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Animal Waste and Water Quality: EPA Regulation of Concentrated Animal Feeding Operations (CAFOs)

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Summary

According to the Environmental Protection Agency, the release of waste from animal feedlots to surface water, groundwater, soil, and air is associated with a range of human health and ecological impacts and contributes to degradation of the nation's surface waters. The most dramatic ecological impacts are massive fish kills. A variety of pollutants in animal waste can affect human health, including causing infections of the skin, eye, ear, nose, and throat. Contaminants from manure can also affect human health by polluting drinking water sources.

Although agricultural activities are generally not subject to requirements of environmental law, discharges of waste from large concentrated animal feeding operations (CAFOs) into the nation's waters are regulated under the Clean Water Act. In the late 1990s, the Environmental Protection Agency (EPA) initiated a review of the Clean Water Act rules that govern these discharges, which had not been revised since the 1970s, despite structural and technological changes in some components of the animal agriculture industry that have occurred during the last two decades. A proposal to revise the existing rules was released by the Clinton Administration in December 2000. The Bush Administration issued final revised regulations on December 12, 2002.

The final rules are generally viewed as less stringent than the proposal, a fact that strongly influences how interest groups have responded to them. Agriculture groups have said that the final rules are workable, and they are pleased that some of the proposed requirements were scaled back, such as changes that would have made thousands more CAFOs subject to regulation. However, some continue to question EPA's authority to issue portions of the rules. Many states had been seeking more flexible approaches than EPA had proposed and welcomed the fact that the final rules retain the status quo to a large extent. Environmentalists contend that the rules rely too heavily on voluntary measures to control runoff and fail to require improved technology. Environmentalists and several agriculture industry groups have filed lawsuits challenging the rules in a number of different federal courts.

This report describes the revised environmental rules, the background of previous Clean Water Act rules and the Clinton Administration proposal, and perspectives of key interest groups on the proposal and final regulations. It also identifies several issues likely to be of congressional interest as implementation of the revised rules proceeds. Issues include adequacy of funding for those who will implement the rules, research needs, oversight of implementation of the rules, and possible need for legislation. The report is intended to provide background and will not be updated.

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Introduction

Agricultural operations often have been treated differently than other types of businesses under numerous federal and state laws. In the area of environmental policy, agriculture is "virtually unregulated by the expansive body of environmental law that has developed in the United States in the past 30 years."[1] Some laws specifically exempt agriculture from regulatory provisions, and some are structured in such a way that farms escape most, if not all, of the regulatory impact. The Clean Water Act (CWA), for example, expressly exempts most agricultural operations from the law's requirements, while under the Clean Air Act (CAA), most agricultural sources escape that law's regulatory programs because most of those sources do not meet the CAA's minimum emission quantity thresholds.

One exception to this general policy of exemption from environmental rules is the portion of the livestock industry that involves large, intensive animal raising and feeding operations. These facilities, which include concentrated feeding operations and feedlots, are a specialized and significant part of the livestock production process, largely separate from cropland agriculture. Certain large animal feeding operations are subject to explicit regulations under the Clean Water Act (P.L. 92-500 as amended, 33 U.S.C. 1251 *et seq*.) that are intended to restrict discharges of animal wastes which could degrade the quality of the nation's rivers, streams, lakes, and coastal waters. However, existing regulations, promulgated in the 1970s, have not been amended to reflect significant structural and technological changes in some components of the animal agriculture industry that have occurred, particularly during the last two decades. In addition, manure and waste-handling and disposal problems from intensive animal production have begun to receive attention as these facilities increase in size and the effects of these problems reach beyond the industry to affect others.[2]

In the late 1990s, the Environmental Protection Agency (EPA), the federal agency responsible for implementing the CWA, initiated a review of the existing CWA rules that govern waste discharges from large animal feeding operations. The review was part of overall Administration efforts to address problems of animal

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[1] Ruhl, J.B. "Farms, Their Environmental Harms, and Environmental Law." ECOLOGY LAW QUARTERLY, vol. 27, no. 2 (2000): 263-349, 265.

[2] For additional background, see CRS Report 98-451, *Animal Waste Management and the Environment: Background for Current Issues.*

waste affecting the environment, including EPA's response to a court-ordered schedule to revise several CWA rules. A proposal to revise the existing rules for animal feeding operations was released by the Clinton Administration in December 2000. After two years of reviewing the proposal, the Bush Administration issued final revised regulations in December 2002.

The proposed rules were controversial for a variety of reasons. Livestock and poultry groups, as well as general agriculture advocacy groups, opposed the rules, arguing that they would be too costly. Environmental groups generally supported the rules. States were divided: some favored a strengthened national approach to regulating animal waste, while many favored greater flexibility. The final revised rules adopt some elements of the proposal, modify other parts, and largely retain the structure of the previous rules. The final rules are generally viewed as less stringent than the proposal, a fact that strongly influences how interest groups have responded to them.

This report describes the revised environmental rules, the background of previous rules, the Clinton Administration proposal, and perspectives of key interest groups. It also identifies several issues likely to be of congressional interest as implementation of the revised rules proceeds.

Livestock Production and Animal Waste

There are an estimated 1.2 million farms with livestock and poultry in the United States, according to the U.S. Department of Agriculture's (USDA) 1997 Census of Agriculture. This number includes all operations that raise beef or dairy cattle, hogs, and poultry and includes both confinement and non-confinement (i.e., grazing and rangefed) production. Of these, about 238,000 are defined as animal feeding operations (AFOs, or feedlots; see Box 1), where livestock and poultry are confined, reared, and fed. An estimated 95% of these are small businesses: most AFOs raise small numbers of animals (i.e., fewer than 300). Concentrated animal feeding operations (CAFOs), which confine large numbers of animals and meet certain pollutant discharge criteria (see Box 1), are a small fraction of all AFOs (less than 5%), but these largest operations raise more than 40% of U.S. livestock that are reared in confined facilities. In recent years, livestock raising has become more concentrated on fewer but larger operations. From 1982 to 1997, the total number of livestock operations decreased by 24%, and total operations with confined livestock similarly fell by 27%. At the same time, the number of animals raised at large feedlots increased by 88%, and the number of large feedlots/CAFOs increased by more than 50%.[3]

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[3] U.S. Department of Agriculture. Natural Resources Conservation Service. "Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States." Publication no. nps00-579, December 2000. p. 18. Hereafter cited as USDA, "Manure Nutrients."

EPA Definitions of AFOs and CAFOs

Under EPA regulations, an Animal Feeding Operation (AFO) is a facility in which livestock or poultry are raised or housed in confinement, and where the following conditions are met: (1) animals are confined or maintained for a total of 45 days or more in any 12-month period, and (2) crops are not sustained in the normal growing season over any portion of the lot or facility (i.e., animals are not maintained in a pasture or on rangeland).

