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**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 Edocket 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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Appendix—Form 2B

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/mannt.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