application areas.* Discharges from land application areas are subject to the following requirements:

(1) Develop and implement the best management practices specified in § 412.4;

(2) Maintain the records specified at § 412.37 (c);

(3) The CAFO shall attain the limitations and requirements of this paragraph by December 31, 2006.

§ 412.32 Effluent limitations attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT:

(a) For CAFO production areas: the CAFO shall attain the same limitations and requirements as § 412.31(a).

(b) For CAFO land application areas: the CAFO shall attain the same limitations and requirements as § 412.31(b).

§ 412.33 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BAT:

(a) For CAFO production areas: the CAFO shall attain the same limitations and requirements as § 412.31(a).

(b) For CAFO land application areas: the CAFO shall attain the same limitations and requirements as § 412.31(b).

§ 412.34 [Reserved]

§ 412.35 New source performance standards (NSPS).

Any new point source subject to this subpart must achieve the following effluent limitations representing the application of NSPS:

(a) *For CAFO production areas.* The CAFO shall attain the same limitations and requirements as § 412.31(a)(1) and § 412.31(a)(2).

(b) *For CAFO land application areas:* The CAFO shall attain the same limitations and requirements as § 412.31(b)(1) and § 412.31(b)(2).

(c) The CAFO shall attain the limitations and requirements of this paragraph as of the date of permit coverage.

(d) Any source subject to this subpart that commenced discharging after April 14, 1993, and prior to April 14, 2003, which was a new source subject to the standards specified in § 412.15, revised as of July 1, 2002, must continue to achieve those standards for the applicable time period specified in 40 CFR 122.29(d)(1). Thereafter, the source must achieve the standards specified in § 412.31(a) and (b).

§ 412.36 [Reserved]

§ 412.37 Additional measures.

(a) Each CAFO subject to this subpart must implement the following requirements:

(1) *Visual inspections.* There must be routine visual inspections of the CAFO production area. At a minimum, the following must be visually inspected:

(i) Weekly inspections of all storm water diversion devices, runoff diversion structures, and devices channelling contaminated storm water to the wastewater and manure storage and containment structure;

(ii) Daily inspection of water lines, including drinking water or cooling water lines;

(iii) 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 in paragraph (a)(2) of this section.

(2) *Depth marker.* All open surface liquid impoundments must have a depth marker which clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event, or, in the case of new sources subject to the requirements in § 412.46 of this part, the runoff and direct precipitation from a 100-year, 24-hour rainfall event.

(3) *Corrective actions.* Any deficiencies found as a result of these inspections must be corrected as soon as possible.

(4) *Mortality handling.* Mortalities must not be disposed of in any liquid manure or process wastewater system, and must be handled in such a way as to prevent the discharge of pollutants to surface water, unless alternative technologies pursuant to § 412.31(a)(2) and approved by the Director are designed to handle mortalities.

(b) *Record keeping requirements for the production area.* Each CAFO must maintain on-site for a period of five years from the date they are created a complete copy of the information required by 40 CFR 122.21(i)(1) and 40 CFR 122.42(e)(1)(ix) and the records specified in paragraphs (b)(1) through (b)(6) of this section. The CAFO must make these records available to the Director and, in an authorized State, the Regional Administrator, or his or her designee, for review upon request.

(1) Records documenting the inspections required under paragraph (a)(1) of this section;

(2) Weekly records of the depth of the manure and process wastewater in the liquid impoundment as indicated by the

depth marker under paragraph (a)(2) of this section;

(3) Records documenting any actions taken to correct deficiencies required under paragraph (a)(3) of this section. Deficiencies not corrected within 30 days must be accompanied by an explanation of the factors preventing immediate correction;

(4) Records of mortalities management and practices used by the CAFO to meet the requirements of paragraph (a)(4) of this section.

(5) Records documenting the current design of any manure or litter storage structures, including volume for solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity;

(6) Records of the date, time, and estimated volume of any overflow.

(c) *Recordkeeping requirements for the land application areas.* Each CAFO must maintain on-site a copy of its site-specific nutrient management plan. Each CAFO must maintain on-site for a period of five years from the date they are created a complete copy of the information required by § 412.4 and 40 CFR 122.42(e)(1)(ix) and the records specified in paragraphs (c)(1) through (c)(10) of this section. The CAFO must make these records available to the Director and, in an authorized State, the Regional Administrator, or his or her designee, for review upon request.

(1) Expected crop yields;

(2) The date(s) manure, litter, or process waste water is applied to each field;

(3) Weather conditions at time of application and for 24 hours prior to and following application;

(4) Test methods used to sample and analyze manure, litter, process waste water, and soil;

(5) Results from manure, litter, process waste water, and soil sampling;

(6) Explanation of the basis for determining manure application rates, as provided in the technical standards established by the Director.

