Feedlots: Rural America's Sewer

by

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FEEDLOTS—RURAL AMERICA'S SEWER

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Over one billion tons of animal waste is produced each year in the United States by animal feedlot operations (AFOs). In 1995 alone, 63.5 million gallons of manure spilled from AFOs. Manure spills poison rivers, lakes, and ponds, seep into groundwater, causing fishkills, human disease, and death. The United States Environmental Protection Agency, reports that AFOs are a primary factor in the impairment of forty percent of the nation's waterways. Despite these conditions, there are no federal standards for the storage, application, or management of animal waste. This Comment evaluates the existing regulation of AFOs under the Clean Water Act and proposes that new regulations and stricter enforcement of the current NPDES program are necessary to protect public and environmental health from manure contamination.

"Old MacDonald is dead and gone."[1]

I. Introduction

In 1995, animal feedlots in North Carolina discharged 63.5 million gallons of animal manure into rivers, lakes, and ponds,[2] killing well over ten million fish.[3] Recorded fish kills from manure spills in Iowa, Minnesota, and Missouri increased from 55,000 fish to more than 670,000 fish between 1992 and 1996.[4] Fish kills of this magnitude have tremendous potential to upset the balance of natural ecosystems and impact biodiversity.[5]

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1 Ken Silverstein, *Meat Factories*, Sierra, Jan.-Feb. 1999, at 1 (visited Apr. 1, 1999) <http://www.sierraclub.org/sierra/199901/cafo.html>.

2 U.S. Envtl. Protection Agency, Environmental Impacts of Animal Feeding Operations, app. B at 11-12 (1998).

3 Minority Staff of Senate Comm. on Agric., Nutrition, & Forestry, 104th Cong., Animal Waste Pollution in America: An Emerging National Problem 2 (Dec. 1997). In 1995, a thirty-five million gallon spill, in North Carolina alone, killed ten million fish. *Id.*

4 *Id.* at 5.

5 U.S. Envtl. Protection Agency, *supra* note 2, at 1.

In 1997, the estimated United States animal manure production was 1.37 billion tons. [6] Manure contains oxygen-demanding substances, ammonia, nutrients (nitrogen and phosphorus), solids, odorous compounds, and pathogens.[7] Increased oxygen demand and ammonia result in fishkills.[8] Drinking water with a high level of nitrates can be potentially fatal to infants, causing blue baby syndrome.[9] Excess nutrients also lead to eutrophication,[10] which is a factor in the growth of toxic algae blooms such as *Pfiesteria piscicida*.[11] The effects of human exposure to *Pfiesteria* include memory loss, respiratory problems and skin rashes.[12] In 1991, the Neuse River in North Carolina had a fishkill of over one billion fish linked to *Pfiesteria* blooms.[13] Further, manure contains pathogens (disease causing organisms) which can cause illness leading to death in humans and animals, especially infants and those with compromised immune systems. Some of the pathogens contained in manure are *Escherichia coli* (*E. coli*), *Salmonella* and *Cryptosporidium*.[14] According to the United States Environmental Protection Agency (EPA), in 1993, *Cryptosporidium* infected 400,000 residents in Milwaukee. The incident resulted in more than one hundred deaths of people with compromised immune systems.[15]

Seventy-five percent of the earth's surface is water; however, less than one percent is fresh water available for human use.[16] Fifty-one percent of the nation's population obtain their drinking water from

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[6] MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3. The manure production number is based on 1997 data compiled for Senator Harkin with assistance from the U.S. Dep't of Agric. Economic Research Service (Noel Gollehon). Telephone Interview with Noel Gollehon, USDA, Economic Research Service (ERS) (April 2, 1999).

[7] U.S. ENVTL. PROTECTION AGENCY, *supra* note 2, at 1. Manure is also a source of antibiotics, pesticides, hormones, salts and trace metals. *Id.*

[8] *Id.*

[9] *Id.* at 42.

[10] Eutrophication is the process in which a water body becomes rich in dissolved nutrients and deficient in dissolved oxygen. WEBSTERS NEW COLLEGIATE DICTIONARY 391 (8th ed. 1981).

[11] U.S. ENVTL. PROTECTION AGENCY, *supra* note 2, at 1.

[12] MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 10.

[13] Sharon Guynup, *Cell from Hell*, 84 SIERRA 34, 34 (1999), *available in* 1999 WL 3590338.

[14] *See* U.S. ENVTL. PROTECTION AGENCY, *supra* note 2, at 17 tbl. 2-1. For a more complete list of the pathogens contained in manure along with human health effects, see MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 6. Despite the serious human health risks of improper manure disposal, this article focuses on the effects of manure on water resources and the aquatic life contained therein.

[15] David Letson & Noel Gollehon, *Confined Animal Production and the Manure Problem*, CHOICES, at 1 (3rd Qtr. 1996).

[16] U.S. ENVTL. PROTECTION AGENCY, NATIONAL WATER QUALITY INVENTORY—1996 REPORT TO CONGRESS 98-99 (1998).

groundwater.[17] In rural areas, this figure is much higher, as ninety-five percent of that population rely on groundwater for their water uses.[18] EPA reported in the *National Water Quality Inventory 1996 Report to Congress* that agriculture was the primary cause of water quality impairment to the nation's rivers and lakes.[19] In addition, EPA stated that agriculture was one of the main contributors to groundwater pollution.[20] Twelve states reported that waste from feedlots was included among their top ten contaminant sources to ground water.[21] Agricultural waste impairs approximately 173,629 river miles, twenty-five percent of the river miles surveyed;[22] 3,185,000 lake acres, forty-nine percent of the lake acres surveyed;[23] and 2976 estuary square miles, twenty-seven percent of the estuary square miles surveyed.[24] Feedlot waste alone impairs at least 13,890 river miles.[25] Impairment indicates that the water's aquatic life has been degraded and that pollution has interfered with public use.[26]

Despite these facts, there are no federal standards for the storage, application, or management of animal waste.[27] Additionally, the Clean Water Act (CWA) remains an ineffective means of enforcement against manure discharges.[28] Part II of this comment examines the consolidation of family farms into animal feeding operations (AFOs). This section also reports on national manure production and explains its impact on water quality. Part III describes the regulation of AFOs under the CWA.[29] Part IV examines policy and regulatory reform. Part V discusses data deficiencies that impact the regulation of AFOs under the CWA. Part VI provides a brief summary of the impacts of the beef

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[17] *Id.*

[18] *Id.* at 99.