Concentrated Animal Feeding Operations (CAFOs) are a subset of AFOs. In addition to meeting the above conditions, an AFO is a defined as a CAFO if it meets minimum size thresholds (AFOs with more than 1,000 animals are CAFOs; those with 300-999 animals may be CAFOs, depending on discharge characteristics; and those with fewer than 300 may be CAFOs in some cases) and either one of these conditions: (1) pollutants are discharged into navigable waters through a manmade ditch or similar manmade device, or (2) pollutants are discharged directly into waters of the United States that originate outside of and pass over, across, or through the facility, or otherwise come into direct contact with the confined animals. (40 CFR Part 122, App. B)

By animal type, swine and poultry operations have seen the most dramatic change in the manner of production, in terms of animals being raised in confinement at very large animal feeding operations. From 1982 to 1997, there was a 12-fold increase in numbers of swine raised at large AFOs, with the greatest geographic concentration now in Oklahoma, Arkansas, North Carolina, northern Iowa, and southern Minnesota. During the same time period, poultry production at the largest operations increased 218%, with geographic concentration today in southeastern states, coastal states of Florida, Georgia, North Carolina, South Carolina; Minnesota and the surrounding areas; and western coastal states.[4]

Animal manure can be and frequently is used beneficially on farms to fertilize crops and add/restore nutrients to soil. However, the changes in animal agriculture, especially the increasing trend toward raising livestock on large feedlots, have resulted in more extensive problems associated with using and disposing of animal waste. As livestock production has become denser and more spatially concentrated, the amount of manure nutrients relative to the assimilative capacity of land available on farms for application has grown, especially in high production areas including the central northern states from New York to Nebraska, West Coast states and Arizona, and scattered areas through the Southeast.

According to USDA, in 1997, 66,000 operations had farm-level excess nitrogen (an imbalance between the quantity of manure nutrients produced on the farm and assimilative capacity of the soil on that farm) and 89,000 had farm-level excess

[4] Id., pp. 44, 46.

phosphorus.[5] USDA believes that where manure nutrients exceed the assimilative capacity of a region, the potential is high for runoff and leaching of nutrients and subsequent water quality problems. Geographically, areas with excess farm-level nutrients correspond to areas with increasing numbers of confined animals, and farms with poultry accounted for about two-thirds of the farm-level excess nitrogen and over one-half of the farm-level excess phosphorus. Some of these operations can export manure to surrounding properties. Even accounting for off-site transfers, USDA believes that the number of counties with excess manure nutrients has increased by approximately 60% since 1982 and that in 1997, 165 counties had county-level excess manure nitrogen, and 374 counties had potential excess manure phosphorus. Counties with potential animal waste problems tend to be grouped together. Nearly all of the counties with excess nitrogen were in the Southeast in a region extending from Arkansas and Louisiana to Virginia. Counties with excess phosphorus were also numerous throughout the Southeast, as well as in the Northeast (including the Delmarva Peninsula), extreme Northwest, California, and the Great Plains.[6] Poultry operations comprised 82% of the operations with farm-level excess nitrogen in those counties, and poultry, dairy, and swine operations comprised nearly 90% of those with farm-level excess manure phosphorus.[7]

Animal Waste and the Environment

Animal waste, if not properly managed, can be transported over the surface of agricultural land to nearby lakes and streams. Leaching from manure storage lagoons and percolation through the soil of fields, where animal waste is applied can contaminate groundwater resources. According to EPA, the release of waste from animal feedlots to surface water, groundwater, soil, and air is associated with a wide range of human health and ecological impacts and contributes to the degradation of the nation's surface waters.[8] Data collected for the EPA's 2000 National Water Quality Inventory identify agriculture as the leading contributor to water quality impairments in rivers and lakes and the fifth leading contributor to impairments in the nation's estuaries. Animal feeding operations are only a subset of the agriculture category, but 29 states specifically identified animal feeding operations as contributing to water quality impairment. [9]

The primary pollutants associated with animal wastes are nutrients (particularly nitrogen and phosphorus), organic matter, solids, pathogens, and odorous/volatile

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[5] In the agriculture context, assimilative capacity is the amount of nutrients taken up and removed at harvest for cropland and the amount that could generally be applied to pastureland without accumulating nutrients in the soil.

[6] USDA, "Manure Nutrients," op. cit., p. 85.

[7] Id., pp. 75-81.

[8] U.S. Environmental Protection Agency. "Environmental and Economic Benefit Analysis of Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations." December 2002. P. ES-6.

[9] U.S. Environmental Protection Agency. "National Water Quality Inventory, 2000 Report." August 2002. EPA-841-R-02-001. 1 vol.

compounds. Animal waste also contains salts and trace elements, and to a lesser extent, antibiotics, pesticides, and hormones. Pollutants in animal waste can impact waters through several possible pathways, including surface runoff and erosion, direct discharges to surface waters, spills and other dry-weather discharges, leaching into soil and groundwater, and releases to air (including subsequent deposition back to land and surface waters). Pollutants associated with animal waste can also originate from a variety of other sources, such as cropland, municipal and industrial discharges, and urban runoff.

The most dramatic ecological impacts associated with manure pollutants in surface waters are massive fish kills. Highly publicized incidents have occurred in nearly every state — from California to Maryland. In addition, manure pollutants can seriously disrupt aquatic systems by over-enriching water (in the case of nutrients) or by increasing turbidity (in the case of solids), processes that can disrupt aquatic ecosystems. Excess nutrients cause fast-growing algae blooms that reduce the penetration of sunlight in the water column and reduce the mount of available oxygen in the water, thus reducing fish and shellfish habitat and affecting fish and invertebrates. The 2000 *Water Quality Inventory* report indicates that excess algal growth alone is among the leading causes of impairment in lakes, ponds, and reservoirs.

A variety of pollutants in animal waste can also affect human health. Over 150 pathogens in livestock manure are associated with risks to humans; these include the bacteria *E. coli* and *Salmonella* species and the protozoa *Giardia* species. Contact with pathogens contained in manure during swimming or boating can result in infections of the skin, eye, ear, nose, and throat. Shellfish such as oysters, clams, and mussels can carry toxins produced by some types of algae that are associated with excess nutrients. These can affect people who eat contaminated shellfish. Further, contaminants from manure can also affect human health through drinking water sources and can result in increased drinking water treatment costs. For example, nitrogen in manure and liquid waste can be transported to drinking water as nitrates, which are associated with human health risks and which EPA has identified as the most widespread agricultural contaminant in drinking water wells. Elevated nitrate levels can cause nitrate poisoning, particularly in infants (this is known as methemoglobinemia, or "blue baby syndrome"). Nitrate contamination of private wells that has been linked to nearby livestock and poultry operations has occurred in several areas, including Delaware, the Maryland Eastern Shore, and North Carolina.

Previous Clean Water Act Regulations

Since it was enacted in 1972, the Clean Water Act's predominant focus has been the control of wastewater from manufacturing and other industrial facilities, termed "point sources," which are regulated by discharge permits. As point source pollution has been brought under regulation, uncontrolled discharges in the form of runoff from "nonpoint sources" have become not only greater in absolute terms, but also proportionally a larger share of remaining water pollution problems. Nonpoint pollution occurs in conjunction with surface erosion of soil by water and surface runoff of rainfall or snowmelt from diffuse areas such as farm and ranch land, construction sites, mining and timber operations, and residential streets and yards. Most agricultural activities are considered to be nonpoint sources, since they do not

discharge wastes from clearly identifiable pipes, outfalls, or similar "point" conveyances. Nonpoint sources are not subject to the permit, compliance, and enforcement regime that applies to point sources.