(7) Calculations showing the total nitrogen and phosphorus to be applied to each field, including sources other than manure, litter, or process wastewater;

(8) Total amount of nitrogen and phosphorus actually applied to each field, including documentation of calculations for the total amount applied;

(9) The method used to apply the manure, litter, or process wastewater;

(10) Date(s) of manure application equipment inspection.

Subpart D—Swine, Poultry, and Veal Calves

§ 412.40 Applicability.

This subpart applies to operations defined as concentrated animal feeding operations (CAFOs) under 40 CFR 122.23 and includes the following animals: swine; chickens; turkeys; and veal calves. This subpart does not apply to such CAFOs with less than the following capacities: 2,500 swine each weighing 55 lbs. or more; 10,000 swine each weighing less than 55 lbs.; 30,000 laying hens or broilers if the facility uses a liquid manure handling system; 82,000 laying hens if the facility uses other than a liquid manure handling system; 125,000 chickens other than laying hens if the facility uses other than a liquid manure handling system; 55,000 turkeys; and 1,000 veal calves.

§§ 412.41–412.42 [Reserved]

§ 412.43 Effluent limitations attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BPT:

(a) *For CAFO production areas.*

(1) The CAFO shall attain the same limitations and requirements as § 412.31(a)(1) through (a)(2).

(2) The CAFO shall attain the limitations and requirements of this paragraph as of the date of permit coverage.

(b) *For CAFO land application areas.*

(1) The CAFO shall attain the same limitations and requirements as § 412.31(b)(1) and (b)(2).

(2) The CAFO shall attain the limitations and requirements of this paragraph by December 31, 2006.

§ 412.44 Effluent limitations attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BCT:

(a) *For CAFO production areas:* the CAFO shall attain the same limitations and requirements as § 412.43(a).

(b) *For CAFO land application areas:* the CAFO shall attain the same limitations and requirements as § 412.43(b).

§ 412.45 Effluent limitations attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the application of BAT:

(a) *For CAFO production areas:* the CAFO shall attain the same limitations and requirements as § 412.43(a).

(b) *For CAFO land application areas:* the CAFO shall attain the same limitations and requirements as § 412.43(b).

§ 412.46 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following effluent limitations representing the application of NSPS:

(a) *For CAFO production areas.* There must be no discharge of manure, litter, or process wastewater pollutants into waters of the U.S. from the production area, subject to paragraphs (a)(1) through (a)(3) of this section.

(1) Waste management and storage facilities designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 100-year, 24-hour rainfall event and operated in accordance with the additional measures and records required by § 412.47(a) and (b), will fulfill the requirements of this section.

(2) The production area must be operated in accordance with the additional measures required by § 412.47(a) and (b).

(3) Provisions for upset/bypass, as provided in 40 CFR 122.41(m)–(n), apply to a new source subject to this provision.

(b) *For CAFO land application areas:* the CAFO shall attain the same limitations and requirements as § 412.43(b)(1).

(c) The CAFO shall attain the limitations and requirements of this paragraph as of the date of permit coverage.

(d) *Voluntary superior environmental performance standards.* Any new source CAFO subject to this subpart may request the Director to establish alternative NPDES permit limitations based upon a demonstration that site-specific innovative technologies will achieve overall environmental performance across all media which is equal to or superior to the reductions achieved by baseline standards as provided by § 412.46(a). The quantity of pollutants discharged from the

production area must be accompanied by an equivalent or greater reduction in the quantity of pollutants released to other media from the production area (*e.g.*, air emissions from housing and storage) and/or land application areas for all manure, litter, and process wastewater at on-site and off-site locations. The comparison of quantity of pollutants must be made on a mass basis where appropriate. The Director has the discretion to request supporting

information to supplement such a request.

(e) Any source subject to this subpart that commenced discharging after April 14, 1993, and prior to April 14, 2003, which was a new source subject to the standards specified in § 412.15, revised as of July 1, 2002, must continue to achieve those standards for the applicable time period specified in 40 CFR 122.29(d)(1). Thereafter, the source must achieve the standards specified in § 412.43(a) and (b).

§ 412.47 Additional measures.

(a) Each CAFO subject to this subpart must implement the requirements of § 412.37(a).

(b) Each CAFO subject to this subpart must comply with the record-keeping requirements of § 412.37(b).

(c) Each CAFO subject to this subpart must comply with the record-keeping requirements of § 412.37(c).

[FR Doc. 03-3074 Filed 2-11-03; 8:45 am]

BILLING CODE 6560-50-P