[19] *Id.* at ES-13.

[20] U.S. GEN. ACCOUNTING OFFICE, BRIEFING REPORT TO THE U.S. SEN. COMM. ON AGRIC., NUTRITION, & FORESTRY, ANIMAL AGRICULTURE: INFORMATION ON WASTE MANAGEMENT AND WATER QUALITY ISSUES 9 (1995).

[21] U.S. ENVTL. PROTECTION AGENCY, *supra* note 16, at 110 fig. 6-6.

[22] *Id.* at ES-15.

[23] *Id.* at 51. The category of lake acres includes reservoirs and ponds. *Id.*

[24] *Id.* at 63. The data for the National Water Quality Inventory is provided to EPA by all 50 states, American Indian Tribes, Territories, Interstate Water Commissions, and the District of Colombia. *Id.* at ES-2. It would require tremendous resources to survey every lake, river, stream and estuary in the United States; thus, a survey is taken. *Id.* at ES-7. The percentage of total water resources surveyed are as follows: 19% of all river and stream miles (693,905 miles), 40% of all lakes, ponds and reservoirs (16,819,769 acres), 72% of all estuaries (28,819 miles (excluding Alaska)). *Id.* at ES-7. Animal agriculture waste is primarily manure, but can also include "urine, animal carcasses, bedding, poultry litter, and wastewater." U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 1 n. 1.

[25] *Id.* at 37. Estuaries are the coastal waters where the rivers meet the oceans, great lakes, and the Gulf of Mexico. *Id.* at 57.

[26] *Id.* at ES-6.

[27] *See* MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 25.

[28] 33 U.S.C. §§ 1251-1387 (1994).

[29] *Id.* § 1342.

industry on environmental resources other than water. Finally, Part VII concludes that either new legislation or stricter enforcement of the CWA's National Pollutant Discharge Elimination System (NPDES) program is needed to control the animal waste problem currently facing the United States.

II. Consolidation of Family Farms

Historically, livestock producers were viewed as useful components of communities. These family farms, which members of the community operated, provided jobs and food, and served to boost the local economy. However, due to economic pressures, the number of family farms has dwindled, leading to a consolidation of animal production into animal feeding operations.[30] An AFO confines live animals, dead animals, feed, manure, urine, and production operations in a small area.[31] A typical AFO may contain thousands of animals. The animals are fed while they are confined and do not graze in pastures or rangeland.[32] Large corporations generally own these megafarms.[33] This method of corporate farming has made owners such as Frank Perdue and Don Tyson extremely wealthy.[34] Meanwhile, according to the

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[30] Office of Wastewater Management, *U.S. Department of Agriculture and U.S. Environmental Protection Agency Unified National Strategy for Animal Feeding Operations March 9,1999* (visited Oct. 1, 1999) <http://www.epa.gov/owm/finafost.htm>. While the "final" Unified National Strategy was issued on March 9, 1999, changes were made to the website document on May 12, 1999. *See* Drew L. Kershen & Patricia E. Dougherty, Council for Agricultural Science and Technology (CAST), *A Report on the ABA-Special Committee on Agricultural Management Roundtable on Environmental Issues in Animal Feedlots* (visited on Mar. 27, 1999) <http://www.cast-science.org/9/11aba2.htlm>. Utilization of large concentrated animal feeding operations has increased since the 1970s in all livestock sectors. *See* U.S. Gen. Accounting Office, *supra* note 20, at 2. For example, use of hog inventories held in AFOs has increased from 40% in 1978 to 77% in 1994. *Id.* Cattle sales from AFOs containing more than 1000 head increased from 62% in 1974 to 78% in 1992. *Id.* at 33. While the total number of operations in the cattle sector decreased by 2%, this negligible decrease does not effect the need for change in the expanding environmentally destructive feedlot industry. *Id.* In the dairy cow sector, inventory in the largest category of AFOs (100 or more cows) increased from 30% in 1978 to 52% in 1994. *Id.* at 37.

[31] Office of Wastewater Management, *supra* note 30, at 4.

[32] *Id.* at 4-5. *See also* Silverstein, *supra* note 1, at 2. See the following websites for information on the ethical treatment of farm animals, as well as additional information on the environmental impact of AFOs: *Factory Farming*, (last modified Sept. 2, 1999) <http://www.factoryfarming.com>; *Factory Farm Project: Factory Farming Introduction* (visited Apr. 4, 2000) <http://www.factoryfarm.com>; *U.S. Environmental Protection Agency (EPA) Homepage*, (last modified Feb. 1, 2000) <http://www.epa.gov/>; Council for Agriculture Science and Technology (CAST), *The Science Source for Food, Agricultural, and Environmental Issues* (last modified Jan. 12, 2000) <http://www.cast-science.org>.

[33] Silverstein, *supra* note 1, at 2-3. The vertically integrated farm was pioneered by Frank Perdue. *Id.* Perdue controls every phase of the operation from producing feed, to slaughtering and packaging the birds. *Id.* Vertical integration wiped out approximately one million small chicken farmers across the nation. *Id.*

[34] *Id.* at 2.