Under the CWA, most AFOs are considered to be nonpoint sources. However, CAFOs (large AFOs) are specifically defined in the law as point sources and are treated in a manner similar to other industrial sources of pollution, such as factories. They are subject to the Act's prohibition against discharging pollutants into waters of the United States without a permit. In 1974 and 1976, EPA issued regulations defining the term CAFO for purposes of permit requirements (40 CFR §122.23) and effluent limitation guidelines, specifying limits on pollutant discharges from regulated feedlots (40 CFR Part 412). These regulations cover CAFOs that confine beef and dairy cattle, swine, poultry (chickens and turkeys), ducks, sheep, or horses.

Discharge permits issued pursuant to the Part 122 rules, under the Act's National Pollutant Discharge Elimination System (NPDES) permit program, establish limits on the amounts and types of pollutants that can be released into waterways. Permits are issued for a fixed term, not to exceed five years, and must be renewed thereafter. NPDES permits may be issued by EPA or a state authorized by EPA to implement the NPDES program. Currently, 45 states have been authorized by EPA to administer this permit program (Oklahoma has been authorized to issue permits for most sources but not for CAFOs). States may impose additional requirements on permittees and may regulate more conduct and more types of operations than those governed by the federal NPDES rules. The two basic types of NPDES permits are individual permits, which are specifically tailored for a specific facility, and general permits, issued by a permitting authority to cover multiple facilities with similar characteristics. Because of the large number of CAFOs, EPA and states increasingly are using general permits to regulate these facilities.

EPA's regulations define a CAFO based on the length of time animals are confined, the number of animals confined, and whether or not the facility directly discharges pollutants into waters of the Untied States. In addition to criteria that define an animal feeding operation (see Box 1), the rules for defining a CAFO contain a three-tier structure based on the number of animal units[10] at the facility.

- The facility is a CAFO if it holds more than 1,000 animal units.
- If the facility holds from 300 to 999 animal units, the facility is a CAFO if pollutants are discharged from a manmade conveyance or are discharged directly into waters passing over, across, or through the site.

[10] As defined by USDA, an animal unit is 1,000 pounds of live weight of any given livestock species or combination. The term varies according to animal type; one animal is not always equal to one animal unit. An EPA animal unit is equal to 1.0 beef cattle, 0.7 mature dairy cow, 2.5 pigs weighing more than 55 pounds each, 100 chickens (broilers or layers), 10 sheep or lambs, or 0.5 horses.

- Animal feeding operations that include fewer than 300 animal units may be designated as CAFOs if EPA or the permitting authority determines that the facility contributes significantly to water pollution.

The regulations nominally impose a zero discharge limitation on regulated operations, because they prohibit discharge of pollutants into waters of the United States, except in the event of discharges that might occur during the worst 24-hour storm in a 25-year period (termed the 25-year, 24-hour storm exception). These regulations do not specifically address discharges to surface water or leaching to groundwater that may occur from animal waste or manure which are applied to land. Nor do they address odor problems from animal agriculture operations. These topics, if regulated at all, have been subject to varied state and local authority, not federal law or regulation.

Problems with CAFO Regulation. A number of problems with the existing CAFO regulatory system are widely recognized. These problems have limited its effectiveness in preventing environmental problems from livestock production.

- Less than 30% of CAFOs have CWA permits today — about 4,100 out of the approximately 12,700 that meet the EPA regulatory definitions described above. One explanation is the historic emphasis by federal and state permitting authorities on regulating other large industrial and municipal dischargers rather than agricultural sources, since most of agriculture is not subject to the Act. Another factor is that the 25-year, 24-hour storm exemption has allowed a large number of operations to avoid obtaining discharge permits if they discharge waste only during such a storm event.

- Some sources went unregulated because the EPA rules did not reflect changes in animal waste management technology. In particular, the 1970's rules only applied to poultry operations that have a continuous overflow watering or liquid manure handling system (i.e., "wet" systems) and thus excluded poultry CAFOs with dry manure handling systems, which predominate in this sector today. This exemption allowed more than 2,000 confined poultry operations to avoid obtaining permits.

- The federal regulations contained no requirement for plans to establish manure application rates for fields based on technical standards for nutrient management.

- CAFO inspections by federal and state regulators and compliance enforcement activities have been limited, often occurring only after citizen complaints or accidental releases following large rainfall events or equipment failures. In addition, according to the General Accounting Office (GAO), EPA's limited oversight of the states has contributed to inconsistent and inadequate implementation by states,

which are the authorized permitting entities for the large majority of facilities, CAFO and other.[11]

How States Regulate AFOs and CAFOs. Since NPDES permits are the CWA vehicle for implementing the CAFO rules, and states carry out most NPDES permit activities, the nature and scope of state programs for regulating feedlots is an important consideration in evaluating overall effectiveness of current efforts. An EPA compendium of state programs for managing animal feedlots illustrates the variations and complexity of state activities.[12] According to EPA, state regulation of AFOs and CAFOs often involves both federal and state laws and regulations and several different state-level agencies, with numerous variations in approaches, requirements, and jurisdiction. Forty-five states are authorized by EPA to implement the base NPDES program to regulate CAFOs. Seven states regulate CAFOs exclusively under this authority, while 32 states administer a state NPDES CAFO program in combination with some other state permit, license, or authorization, such as a construction or operating permit. Six states, while generally authorized to implement the NPDES program, have chosen to regulate CAFOs under separate state non-NPDES programs. Further, five states are not authorized to administer the NPDES program, and EPA retains responsibility to issue CAFO permits. In three of these states, EPA permits are the sole CAFO regulation, and the other two impose some form of non-NPDES program requirement, in addition to the federally-issued permit. Substantively, state programs vary widely in defining what is a CAFO (hence, the scope of the regulatory program), permit conditions and siting requirements, details for waste management plans (if required), and enforcement procedures.

Because of the wide variability, it is difficult to say whether the glass is "half-full" or "half-empty" with regard to the adequacy of state regulatory activities. EPA concludes that state non-NPDES AFO programs are often more stringent than NPDES programs and often extend coverage to smaller classes of facilities. Further, according to EPA, the implementation of state non-NPDES programs often receives more state agency attention than implementation of NPDES programs, with several states actively choosing not to use NPDES permits. However, the GAO recently found inconsistent and inadequate implementation of CWA requirements by states that have been authorized to administer CAFO permitting. Permits do not meet all EPA requirements, and several states evaluated by GAO do not issue any type of permit to CAFOs, thereby leaving facilities and their wastes essentially unregulated.[13] In revised CAFO rules proposed in December 2000 (discussed below), EPA said that

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[11] U.S. General Accounting Office. Livestock Agriculture: Increased EPA Oversight Will Improve Environmental Program for Concentrated Animal Feeding Operations. January 2003. GAO-03-285. p. 7.

[12] U.S. Environmental Protection Agency, Office of Wastewater Management. *State Compendium, Programs and Regulatory Activities Related to Animal Feeding Operations*. May 2002. Text is available at: [http://www.epa.gov/npdes/pubs/statecom.pdf]. Another recent report presents a detailed comparison of features and requirements of programs in seven states. See, Environmental Law Institute. *State Regulation of Animal Feeding Operations*. January 2003. 80 p.

[13] GAO, op cit., pp. 7-11.

the number of non-NPDES permits issued to AFOs greatly exceeds the number of NPDES permits issued — there are nearly 20 times more non-NPDES permits. Many would not meet the standards for approval as NPDES permits, EPA said, and because they are not NPDES permits, none meets the requirement for federal enforceability.[14]

Revising the CAFO Regulations

In the early 1990s, environmental groups sued EPA for failure to revise existing Clean Water Act permit regulations for a number of industry categories and failure to adopt new rules for unregulated industries. Settlement of that lawsuit[15] put EPA under a court-ordered schedule to issue revised or new Clean Water Act rules for CAFOs and more than a dozen other industries. Under the consent decree, which has been modified several times, revised CAFO rules were to be proposed by December 2000 and finalized by December 15, 2002.

In response to this pending deadline and as part of broader efforts by EPA and the U.S. Department of Agriculture to address water quality problems associated with animal feeding operations, the Clinton Administration proposed rules to modify the existing CAFO regulations in December 2000.[16] To address shortcomings in the existing regulations, the rules proposed to clarify the conditions under which an AFO is a CAFO and is, therefore, subject to permit requirements. It proposed to increase the number of facilities required to obtain Clean Water Act permits and to restrict land application of wastes.

EPA co-proposed two alternative approaches for defining CAFOs. The first would retain the existing 3-tier structure, but with modifications and clearer criteria regarding the middle tier (1,000 Animal Units or more would be CAFOs, operations with 300 to 999 Animal Units would be CAFOs but could be exempt from permits by demonstrating no potential to discharge wastes, and fewer than 300 Animal Units would be CAFOs only if designated by the permit writer). The second option proposed a 2-tier structure (500 Animal Units or more would be defined as CAFOs, fewer than 500 Animal Units would be CAFOs only if designated by the permit writer). EPA estimated that under the proposed 2-tier structure, 25,590 operations would need a permit, compared with 12,700 under existing regulations. Under a revised 3-tier structure, 31,930 operations would need a permit, while an additional 7,400 in the middle tier were potentially affected, but these operations were expected to be able to avoid permitting by certifying that they are not CAFOs.

In addition, permitting requirements would be extended to some livestock categories not previously regulated (i.e., dry-manure poultry operations and stand-alone immature swine and heifer operations). EPA also proposed to require that permitted facilities develop and implement site-specific plans which identify the

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[14] 66 *Federal Register* 2969, Jan. 12, 2001.

[15] *Natural Resources Defense Council v. Reilly*, U.S. District Court, D.C., Civ. Action No. 89-2980, April 23, 1991.

[16] 66 *Federal Register* 2959, Jan. 12, 2001.

amount of nutrients generated at the facility and determine rates for the application of the waste to agricultural land. Finally, it proposed a co-permitting system, in which permits would cover not just the grower or farmer, but also corporate owners (integrators) who contract out to farmers to raise the animals or poultry and exercise substantial operational control over the facility.

There was a 120-day public comment period following publication of the proposal in the *Federal Register* in January 2001, and on March 26, 2001, the EPA Administrator authorized an additional 75-day public comment period, through July 30. EPA held nine public hearings to review the proposal in the spring and early summer of 2001. Because of the change in Administrations immediately following release of the proposal, new appointees at EPA undertook a detailed and thorough review of the proposal and public comments on it before releasing final rules in December 2002.

Additional Data Considered. In November 2001, EPA published a *Federal Register* Notice of Data Availability (NODA) in which the Agency described information, data, and material received during the public comment period and subsequently concerning rule-related issues such as cost and economic impact and technology options for managing animal waste.[17] EPA said it was considering changes to certain aspects of the proposed CAFO rules. The Agency did not formally re-propose the rules, but it outlined the types of changes being considered and sought additional public comment on the specific data and issues identified in the Notice. For example, EPA said it was considering alternative definitions of what type of feedlot is a "concentrated" feedlot for certain types of livestock operations (which could result in fewer numbers of facilities being subject to regulation than under the Clinton proposal) and also was considering some alternatives that would give states the flexibility to "opt -out" of the federal regulatory program.

In July 2002, EPA published a second Notice of Data Availability that discussed three additional issues for which the Agency was considering changes to the proposal.[18] The issues were: (1) potential new regulatory thresholds for chicken operations with dry litter management practices that would lower the number of facilities defined as CAFOs; (2) potential alternative performance standards to encourage CAFOs to voluntarily install new wastewater treatment technologies and/or management practices; and (3) discussion of new financial data that EPA was considering to evaluate the economic effects of regulatory options.

Public Response. The Clinton-proposed rules were highly controversial for varied reasons. Livestock and poultry groups, as well as general agriculture advocacy groups, opposed the rules, arguing that they would impose excessive economic burden on farmers and ranchers. They also criticized the proposal for taking a uniform national approach to problems that they asserted were better suited to management by state and local agencies. Environmental groups generally supported the rules (while arguing that parts should be strengthened), based on their concern that excessive nutrients and other contaminants in animal waste are polluting

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[17] 66 *Federal Register* 58556, Nov. 21, 2001.

[18] 67 *Federal Register* 48099, July 23, 2002.

waterways and groundwater. While lengthy agency review of public comments on a regulatory proposal is not unusual, many in these groups feared that EPA was planning to weaken the Clinton proposal, based on discussion in the first and second NODAs. States were divided on the rules: some favored a uniform national approach to regulating animal waste pollution from the livestock industry based on strengthened EPA rules, while many favored greater state flexibility. States were concerned about diverting resources to CAFO permitting and thus undermining other water quality programs. Congress expressed some interest in the revised rules: in May 2001, a House Transportation and Infrastructure subcommittee held an oversight hearing on the proposed rules. The hearing focused on impacts and costs of the proposal on animal agriculture producers, especially small producers.

The Final Revised CAFO Rules

After nearly two years' review of the Clinton Administration proposal, EPA issued final revised CAFO regulations on December 11, 2002. The new rules were published in the *Federal Register* on February 12, 2003, with an effective date of April 14, 2003.[19] The regulations include a number of elements of the proposal and a number of modifications, with retention of much of the regulatory structure in the existing rules. Highlights include the following:

- **Definition of a CAFO**. The definition of what is a CAFO remains the same. Also, the revised rules retain the existing 3-tier structure for defining a CAFO, based on the number of animals housed at the facility. The rules retain the size thresholds for most of the regulated categories.[20] As was proposed, the final rules eliminate use of the term "animal unit" equivalents for each animal sector and replace it with the less confusing concept of numbers of animals in each sector.

- **Duty to apply**. The revised rules adopt an explicit duty for all CAFOs to apply for an NPDES permit, as EPA had proposed Thus, the rules remove a permitting exemption in the previous rules that had allowed facilities which meet the definition of a CAFO, but claim to only discharge in the event of a large storm, to avoid applying for permits. However, a permit exemption can be claimed by a facility that can certify that it has no potential to discharge waste into waters of the United States.

- **Poultry**. As noted above, the previous rules only applied to poultry operations that have a continuous overflow watering or liquid

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[19] U.S. Environmental Protection Agency. "National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs); Final Rule." 68 *Federal Register* 7175-7274, Feb. 12, 2003.