United States Department of Labor, poultry workers perform one of the most dangerous jobs in the nation, under grim working conditions.[35] Besides exploiting their workers and animals, these corporations are running family farmers out of business, creating a situation where "Old MacDonald is dead and gone."[36] What has arrived in their place are large corporate farms that confine thousands and often millions of farm animals in small land areas known as AFOs.[37]

A. The Number of Animal Feeding Operations

The United States Department of Agriculture (USDA) 1992 Census reported approximately 511,192 confined livestock operations across the nation.[38] According to a USDA Economic Research Service (ERS) analysis, 6600 of the 511,192 total operations confined more than 1000 Animal Unit (AU) equivalents.[39] Between 1987 and 1992, the total number of AUs increased by 4.5 million.[40] However, during that same period, the number of AFOs decreased.[41] Between 1978 and 1994, the number of large AFOs in the dairy sector increased by thirty-five percent while the total number of operations decreased by sixty percent.[42] This last statistic is a dramatic illustration of the major consolidation which swept the agriculture industry, whereby millions of animals were grouped and confined on small areas of land.[43]

There are approximately 6600 concentrated animal feeding operations (CAFOs) that would fall under regulation of the CWA based upon

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[35] *Id.* at 4. Poultry workers are only paid $8.60 an hour to work in unacceptable conditions. *Id.*

[36] *Id.* at 1.

[37] MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 3.

[38] U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 61 n.4. The number of total operations was quoted to be 450,000. *Id.* However, the number was updated and published in Letson & Gollehon, *supra* note 15, at tbl. 1.

[39] U.S. GEN. ACCOUNTING OFFICE, supra note 20, at 61. Animal unit equivalents under the CWA are calculated according to estimated manure production for each species. *Id.* at 2 n.5. One thousand animal units is defined in each sector as follows: 1000 slaughter and feeder cattle; 30,000 broilers or layers (liquid manure system); 700 mature dairy cattle; 2500 hogs (over 55 pounds); 55,000 turkeys. *Id.* at 59 n.3. According to the ERS, very few if any, feedlots actually use the liquid manure system. If this is true, poultry feedlots would be excluded from the CWA entirely. Telephone Interview with Noel Gollehon, ERS, USDA (Oct. 15, 1999).

[40] *See* Office of Wastewater Management, *supra* note 30, at 5. The increase in the average number of animal units per sector between 1978 and 1992 are as follows: cattle 56%, dairy 93%, hog 134%, layer 176%, broiler 148%, and turkey 129%. *Id.*

[41] *Id.*

[42] U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 60.

[43] Office of Wastewater Management, *supra* note 30, at 5.

size alone.[44] Yet, this figure does not include animals on confined operations with less than 1000 AUs.[45] The number of animal units on AFOs containing less than 1000 AUs is approximately 40,374,000.[46]

B. Manure Production and Impact on Water Quality

The estimated annual animal manure production in the United States during 1997 was 1.37 billion tons.[47] Nationwide, animals produce 130 times more waste than humans. This is equivalent to five tons of animal waste per person.[48]

Nevertheless, no federal standards regulate the storage, application, or management of animal waste.[49] An AFO with merely two hundred head of dairy cows produces as much nitrogen as a sewage plant in a city of five thousand to ten thousand people.[50] The dairies in the Central Valley of California produce more waste than a city of twenty-one million people.[51] Outside of Washington, D.C. on the Delmarva Peninsula, six hundred million chickens each year produce over 3.2 bil-

TABLE 1: CONFINED OPERATIONS WITH MORE THAN 1000 AU EQUIVALENTS

Livestock/ Poultry Sector	Number of Operations with >1000AU equivalents	Estimated Number of Animals on Site
Beef Feedlot	943	7,098,000
Broiler	1398	246,667,000
Dairy	939	1,252,000
Hog	2578	15,270,000
Layer	599	209,911,000
Turkey	102	21,703,000
Total	**6559**	**501,901,000**

[44] *See* U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 61. *See* discussion *infra* Part III.

[45] This article primarily focuses on animal feeding operations with at least 1000 AUs.

[46] Letson & Gollehon, *supra* note 15, at tbl. 1.

[47] MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 2. The manure production number is based on 1997 data compiled by the U.S. Senate Comm. on Agric., Nutrition, & Forestry with assistance from the ERS, USDA. Telephone Interview with Noel Gollehon, *supra* note 6.

[48] MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 4. Imagine each of your neighbors holding five tons of waste in their backyards in unregulated lagoons prone to leakage and failure. *Id.*

TABLE 2: U.S. ANNUAL MANURE PRODUCTION

Livestock/ Poultry Sector	Estimated Annual U.S. Manure Production (tons/yr.)
Cattle	1,229,190,000
Hogs	116,652,300
Chickens	14,394,000
Turkeys	5,425,000

[49] *Id.* at 25.

[50] *Id.* at 3.

[51] *Id.*

lion pounds of raw waste, equivalent to the waste produced by a city of almost 500,000 people.[52]

Manure on AFOs is typically stored in lagoons.[53] The lagoons are filled with liquefied manure containing nitrogen, phosphorus, pathogens, and other organic matter.[54] Typically, the manure lagoons are huge open pits that can be thirty feet deep and cover more than ten acres.[55] For centuries, farmers have spread manure on their land to serve as nutrients for both the crop and the soil.[56] Today, the mega-AFOs that confine hundreds of thousands of hogs or millions of chickens produce far more manure than the land can absorb.[57] Excess manure is then "dumped into lagoons which serve as cesspools from which millions of gallons have spilled."[58] Much of the manure, which can be a valuable resource, either runs off and poisons surface water or seeps into the groundwater, as a result of this lagoon.[59]

Excess nutrients (nitrogen and phosphorus) discharged into the water overstimulate the growth of organic matter, such as algae.[60] The oxygen that would otherwise be available for fish and other aquatic life is absorbed by the decomposition of organic matter.[61] Manure also releases pathogens which result in restrictions on water uses such as drinking, fishing, shellfish harvesting, or recreation.[62] The United States Geological Survey (USGS), as part of its National Water Quality Assessment (NAWQA), determined that manure was the primary

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52 *Id.*

53 Silverstein, *supra* note 1, at 1.

54 U.S. ENVTL. PROTECTION AGENCY, *supra* note 2, at app. B at 11-1. While animal waste run-off is created by feedlots and rangelands, this paper focuses on animal feedlots of 1000 head or more. *See* U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 2.