[20] The threshold for duck operations with dry manure-handling systems was changed from 5,000 to 30,000 animals for large operations, thus reducing the number of regulated operations from 157 under the previous rules to 25 under the final rules.

manure handling system. The final rules include revisions, as proposed, to clarify applicability of the regulations to all types of poultry operations, regardless of the type of manure handling system. The inclusion of all poultry operations, regardless of manure handling system, brings in all large broiler and dry layer feeding operations and adds an estimated 2,198 operations to the number of regulated facilities.

- **Immature animals**. The final rules also regulate facilities that confine stand-alone immature animals (swine and heifers), which previously were not covered separately. As a result, 488 of these operations are now subject to regulation.

- **Operations required to apply for a permit**. EPA estimated that under the previous rules, 12,813 animal feeding operations were subject to regulation and should have had NPDES permits. The total includes 8,438 large facilities (more than 1,000 animals) and 4,375 medium facilities (300 to 999 facilities) which either are defined as CAFOs by size or discharge characteristics, or have been designated as CAFOs by permitting authorities. By adding all poultry operations and stand-alone, immature animal operations, the final rules are estimated to cover an additional 2,554 operations (15,437 facilities in total, consisting of 10,754 large and 4,613 medium operations).[21] The total is 34% of all large and medium animal feeding operations and about 19% of operations of all size in the United States, based on USDA's 1997 Census of Agriculture.

- **Required performance standard**. Also as described above, the previous rules prohibited discharges from a CAFO except in the event of wastewater or manure overflows or runoff from a 25-year, 24-hour rainfall event. The proposed and final rules retain this design criterion without change. However, under the final rules, new sources in the swine, poultry, and veal categories must meet a more stringent design standard: storage structures must be designed and maintained to contain the runoff from a 100-year, 24-hour storm event. The final rules include a provision that was not in the proposal allowing existing CAFOs to request permit limits based on site-specific alternative technologies established by the permitting authority, to encourage innovative technologies, according to EPA. Under the new rules, alternative technology limits are required to provide pollutant control equal to or better than under the baseline rules.

- **Best Management Practices**. The revised rules include Best Management Practices (BMPs) for land application and animal

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[21] U.S. Environmental Protection Agency. "Development Document for the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations." December 2002. Pp. 9-3 to 9-15.

production areas. BMPs are measures or methods that have been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources. The requirements for land application areas are to ensure the proper application of manure, litter, and other process wastes to land that the CAFO controls. They include measures such as specified setbacks from streams, vegetated buffers, and determination of application rates, to minimize the transport of phosphorus and nitrogen from the field to surface waters, in accordance with technical standards of the permitting authority. BMPs for animal production areas also are specified, including daily and weekly inspections, maintenance of depth markers in lagoons and other impoundments to determine the design capacity, and on-site recordkeeping.

- **Nutrient management plans**. As part of the land application requirements, the final rules require a CAFO operator to develop a plan for managing the nutrient content of animal manure and process wastewater. The previous rules had no such requirement. The plan must be maintained on-site and available on request to EPA or the state, but it is not considered part of the facility's permit. Under this plan, manure is to be analyzed annually for nitrogen and phosphorus content, and land application areas are to be analyzed every five years for phosphorus content, to evaluate nutrient build-up in excess of amounts that crops can utilize.

- **Compliance schedule**. The final rules establish time frames for compliance. Operations defined as CAFOs under the previous rules are expected to already have applied for permits and, presumably, are in violation of the rules if they have not done so. Operations newly defined as CAFOs under the revised rules, such as dry litter poultry operations, must apply for permits by April 13, 2006. A new source must seek permit coverage 180 days prior to the date it commences operation. CAFOs that are existing sources are required to develop and implement nutrient management plans and other land application requirements by December 31, 2006. That date is based on EPA's belief that, by then, there will be sufficient technical experts available to develop and implement nutrient management plans. The land application and nutrient management plan requirements apply immediately to new sources. States with existing NPDES permitting programs must adopt state rule revisions to reflect the federal rules within one year. States which must amend or enact a statute to conform with the rules must make needed rule changes within two years (by April 13, 2005).

- **Proposed provisions not in the final rules**. Finally, the final rules omit several provisions of the proposal. In addition to not adopting reduced thresholds for defining a CAFO, EPA decided not to include requirements for co-permitting of entities that exercise "substantial operational control" over the CAFO, require zero discharge to groundwater beneath the CAFO production area where there is a

direct hydrologic connection to surface water, or require that permit nutrient plans be developed by a certified expert and be re-certified every 5 years.

Environmental and Economic Benefits of the Rules. A number of environmental and human health benefits are expected to result from requirements of the final rules, according to EPA. These include recreational and non-use benefits from improved water quality in freshwater rivers, streams, and lakes; reduced fish kills; reduced nitrate and pathogen contamination of sources of drinking water; reduced public water treatment costs; and reduced livestock mortality from contamination of livestock drinking water.

EPA quantified the pollutant reductions associated with the final rules. It estimated that nutrient loadings (nitrogen and phosphorus) will be reduced by 23% (166 million pounds per year), sediment loadings by 6% (2.2 billion pounds), and metals discharges by 5% (one million pounds), compared with pre-regulation baseline pollutant loadings.[22] In contrast, the proposed rules estimated pollutant reductions of 179 to 187 million pounds of nutrients, 75 to 77 billion pounds of sediment, and 42 to 44 million pounds of metals (depending on which regulatory option was finalized).[23]

EPA also estimated that the environmental benefits of the final rules, such as improved surface water quality and reduced water treatment costs, will result in annual estimated economic benefits ranging from $204 to $355 million (2001 dollars).[24] Annual benefits of the proposed rules were estimated to be $146 to $163 million (1999 dollars).

Economic Costs of the Rules. The proposed and final rules also present EPA's estimates of the costs of revised regulation. EPA estimated that the total incremental compliance costs for CAFOs is $326 million annually (pre-tax, 2001 dollars), consisting of $283 million for large CAFOs, $39 million for medium CAFOs, and $4 million for facilities that are designated as CAFOs. Federal and state permitting authorities are projected to incur $9 million per year in costs to implement the rules. Estimated annual incremental costs of the proposed rules were $831-$930 million for CAFO operators, plus $6-8 million for permitting authorities (1999 dollars).

EPA also evaluated financial effects in terms of the number of operations that will experience affordable, moderate, or stress impact because of the rules. Overall, EPA concluded that the rules are economically achievable. For the veal, dairy, turkey, and egg laying sectors, no facility closures are projected. In the beef cattle, heifer, hog, and broiler sectors, EPA's analysis showed that some existing facilities

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[22] 68 *Federal Register* 7239, Table 7.2, Feb. 12, 2003.

[23] 66 *Federal Register* 3116, Jan. 12, 2001.

[24] U.S. Environmental Protection Agency. "Environmental and Economic Benefit Analysis of Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations." December 2002. Pp. 11-3 - 11-4.

will experience financial stress. An estimated 285 facilities, or 3% of all large CAFOs, might be vulnerable to closure, according to EPA (3% of affected beef CAFOs, 9% of heifer operations, 5% of hog operations, and 1% of broiler operations).[25]

EPA estimated that about 6,200 facilities affected by the rules are small businesses, which the Small Business Administration defines in terms of average annual receipts (or gross revenue), accounting for 40% of all affected facilities. Among large CAFOs, about 2,330 operations are small businesses; most are in the broiler sector. Among medium CAFOs, about 3,870 operations are small businesses (accounting for the majority of operations in this size category), and most are in the hog, dairy, and broiler sectors. EPA's analysis further estimated that about 262 of these operations (4% of all affected small business CAFOs) are vulnerable to closure as a result of the new requirements. They are predominantly beef cattle operations.[26]

Comparing the Proposed and Final Rules. One obvious difference between the proposed and final rules is retention of the previous definition and numerical categorization of regulated facilities. Commenting on the proposal's options for either a 2-tier structure or a modified 3-tier structure, EPA said that it agreed with commenters, including many states, that changing to a 2-tier structure would be very disruptive to ongoing programs. EPA also said that it did not adopt the proposed new set of conditions for determining when a facility in the middle of the 3-tier structure (300 to 999 animals) is a CAFO because doing so would not necessarily have improved the clarity or effectiveness of the rules, as intended, but would have caused substantial permitting burdens and imposed costs on essentially all operations above 300 animals.[27]

The previous discussion concerning costs and benefits of the revised rules partially illustrates difficulties in comparing impacts of the proposed and final rules. Some differences in EPA's discussions of the two are notable, but they do not necessarily affect outcomes. For example, the 2000 proposed rules stated that of the 12,700 medium and large CAFOs that should have been subject to permits under the previous rules, but that permits had been issued for approximately 2,270 facilities. In the final rules, while continuing to acknowledge that few operations have permits, EPA states that the number of permitted facilities is 4,100.[28]

The Notice accompanying the final rules states, "As a result of today's action, EPA is regulating close to 60 percent of all manure generated by operations that

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[25] 68 *Federal Register* 7245-46, Feb. 12, 2003.

[26] 68 *Federal Register* 7246-47, Feb. 12, 2003.

[27] Id., 7189-7190.

[28] Compare 66 *Federal Register* 2969, Jan. 12, 2001, with U.S. Environmental Protection Agency, "Development Document for the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations," December 2002, at p. 9-12.

confine animals."[29] However, the proposed rules stated that an estimated 49% of total manure would be controlled by retaining a CAFO definition threshold of 1,000 animals (as adopted in the final rules) and would increase to 64% to 72% under the regulatory options that EPA co-proposed in December 2000 which would have adopted a definition with a lower threshold.[30] The differences in estimated pollutant reductions and amounts of manure controlled under the proposed and final rules are not fully explained. Concerning amounts of manure controlled, part of the difference between the two could be explained by the final rules' inclusion of more poultry operations and stand-alone, immature animal operations than under the previous rules — except for the fact that the proposed rules also included these additional operations.

In comparing impacts of the revised requirements to a baseline, neither the proposed nor the final rules is precisely clear what the baseline is. Consequently, evaluating impacts of changes is difficult. The baseline could be assuming full compliance and control of pollutant runoff from feedlots by the 12,700 operations covered by the previous rules. Alternatively, the baseline could be the partial compliance, and corresponding current water discharges, resulting from that fact that 30% or less of covered facilities are actually operating under NPDES permits. If the baseline assumes complete current compliance (which is not occurring, in fact), then the incremental pollutant reduction improvements of the revised regulatory requirements would be less than if the baseline assumes partial compliance by currently regulated facilities. There is some indication that, for estimating environmental improvements, the baseline of the proposed rules was current partial compliance with previous rules,[31] while in the final rules, the baseline is assumed to be complete compliance with the existing rules. That might explain the large estimated differences in pollutant reduction between the two; see, for example, the above discussion about estimates of reduced sediment loadings and metals discharges.[32]

These differences are not satisfactorily explained or addressed in the final rules, but they are significant for evaluating the regulation. In response to inquiries about these issues, an EPA official indicated that, during review of the rules, the Agency completed more extensive modeling of previously available data to assess impacts, including disaggregation for better geographic treatment to address differences in

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[29] 68 *Federal Register* 7180, Feb. 12, 2003.

[30] 66 *Federal Register* 2986, Jan. 12, 2001.

[31] However, in the proposed rules, EPA stated that, for purposes of estimating compliance costs, it assumed that all CAFOs subject to revised regulations are currently in compliance with the existing regulatory program, even though it recognized, as a practical matter, that this is not true. EPA did not estimate the additional costs of complying with existing requirements, because it did not consider those costs part of the incremental costs of revised rules. 66 *Federal Register* 3080, Jan. 12, 2001.

[32] US. Environmental Protection Agency. "Environmental and Economic Analysis of Proposed Revisions to the NPDES Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations." January 2001. p. 4-18.

climate, soil type, and conservation practices, and that the improved analysis contributed to the apparent differences between the proposal and final rules.[33]

Reactions to the Final Rules

The final rules are generally viewed as less stringent than the December 2000 proposal, a fact that strongly influences how interest groups have responded to them. Agriculture industry groups[34] have indicated that they believe the final rules are workable, and they are generally pleased that some of the proposed requirements were scaled back, including reduced definition thresholds and co-permitting of corporate owners of livestock as well as of farmers who actually raise the animals. However, some continue to question EPA's authority to issue portions of the rules. Many states, too, had been seeking more flexible approaches than EPA originally proposed and, thus, welcomed the fact that the final rules retain the status quo to a large extent. Impacts on states will vary, depending on the changes in existing state programs needed to comply with the new requirements, however. Both industry and states are greatly concerned about adequacy of resources to implement the requirements. Environmentalists contend that the rules rely too heavily on voluntary measures to control runoff, instead of mandating strict compliance with national standards, and fail to require improved technology. In the weeks immediately after publication of the rules, environmental groups and several agriculture industry groups filed lawsuits challenging the rules in a number of different federal courts.

Technology Requirements. Environmental groups criticize EPA for omitting a provision in the proposal that would have required zero discharge from the CAFO's production area to ground water that has a direct hydrologic connection to surface water. A hydrologic connection refers to the interflow and exchange between surface impoundments such as lagoons and surface water through an underground corridor or ground water. The proposal would have required CAFOs to determine whether such a direct hydrologic connection exists and, if so, to monitor ground water up gradient and down gradient to ensure that zero discharge to ground water is achieved. The proposal also would have adopted a stringent zero discharge standard for regulated swine, veal, and poultry CAFOs, with no exception for chronic storm overflows. This issue was a key concern to environmentalists who point out that rural areas, where most CAFOs are located, often rely on ground water for

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[33] Telephone conversation, Paul Shriner, U.S. EPA, Office of Water, Office of Science and Technology, March 3, 2003.