55 Silverstein, *supra* note 1, at 2.

56 Letson & Gollehon, *supra* note 15, at 1. *See Reducing Water Pollution from Animal Feeding Operations, Before the Subcommittee on Livestock, Dairy, and Poultry and the Subcommittee on Forestry, Resource Conservation and Research of the Committee on Agriculture U.S. House of Representatives*, 105th Cong. (1998) (statement of Michael Cook, Director Office of Wastewater Management, U.S. E.P.A. & Elaine Stanley, Director, Office of Compliance U.S. EPA).

57 Silverstein, *supra* note 1, at 2.

58 *Id.* "Ken Midkiff, Chapter Director for the Sierra Club in Missouri, grew up raising hogs on a farm in Illinois. 'We never worried about the environmental impact because there wasn't any. The problem is that nature never intended for 80,000 hogs to [defecate] in the same place. Every new corporate [AFO] runs ten family farms out of business.'" *Id.*

59 *See generally* Letson & Gollehon, *supra* note 15; Robert L. Kellogg & Charles H. Lander (National Resource Conservation Service/USDA), *Trends in the Potential for Nutrient Loading from Confined Livestock Operations* (Conference held Jan. 19-21, 1999 in Chicago, Illinois) (last modified Apr. 30, 1999) <http://www.nhq.nrcs.usda.gov/land/pubs/ntrend.html>; Natural Resources Conservation Service/USDA, *Animal Manure Management* Issue Brief 7 (Dec. 1995) (last modified Oct. 18, 1996) <http://www.nhq.nrcs.usda.gov/BCS/nutri/rca7.html>.

60 U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 11.

61 *Id.*

62 *Id.*

source of nitrogen in the northeast region of the United States.[63] In the southeast, central, and western regions of the United States, manure was the second most significant source of nitrogen.[64] In the northeast and southeast regions, manure was the primary cause of phosphorus inputs and the second most significant source in the southeast, central, and western regions.[65] USGS concluded that the high density of confined animal production in the northeast region, especially dairy production, caused the high levels of nitrogen and phosphorus found in water resources.[66] Similarly, in the southeast region, USGS correlated the high levels of nitrogen and phosphorus to the large number of AFOs for hog and poultry production.[67]

III. Regulation of AFOs Under the Clean Water Act

The CWA prohibits the discharge of pollutants into the waters of the United States.[68] The "discharge of a pollutant" is defined in section 502(12) as "any addition of any pollutant to navigable waters from any point source."[69] The definition of a point source includes "concentrated animal feeding operations (CAFOs)."[70] EPA regulations define "concentrated animal feeding operations" as follows: 1) have more than 1000 animal units confined;[71] or 2) have more than three hundred animal units confined, and pollutants are discharged into navigable waters either directly or via a manmade conveyance;[72] or 3) are of any size, and the Director (EPA or the state permitting authority) determines on a case-by-case basis that the AFO significantly contributes to water pollution taking into account the size and location of the operation, as well as the means of conveyance.[73] If the AFO has three hundred AUs or less, it must also discharge through a man-made device, as stated above, or directly into navigable waters to be classified as a CAFO.[74] The term AFO simply means an animal feeding operation of any size which: 1) confines animals for a total of forty-five days or more in any twelve month period; and 2) crops, vegetation forage growth, or post-harvest residues are not sustained over any portion of the lot or facility.[75] The term CAFO, as used in this Comment, means an animal

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63 *Id.* at 13.
64 *Id.*
65 *Id.*
66 *Id.*
67 *Id.*
68 33 U.S.C. § 1311(a) (1994).
69 *Id.* § 1362(12).
70 *Id.* § 1362(14).
71 40 C.F.R. § 122 app. B (1998). *See* U.S. Gen. Accounting Office, *supra* note 20, at 61.
72 40 C.F.R. § 122 app. B (1998).
73 *See* 40 C.F.R. § 122.23(c) (1998). "Director" is defined as the EPA Regional Administrator or the State Director for state administered programs. *Id.* § 122.2.
74 *See Id.* § 122.23(c).
75 *See Id.* § 122.23(b)(1).

feeding operation that meets the definition of CAFO under EPA regulations.[76]

There is an exception to the term "point source" for "agricultural stormwater discharges and return flows from irrigated agriculture."[77] A second exception to the term "point source" is provided for animal feeding operations that only discharge when a twenty-five year, twenty-four hour storm event occurs.[78]

Discharge of pollutants by CAFOs are regulated under section 402 of the CWA, the National Pollution Discharge Elimination System (NPDES) Program.[79] At present, forty-three states (including the Virgin Islands) have been delegated authority to issue permits under section 402.[80] As stated above, according to 1992 USDA census data, there are approximately 6600 concentrated animal feeding operations with 1000 animal unit equivalents.[81] However, only 1987 of those CAFOs have point source permits under the CWA.[82] This allows 4613 CAFOs with a minimum of 4,613,000 animal units to escape regulation under the CWA.

The CWA contains four major gaps in the regulation of AFOs. First, there is a formidable hurdle to a case-by-case designation of smaller AFOs (less than 300 AUs). Smaller AFOs do not require a NPDES permit until EPA (or the State Director) conducts an on-site inspection of the operation and determines that the operation should and could be regulated under the NPDES program.[83] The inspection requirement creates a major hole in the regulation of smaller AFOs (less than 300 AUs) in states where resources to perform inspections are lacking. According to EPA, some AFOs that should have NPDES permits do not because of limited resources to identify these operations at both the federal and state level.[84] EPA estimates between 2000 and 6000 AFOs need to be designated as CAFOs, requiring them to obtain NPDES permits.[85] Since there are forty-three state administered NPDES programs,[86] EPA is at a major disadvantage to enforce inspections. A dairy operation with two hundred head of dairy cows, which produces as much nitrogen as a city sewage plant of 5000 to 10,000 people, would not be regulated under the CWA unless specifically dis-

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76 *See Id.* § 122 app. B.

77 33 U.S.C. § 1362 (14) (1994).

78 40 C.F.R. § 122 app. B (1998).

79 33 U.S.C. § 1342 (1994).

80 Telephone Interview with Gregory Beatty, Office of EPA Enforcement-NPDES Program (April 2, 1999).

81 U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 2.

82 *Id.* at 2 n.6.