[34] On most issues affecting agriculture, there often is a subset of interests most affected and likely to express views on legislation, regulations, etc. Their views may differ or coalesce on a given issue. The CAFO rules discussed here were of considerable interest to groups representing livestock and poultry producers, such as the National Chicken Council, Port Producers Council, and National Cattlemen's Beef Association, as well as groups that represent agriculture as a whole, such as the Farm Bureau. In EPA's discussion of the rules (e.g., the *Federal Register* Notice accompanying the final rules), when referring to "industry," it did not distinguish among these groups, nor does this CRS report. It appears that, at least in EPA's judgment, these groups generally reflected similar interests and concerns on the CAFO rule issues. Other agriculture industry groups, representing interests of cropland producers, for example, had limited involvement in these rules.

drinking water supplies. In addition, they criticized the final rules for omitting proposed special requirements that would have restricted land application of wastes to frozen, snow-covered, or saturated soil. In the final rules, EPA explained that the proposals were rejected because pollutant discharges to surface water via ground water or as a result of application to frozen or saturated soil are highly dependent on site-specific variables, such as climate, distance to surface water, etc. Thus, a national technology-based standard is inappropriate, according to EPA.

Further, environmentalists assert that the final rules fail to require performance standards consistent with the best available technology. The rules perpetuate that status quo, they say, because they do not require phaseout of the use of lagoons. Many environmental advocates believe that lagoons are outmoded technology that can pollute both surface and ground water as a result of weather events, human error, and system failures and, thus, are an unacceptable risk to public health and the environment. Likewise, advocates believe that sprayfields, where waste is sprayed onto crops or pastureland, pose significant risks, and many support the position that manure waste which is land applied should be injected or incorporated into the soil.

Industry groups, on the other hand, disputed environmentalists' belief that stringent national standards requiring zero discharge would encourage development of new technologies. In industry's view, the previous rules' zero discharge standard (even with the allowance for chronic storm event discharges) had virtually ensured the use of lagoons and holding ponds to store CAFO wastewater on site. Industry urged EPA to adopt final rules that would encourage alternative technologies. They argued that CAFOs — like other point sources regulated under the Clean Water Act — should be allowed to treat wastes to an established level of quality that does not impair lakes or streams and to release treated wastes to the environment. The final rules appear to respond to industry's concern in this area: while retaining the previous rules' nominal zero discharge standard, they also allow a CAFO to request a permit based on site-specific alternative technologies established by the permitting authority that are equivalent to the baseline standard or better. EPA believes that this flexibility will encourage innovative technologies, but environmentalists believe that allowing CAFOs to "treat and release" animal waste is weaker than the previous rules and effectively allows alternative technologies to have a discharge that may harm the environment.

Air Emissions. Environmentalists also are disappointed that the final rules do not address or restrict emissions of air pollutants. AFOs can emit various pollutants, including ammonia, hydrogen sulfide, methane, volatile organic compounds, and particulate matter. Environmental impacts can vary, depending on the design and operation of the facility. Scientists generally believe that emissions present a number of issues of environmental concern but not a large public health problem, although more research on public health impacts is required. Some air emissions are important on a local scale (hydrogen sulfide, odor), and others are significant nationally or globally (ammonia, which can be redeposited to earth and contribute to water quality degradation, and the greenhouse gas methane). Industry groups point out that water pollution control technologies, which are the subject of the CAFO rules, do not address air emissions and that proven air abatement technologies are needed before adopting regulations.

A 2002 National Research Council report recommends developing improved approaches to estimating and measuring emissions of key air pollutants from AFOs and initiating long-term coordinated research by EPA and USDA with the goal of eliminating release of undesirable air emissions. Nitrogen emissions from production areas are substantial, the report found, and control strategies aimed at decreasing emissions should be designed and implemented now. For example, implementation of feasible management practices, such as incorporating manure into soil, that are designed to decrease emissions should not be delayed while research on mitigation technologies proceeds.[35] In the Notice accompanying the final rules, EPA estimated that the rules will not significantly alter ammonia emissions from CAFOs but will reduce hydrogen sulfide emissions and methane emissions by 12% and 11%, respectively.[36]

Resources Needed to Implement the Rules. Adequacy of resources to implement the revised regulations is an important issue for the animal agriculture industry and states, and these groups are likely to focus on the need for federal support to meet the new federal requirements. Livestock operators face costs for manure handling requirements, developing and implementing nutrient management plans, and record-keeping. A key federal financial assistance program for producers is the Environmental Quality Incentives Program (EQIP), administered by the Natural Resources Conservation Service of USDA. EQIP provides technical assistance, cost sharing, and incentive payments to assist livestock and crop producers with conservation and environmental improvements using land management and structural practices, such as site-specific nutrient management or animal waste management facilities. In the 2002 farm bill (P.L. 107-171), Congress increased funding for EQIP from $200 million to $1.3 billion per year by FY2007. Spending for this program is mandatory. Sixty percent of the available funding is to be targeted at practices relating to livestock production. EQIP funds can be used to cover 75% of the cost of measures to control manure runoff, and, under the 2002 farm bill amendments, livestock operators of all sizes including large CAFOs are eligible to receive funding. The amendments limit total payments to $450,000 per participating producer (changed from $50,000 per contract) through FY2007.

FY2003 appropriations for this program (in the Consolidated Appropriations Act, 2003, P.L. 108-7) are $695 million. The President's FY2004 budget request seeks to limit FY2004 spending for the basic EQIP program to $850 million, with the remaining $150 million mandated by the 2002 farm bill going to other initiatives authorized in the law. Under the basic EQIP, more than 19,800 participants had contracts affecting more than 8.8 million acres in FY2002; given the higher funding levels under the farm bill, USDA anticipates that during FY2004 there will be 39,000 participants, and that these contracts will affect more than 17 million acres.

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[35] National Research Council, Board on Agriculture and Natural Resources, Board on Environmental Studies and Toxicology. "Air Emissions from Animal Feeding Operations: Current Knowledge, Future Needs, Final Report." December 2002. 241 p.

[36] 68 *Federal Register* 7242, Feb. 12, 2003. The time period for achieving these anticipated reductions is not specified.

USDA, EPA, and federal agencies such as the Small Business Administration (SBA) administer a number of other assistance programs, which EPA summarized in a 2002 report.[37] The SBA, for example, administers a pollution control loan program that can be used by small and large animal feeding operations that are small businesses. Several of the EPA Clean Water Act programs described in the report, such as nonpoint source pollution management grants, can be used by AFOs, but generally not by CAFOs which are regulated as point sources under that Act.

A recent GAO report found that neither states nor EPA is equipped to implement the program, having not made provisions for additional staffing to process permits, conduct required inspections, and take enforcement actions.[38] GAO reported that the changes will create resource and administrative challenges for states, and meeting these new demands will require additional personnel. However, most of the states reviewed by GAO cannot hire additional staff and would have to reassign personnel from other programs. EPA, too, will have to redeploy staff resources. GAO commented in the report on EPA's limited past oversight of state CAFO programs and concluded that the Agency will need to increase its oversight of state regulatory programs to ensure that the new requirements are properly adopted and carried out by states.

For state agencies that implement the NPDES permit program, the principal existing source of financial assistance is grants under Section 106 of the Clean Water Act, which states already use for various activities to develop and carry out water pollution control programs. States currently use Section 106 grants, supplemented by state resources, for standard setting, permitting, planning, enforcement, and related activities. In light of budgetary problems confronting many states, it is unclear how state agencies find the resources needed to carry out their responsibilities under the revised rules without reducing resources for other important activities. FY2003 funding for Section 106 grants is $191 million, and the President's budget request for FY2004 seeks $200.4 million. That increase, if appropriated, would be sufficient to cover EPA's estimate of the costs for states to implement the rules, assuming that the full additional amount were so directed. EPA has not indicated whether it will encourage states to use increased grant funds specifically for CAFO permitting.