83 40 C.F.R. § 122.23(c)(3) (1998).

84 U.S. GEN. ACCOUNTING OFFICE, supra note 20, at 2 n. 6.

85 David Bloom & Paula T. Cotter, *Concentrated Animal Feeding Operations: A Developing Body of Law*, 14 No. 6 NAAG Nat'l Envtl Enforcement J. 3, 4 (1999).

86 Telephone Interview with Gregory Beatty, *supra* note 82.

covered, inspected, and designated by the State Director as a CAFO.[87] Director is defined as the EPA Regional Administrator or the State Director for state administered programs.[88] Further, in a 1995 EPA guidance document, *Guide Manual on NPDES Regulations for Concentrated Animal Feeding Operations*, EPA stated that for state administered programs only the State Director could designate an AFO as a CAFO.[89] In response to this problem, EPA has proposed changes to the regulations dealing with CAFOs under the NPDES program.[90] The changes would authorize the EPA Administrator to designate an AFO as a CAFO in states with NPDES administering authority.[91] The proposed regulation provides a more efficient mechanism for EPA to bring an AFO into a NPDES program under state authority. However, EPA currently has underutilized enforcement mechanisms in place under CWA sections 309, 504, and 509.[92] While the proposed regulation may increase efficiency in regulating AFOs and allow EPA to respond quickly to complaints, EPA always had a statutory obligation to monitor state administered programs.[93] Therefore, no guarantee is established that the proposed regulation will have any practical effect.

Second, there is an exception for AFOs that only discharge during a twenty-five year, twenty-four hour storm event.[94] According to EPA, many AFOs fall within this exception.[95]

Third, AFOs with less than 1000 AUs must also discharge through a man-made device or directly into navigable waters which "originate outside of the facility and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation" in order to be classified as a CAFO.[96] Since 98.5% of the 511,192 animal feeding operations have less than 1000 AUs,[97] 503,524 operations are virtually unregulated if the AFOs do not meet these narrow classifications under the CWA. In addition, there is an exception for "agricultural stormwater discharges and return flows from irrigated agriculture."[98] Since non-point source pollution is the primary cause of agricultural impairment of water resources,[99] these discharge

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87 MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 3; 40 C.F.R. app. B § 122.

88 40 C.F.R. § 122.2 (1998).

89 Revisions to the National Pollutant Discharge Elimination System Program and Federal Antidegradation Policy in Support of Revisions to the Water Quality Planning and Management Regulation, 64 Fed. Reg. 46,058, 46,074 (1999) (to be codified at 40 C.F.R. pts. 122, 123, 124, and 131) (proposed Aug. 23, 1999).

90 *Id.*

91 *Id.*

92 33 U.S.C. §§ 1319(a), 1364, 1369 (1994).

93 *Id.* § 1319(a) (1994).

94 40 C.F.R. § 122 app. B (1998).

95 U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 61 n.6.

96 40 C.F.R. § 122.23(c)(2)(ii) (1998). *See also* U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 59.

97 *See* U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 61.

98 33 U.S.C. § 1362(14) (1994).

99 *Id.* at 1.

restrictions create a major regulatory gap for manure run-off and spills.

Fourth, if a common owner were to split up a large CAFO (greater than 1000 AUs) into smaller AFOs (smaller than 300 AUs) that were neither physically adjoining nor share a common area or system for the disposal of wastes, the two smaller AFOs would be unregulated by the CWA unless designated as CAFOs.[100] Thus, the large AFO owner could delay, or possibly escape regulation under the CWA, by splitting up large operations and waiting for case-by-case designations. At a minimum, the delay this loophole creates provides the large AFO owner the financial benefit of non-compliance with the CWA.

IV. Policy and Legislative Reform

There are no federal regulations that set national standards for the storage, application, or management of animal waste.[101] As in many industries, the corporate farm lobby aggressively opposes regulatory reform. The farm lobby has tremendous political power.[102] Sierra Club reports that many lawmakers have a personal interest in the continuation of profitable corporate farming.[103] The American Meat Institute has a budget of approximately $8.5 million for lobbying alone.[104] In 1997, the meat industry maintained a force of 124 lobbyists, many of who were either former Capitol Hill employees or had formerly held administrative posts.[105]

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[100] 40 C.F.R. 122.23(b)(2) (1998).

[101] Minority Staff of Senate Comm. on Agric., Nutrition, & Forestry, *supra* note 3, at 25.

[102] The Center for Responsive Politics, *Lobbyist Spending By Industry*, (last modified Jul. 29, 1999) <http://www.opensecrets.org/lobbyists/98industry.htm>; *see also* Robert Cohen, Milk The Deadly Poison (1998). In his book, Mr. Cohen addresses the immense political influence of the largest producers of dairy products such as Monsanto. *Id.*

[103] Silverstein, *supra* note 1, at 4. Former Senator Lauch Faircloth (R-N.C.) is a major stockholder in Lundy Packing, a hog processor in North Carolina. *Id.* North Carolina has the largest spills of manure, totaling 35 million gallons. Faircloth also has $19 million invested in other hog operations. *Id.* Faircloth's biggest campaign donors included "North Carolina Pork Producers Association, the American Meat Institute, and the National Pork Producers Council, not to mention industry behemoths like ConAgra, Carroll's Foods, and of course Lundy Packing." *Id.* Additional lawmakers own stock in corporate farming enterprises. For example, Representative Christopher Cannon (R-Utah) has up to $500,000 in Premium Beef of Nebraska and Norman Sisisky (D-Va.) owns stock worth $250,000 in ConAgra. *Id.* Wendy Lee Gramm, wife of Senator Phil Gramm (R-Tex), sat on the board of IBP, a major meatpacker, that contributed not only to the senator's presidential campaign in 1996 but also contributed $31,000 over a four-year period to the National Republican Senatorial Committee, which the Senator chaired. *Id.*

[104] *Id.*

[105] *Id.*

A. *Unified National Strategy*

EPA and USDA recognize that AFOs are a primary factor in the impairment of forty percent of the waterways surveyed by the states.[106] In addition, the two agencies recognize the potential human health risks associated with manure run-off.[107] However, the government asserts that a strong livestock industry is essential to national and local economies, the viability of many rural communities, and the maintenance of a high quality diet for the American public.[108] Thus, EPA and USDA base their approaches toward implementing policies to deal with the problem of AFO pollution on sustainable development.

As one of the first initiatives under President Clinton's Clean Water Action Plan released in February 1998,[109] EPA and USDA worked together to address the water quality and public health risks of improper manure management by America's meat production industry.[110] In March 1999, the Agencies released the Unified National Strategy for Animal Feeding Operations (National Strategy).[111] The National Strategy sets forth guiding principles to minimize water quality and public health impacts caused by AFOs.[112] The National Strategy established a national performance expectation "that all AFOs should develop and implement technically sound, economically feasible and site-specific Comprehensive Nutrient Management Plans (CNMPs) to minimize impacts on water quality and public health."[113] The National Strategy supports a balance of voluntary initiatives coupled with regulation under the CWA NPDES Program.[114] There are three types of CAFOs that have been identified as priorities for the regulatory program: 1) significant manure producers—AFOs with more than 1000 AUs; 2) CAFOs with unacceptable conditions—AFOs with direct discharges to water; and 3) CAFOs which significantly contribute to water quality impairment.[115]

The National Strategy is a step in the right direction, but it is not the equivalent of a regulation. Thus, the National Strategy does not

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106 Office of Wastewater Management, *supra* note 30, at 3.

107 *Id.* at 6. It has been reported that excess nutrients in water contribute to toxic algae blooms of *Pfiesteria piscicida* and *Cryptosporidium*. *Id.*

108 *Id.* at 3. Many claim that a meat diet is not a sustainable diet from an economic and environmental perspective. *See* FRANCES MOORE LAPPÉ, DIET FOR A SMALL PLANET (1982); JOHN ROBBINS, DIET FOR A NEW AMERICA (1987); JEREMY RIFKIN, BEYOND BEEF (1993). Additionally, these authors, along with others, claim that meat and dairy products are not only unnecessary for a healthy diet, but are dangerous to human health. *See* COHEN, *supra* note 104; HOWARD LYMAN, MAD COWBOY (1998).

109 Office of Wastewater Management, *supra* note 30, at 3.

110 *Id.*

111 *Id.*

112 *Id.* at 4.

113 *Id.* at 6. A CNMP may contain the following elements: 1) feed management, 2) manure handling and storage, 3) land application of manure, 4) land management, and 5) record keeping. *Id.*

114 *Id.* at 10; 33 U.S.C. § 1342 (1994).

115 Office of Wastewater Management, supra note 30, at 16-17.

impose any binding requirements on regulatory agencies, states, localities, or regulated communities.[116] The National Strategy recognizes the inadequacy of the current method of locating AFOs with unacceptable conditions.[117] Nonetheless, EPA and USDA concluded that "many, if not most, AFOs that now have unacceptable conditions will *voluntarily* address those conditions to avoid the requirement to have a permit under the NPDES program."[118] This overly optimistic approach lacks a logical basis. Under the existing NPDES program, an AFO that has unacceptable conditions, but does not fall within the narrow definition of CAFO under EPA regulations, is not required to have a permit until the administering agency designates them as a CAFO.[119] If CAFOs with unacceptable conditions have not been addressing those conditions, there is no logical reason to believe they will now without a regulatory mandate that requires them to do so.

The National Strategy discusses three major incentives for AFOs to implement Comprehensive Nutrient Management Plans (CNMPs). The incentives are as follows: 1) smaller AFOs "should be" able to exit the regulatory program at the end of a five-year permit term; 2) good faith incentive; and 3) tax incentives.[120] In order for a smaller AFO to come into compliance with the CWA, they may have to incur major expenses to upgrade their manure management techniques. EPA's incentive that an AFO "should be" allowed to exit the NPDES program after five years is a weak incentive for an unregulated AFO to voluntarily notify EPA of their existence. The second assertion that AFO owners and operators will comply with the National Strategy based on good faith alone is equally unrealistic. If the AFOs are not implementing sound manure management practices prior to the National Strategy, there is no reason to believe that the situation will change merely because EPA and USDA published a policy with no regulatory mechanism to back it up. The third incentive, based on proposed tax breaks for compliance, is the most realistic of the three incentives. However, the tax breaks are merely in the "development" and "proposal" stage.[121] If the monetary incentives materialize, they will be the most effective incentive to voluntary compliance.

Implementation of the National Strategy is critical to the preservation of the quality of our nation's water. However, the National Strategy alone will not induce an industry environmentally out of control and politically protected to change.[122] The National Strategy must

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116 *Id.* at 4.

117 *Id.* at 17. *See infra* Part V. B.

118 Office of Wastewater Management, *supra* note 30, at 17 (emphasis added).

119 40 C.F.R. § 122 app. B (1998); 33 U.S.C. § 1342 (1994).

120 Office of Wastewater Management, *supra* note 30, at 18-19.

121 *Id.* at 19.

122 *See* Robert Smith, *Livestock Production: The Unsustainable Environmental and Economic Effects of an Industry Out of Control*, 4 BUFF. ENVTL. L.J. 45, 76 (1996). *See also* Center for Responsive Politics, *supra* note 104 (providing additional information about political contributions by the corporate farm lobby).

therefore be used as a springboard for national and state regulations forcing AFOs to develop CNMPs and minimize impacts on water quality and human health.[123]

B. *Senator Harkin's Bill*

Senator Tom Harkin (D-IA) introduced the Animal Agriculture Reform Act (Act) to the United States Senate Committee on Agriculture, Nutrition and Forestry on October 28, 1997.[124] Unfortunately, the bill expired in committee during the 105th Congress and has not been re-introduced.[125]