Other Industry Views. Fundamentally, agricultural interests emphasize that most farmers are diligent stewards of the environment, since they depend on natural resources of the land, water, and air for their livelihoods and they, too, directly experience adverse impacts on water and air quality, when they do occur. Many believe that environmental problems caused by some individual farmers do not require national solutions or standards, and most are very concerned that regulatory requirements will adversely affect the economic viability of the industry, especially compared with international competitors.

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[37] U.S. Environmental Protection Agency. "Financial Assistance Summaries for AFOs." 2002. Available at: [http://www.epa.gov/npdes/pubs/financial_assistance_summaries.pdf].

[38] U.S. General Accounting Office. "Livestock Agriculture, Increased EPA Oversight Will Improve Environmental Program for Concentrated Animal Feeding Operations." January 2003. GAO-03-285.

While agriculture industry groups reportedly consider the final rules workable (especially with increased resources provided by the 2002 farm bill), it is also clear that many object to some basic elements of the regulations that were not eliminated or were changed little from the December 2000 proposal. These concerns were reflected in comments on the proposed rules. For example, livestock and general agriculture groups question EPA's basic authority to impose a number of the rules' requirements. These groups generally opposed eliminating the previous permitting exemption for facilities that discharge only in a large storm event, saying that such operations should not be covered by permits.

Industry also opposed imposing on CAFOs a duty to apply for permits and questioned EPA's legal authority for requiring permits from CAFOs that claim not to discharge pollutants, since in their view the Clean Water Act only requires permits for actual discharges. Some questioned EPA's finding that many CAFOs are discharging without a permit (which EPA had cited as a key reason for revising the regulations) and said that voluntary programs are working adequately to address the excess manure issue. Some objected to putting the burden on the CAFO to show that it does not discharge into waterways and argued that the CAFO should not be required to apply for a permit in the absence of evidence of an actual discharge.

Some industry commenters also believe that EPA lacks authority to include permit requirements governing land application of manure and process wastewater, because in their view runoff from land application areas is a nonpoint source discharge that is not subject to Clean Water Act permitting. EPA's view is that land application areas are integral to CAFO operations, and, because there have been significant discharges from them, non-regulatory controls alone are insufficient.

Other Views of Environmental Groups.[39] Environmental groups were critical of several other provisions in the proposal that were omitted from the final rules. Chief among these was EPA's decision not to require co-permitting of both the farmer who raises the livestock and the large companies that actually own the animals and contract with farmers. This was one of the most controversial parts of the proposed rules. Environmental advocates believe that co-permitting makes large corporations responsible for wastes produced on the farms with which they contract, while the agriculture industry said it would make corporations liable for waste management decisions over which they have no practical control. A few states (e.g., Maryland) have adopted co-permitting requirements in their state NPDES programs, but these requirements are very controversial.

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[39] Within agriculture, there are some groups that reflect many interests similar to those of environmental groups, such as the Sustainable Agriculture Coalition, which promotes policies based on economically profitable, environmentally sound, family-farm based systems of agriculture and livestock production methods at small and mid-size operations that do not use animal confinement. Concerning CAFO issues, sustainable agriculture groups favored strategies based on nationally uniform standards, alternatives to large CAFO production, public accountability in issuance of CAFO permits, and legal liability for corporate owners of confined animals.

Environmental groups also had strongly favored lowering the threshold for defining when an AFO is a CAFO, which would ensure that more operations are subject to uniform controls and enforcement.

These groups criticize changes in the final rules that they believe will limit public involvement and oversight. In particular, they say that, by not requiring that nutrient management plans be publicly developed and available, the public will not have adequate access to the plans. Many environmental advocates favored including nutrient management plans in a CAFO permit, which would make the plans an enforceable element of the permit. Agriculture industry groups argued that the plan would contain proprietary information and that making it publicly available would both discourage innovation in developing waste management technologies and could make CAFOs vulnerable to lawsuits. EPA pointed out that the final rules require CAFOs to submit annual nutrient management reports that will be public and will provide information on numbers of animals, amounts of manure generated, and how the manure is being handled. Advocates also say that, by not requiring that nutrient management plans be developed by a certified expert or be approved by the permitting authority, as had been proposed, the revised rules essentially allow farmers to write their own requirements without technical or permitting authority involvement.

Issues for Congress

Implementation of the revised CAFO rules will present large challenges for those who are directly affected by the regulations — the animal agriculture industry, states, and EPA — as well as interested members of the public. Likewise, several issues of congressional interest are apparent.

- **Adequacy of funding**. Requests for funding assistance to help affected groups comply with the rules are expected to increase — especially by feedlot operators seeking EQIP funds. However, even at the higher EQIP contract limit provided by the 2002 farm bill ($450,000 per farmer, compared with $50,000 under prior law), the ceiling may effectively diminish some farmers' interest in the program. In addition, both states and EPA are likely to face difficulties in meeting new program and permitting responsibilities within current budgetary constraints. At issue is whether adequate resources will be provided and funding priority given as needed.

- **Research needs**. A large number of treatment technologies and best management practices exist for pollution prevention at animal feeding operations, as well as for handling, storage, treatment, and land application of wastes.[40] EPA believes, however, that storage lagoons and sprayfields have been and remain the most widely used

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[40] Technologies are discussed extensively in: U.S. Environmental Protection Agency. "Development Document for the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations." December 2002. Chapter 8.

technologies. Research to encourage new technologies and demonstration of technologies and practices that may pose less environmental risk could be environmentally and economically beneficial. In this regard, researchers may be interested in a program established by the 2002 farm bill that authorizes USDA to provide innovation grants to leverage federal investment in environmental protection through the use of EQIP, including demonstrating innovative nutrient management technology systems for AFOs. In addition, the National Research Council's recent report on air emissions from AFOs recommends that EPA and USDA aggressively pursue research in that area and identifies priorities for short- and long-term research programs.

- **Oversight of implementation**. As noted previously, GAO has been critical of EPA's past oversight of state CAFO permitting activities, and EPA has acknowledged that neither federal nor state agencies have previously given much priority to regulating feedlot wastes. At issue now will be how EPA and states demonstrate through planning and actions their commitment to implement the new requirements. USDA's commitment to supporting farmers' implementation of the rules also will be of interest.

- **Is federal legislation needed?** There also is the issue of whether the revised regulatory program soon to be implemented reflects Congress' intent and expectations concerning management of animal waste and its environmental impacts. Some questions of congressional intent will undoubtedly be raised in current litigation brought by agriculture industry and environmental groups to challenge the rules, such as, did Congress intend to authorize EPA to regulate land application of wastes? At the same time, some may conclude that legislation amending the Clean Water Act is needed to guide EPA, states, and industry by clarifying Congress' current view of key issues, compared with that Act's enactment in 1972 — considering, for example, whether the scope of requirements should be narrowed. Alternatively, some who see gaps in parts of the final rules may favor legislation to broaden requirements — for example, concerning co-permitting or technology standards. Finally, some may believe that another legislative vehicle entirely — such as the farm bill administered by USDA — is a more appropriate tool for addressing animal waste management issues.