Despite its demise, the legislation represents the beginning of legislative reform regarding AFOs. As such, it is important to understand what the Act could have accomplished. Senator Harkin's bill attacked the problem of AFO pollution at the source by regulating manure management. The Act would have required AFO owners to provide detailed plans on the following: 1) minimization of animal waste runoff and leaching into water; 2) operation, maintenance, and inspection of waste storage facilities; 3) handling, transporting, storing, applying, and treating animal waste; 4) building manure containment systems in accordance with national standards; and 5) procedures for spill prevention.[126] The Act would have required management of excess liquid manure, that could not be applied to land in accordance with nutrient restrictions or put to another beneficial use, to comply with waste treatment standards. USDA would have administered the Act, having the authority to shutdown an AFO for either failing to submit an adequate manure management plan or for failing to comply with an approved management plan.[127] Smaller AFOs would have fallen within the scope of the Act; whereas, many of these AFOs escape regulation under the CWA's current regulatory framework.[128] Although the Act did not make it out of Committee, similar legislation could be introduced in future sessions of Congress to regulate AFOs. Indeed, as the animal waste crisis becomes more severe, Congress will have to act.

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123 On August 6, 1999, EPA released the *Draft Guidance Manual and Example NPDES Permit for Concentrated Animal Feeding Operations*. The purpose of the document is to guide permit writers in the first phase of the priorities under the National Strategy. While EPA states in this document that they are in the process of revising existing regulations, the Guidance document is not a regulation. For information on AFOs, see the EPA Office of Wastewater Management, *Animal Feeding Operations (AFOs)* (visited Oct. 25, 1999) <http:www.epa.gov/owm/afo.htm>.

124 S. 1323, 105th Cong. (1997).

125 Telephone Interview with Alison Fox, Congressional Science Fellow, U.S. Senate Committee on Agric., Nutrition & Forestry (Feb. 29, 2000).

126 MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 21.

127 *Id.*

128 *Id.* AFOs with a capacity exceeding 1330 hogs, 57,000 chickens, 270 dairy, or 640 feeder cattle would be required to implement waste management plans in accordance with the Act. *Id.* The thresholds for regulation in Senator Harkins' bill are lower than the CWA thresholds. U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 59 n.3.

V. Data Deficiencies Impacting Enforcement of the Clean Water Act

Data accuracy is critical to the expeditious identification of pending and existing environmental and public health hazards. The inaccuracies of AFO data cripple EPA's ability to identify AFOs and enforce the NPDES program.

A. Water Quality Data

States provide data to the EPA for the National Water Quality Inventory.[129] However, the states merely survey a small percentage of total water resources.[130] Since only nineteen percent (693,905 river miles) of the 3.6 million total river miles were surveyed for the 1996 Inventory,[131] the status of 2.91 million river miles is unreported.[132] Similarly, only forty percent of total lake acres, and seventy-two percent of estuary square miles were surveyed; thus, 25,010,941 lake acres and 11,154 estuary square miles remain unreported.[133]

The void in information results in an inability to make informed decisions. This is evident from the situation surrounding the National Strategy. The National Strategy was based on the 1998 National Water Quality Inventory - 1996 Report to Congress.[134] The 1998 National Water Quality Inventory was published in April 1998, however, the data used for the report is over five years old.[135] Even though states are required to provide water quality data every two years, this data is not always forthcoming.[136] The numbers in the 1996 Inventory, published in 1998, are based on measurements taken in 1994 and 1995.[137] While the National Strategy was intended to influence regulation, it is based on information that is outdated and incomplete, lessening its effectiveness as a policy tool.[138]

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129 U.S. Envtl. Protection Agency, *supra* note 16, at ES-2.

130 *Id.* at ES-7.

131 *Id.* at ES-14 fig. ES-2.

132 *Id.*

133 *Id.* at 47, 57.

134 U.S. Dep't of Agric. & U.S. Envtl. Protection Agency, Unified National Strategy for Animal Feeding Operations, 63 Fed. Reg. 50,192, 50,195 n.7 (Sept. 21, 1998). *See also* Office of Wastewater Management, *supra* note 30, at 6 n.9.

135 U.S. Envtl. Protection Agency, *supra* note 16, at ES-2.

136 *Id.*

137 *Id.*

138 From the 1992 National Water Quality Inventory to the 1996 National Water Quality Inventory, there was a reduction in the percentage of impaired (surveyed) river and stream miles by 2%; lake acres by 5%; and an increase in the impaired estuary square miles by 6%. U.S. Gen. Accounting Office, *supra* note 20, at 8; U.S. Envtl. Protection Agency, *supra* note 16, at 33, 47, 59. There were less river miles and lake acres surveyed for the 1996 inventory. *Id.* Further data analysis is beyond the scope of this article.

B. NPDES Permits

As of April 1995, the total number of permitted CAFOs was 1987.[139] According to EPA, the number of CAFOs with point source permits probably exceeds this figure.[140] Thus, EPA officials have been forced to admit that the Agency's permit database, Permit Compliance System (PCS), is incomplete.[141] Many of the forty-three states delegated authority to issue NPDES permits regularly fail to report permit issuances to EPA.[142] In addition, PCS only tracks "major" dischargers.[143] A "major" discharger is defined as a "facilit[y] that discharge[s] at least one million gallons per day or more or [a] non-municipal facilit[y] whose discharge has a significant impact on the receiving stream."[144] Since EPA currently lacks the ability to accurately determine the number of permitted CAFOs, the Agency cannot adequately enforce the NPDES Program.

C. Total Number of AFOs

The 1997 Census of Agriculture has been available since April 1999; however, the compilation of the total number of AFOs with greater than 1000 AUs has yet to be calculated.[145] The total number of 1000 AU AFOs, approximated at 6600, is based on the 1992 Census of Agriculture.[146] EPA believes that there could be as many as 10,000 additional AFOs that should be regulated by the CWA based on size alone.[147] Since AFOs with more than 1000 AUs require NPDES Permits,[148] the number of 1000 AU AFOs is critical to EPA. USDA ERS officials stated that the calculation of the total number of AFOs with greater than 1000 AUs was a special data request.[149] Therefore, a critical piece of enforcement data is neither systematically calculated nor provided to EPA.

The Office of Enforcement of the NPDES Program in Washington, D.C., stated that in order to ensure national participation in census taking, USDA is reluctant to provide regulatory agencies with specific

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139 U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 2 n.6.

140 *Id.*

141 *Id.*

142 *Id.*

143 Letter from Debra Villari, Associate Branch Chief, Data Management Branch, U.S. Environmental Protection Agency, to Marilyn Nardo, Law Student, Pace University School of Law (May 4, 1999) (on file with author).

144 *Id.*

145 Portions of the 1997 census data were available on the internet in April 1999. USDA-ERS intend to recalculate the number of AFOs with greater than 1000 AUs; however, their efforts have been delayed. Telephone Interview with Noel Gollehon, *supra* note 39.

146 U.S. GEN. ACCOUNTING OFFICE, *supra* note 20, at 60.

147 Bloom & Cotter, *supra* note 87, at 3.

148 40 C.F.R. § 122 app. B (1998).

149 Telephone Interview with Noel Gollehon, *supra* note 6.

details of census compilation.[150] Thus, to preserve the accuracy and confidentiality of the census of agriculture data, certain information may not be readily available to the regulating agencies, such as EPA. In addition, Title 13 of the Federal Criminal Code has strict requirements for confidentiality with respect to federal government requests for information.[151] This further handicaps EPA's ability to compare the total number of permitted CAFOs with the number of CAFOs actually in existence.

VI. Other Environmental Impacts of the Beef Industry

The meat industry relies on animal feedlots which contribute to air pollution, soil erosion, desertification, deforestation, biodiversity, world hunger, animal welfare, global environmental impacts, numerous economic impacts, and adverse health effects. This section briefly addresses the first three: air pollution, soil erosion, and desertification.[152]

A. Air Pollution

Livestock production is a significant factor in the release of greenhouse gases.[153] Greenhouse gases are released by the destruction of forests to create pastures; the burning of animal waste; fuel powered equipment to grow, transport, and harvest cattle feed; and from the cattle themselves.[154] Cattle production facilities emit methane, carbon dioxide (CO_2), and nitrous oxides.[155] The world's 1.3 billion cattle release approximately sixty million tons of methane (twelve percent of all methane released into the atmosphere).[156] Livestock, in general,

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150 Telephone Interview with Gregory Beatty, *supra* note 6.

151 Telephone Interview with Noel Gollehon, *supra* note 6. Ms. Gollehon's organization compiled the total number of animal operations with more than 1000 AU equivalents.

152 Fish kills create a tremendous risk of eliminating and threatening aquatic species. U.S. Envtl. Protection Agency, *supra* note 2. According to the Government Accounting Office, "livestock grazing has eliminated and threatened more plant species than any other cause." Smith, *supra* note 124, at 65. The majority of flora and fauna are concentrated on the riparian zones of rivers and streams. *Id.* Those same environmentally fragile zones face the brunt of destruction caused by cattle grazing. *Id.* "Livestock can degrade riparian zones by overgrazing and trampling streamside vegetation, destroying banks and thereby increasing sediment levels and bacterial counts in the water and raising water temperatures." *Id.* (citations omitted) In addition, "extensive cattle grazing makes it impossible for wild animals to compete . . . for food." *Id.* As a result, there has been a dramatic reduction in bighorn sheep, elk, pronghorn antelope, and others. *Id.*

153 Greenhouse gases are defined as gases in the atmosphere that absorb infrared energy and contribute to the air temperature. Benard J. Nebel & Richard T. Wright, Environmental Science (6th ed. 1998). They include carbon dioxide, water vapor, methane, nitrous oxide, chlorofluorocarbons, and other halocarbons. *Id.*

154 Smith, *supra* note 124, at 61.

155 Rifkin, *supra* note 110, at 223.

156 *Id.* at 226. (citing Michael Gibbs & Kathleen Hogan, *Methane*, EPA Journal (March/April 1990).

are estimated to release twenty percent of all global methane emissions.[157] Additionally, the burning of forests to create grazing land emits both methane and CO_2.[158] In Latin America, the burning of forests to expand pastures resulted in the release of approximately 1.4 billion tons of CO_2.[159] Methane traps twenty-five times as much heat from the sun as does CO_2.[160] Scientists at the National Center for Atmospheric Research predict that in the next fifty years, methane will become the primary target of worldwide attempts to eliminate the emissions of greenhouse gases.[161]

In addition to greenhouse gases, odor is a significant problem with AFOs.[162] Residents of states such as North Carolina must live with the stench of lagoons holding millions of gallons of thick, foul-smelling manure.[163] Ken Silverstein, a Sierra Club member and author, went to tour the New River area of North Carolina.[164] Mr. Silverstein reported,

> [f]rom a distance, the lagoon looked like a charming swimming hole. Up close the water was thick and brown, and when the wind shifted, I was overpowered by an unbelievable, indescribable stench that caused me to gag. I covered my mouth and nose with one hand and hit the gas. When I finally risked taking a breath some thirty seconds later, the smell of pig [manure] was still strong in my nostrils.[165]

A North Carolina resident, R.T. Walston, stated that if he is in the yard when the stench hits, he has to sprint for the house.[166] Mr. Walston's wife wears a surgical mask to cut the grass and his grandchildren often refuse to visit because of the stench.[167] While these odors may seem insignificant to people hundreds of miles away, for those who must raise their families surrounded by the stench of manure, it is a serious problem.

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157 SMITH, *supra* note 124, at 61 (citing Alan B. Durning & Holly B. Brough, *Taking Stock: Animal Farming and the Environment*, WORLDWATCH, Paper No. 103, at 27 (1991).

158 RIFKIN, *supra* note 110 at 226.

159 SMITH, *supra* note 124, at 45.

160 RIFKIN, *supra* note 110, at 226.

161 *Id.*

162 Larry D. Jacobson, et al., *Odor Rating System Demonstration Project Final Report* (last modified Mar. 1997) <http://www.bae.umn.edu/extens/manure/programs/odordem.htm>. Detection of odor from a particular feedlot depends on several factors such as sensitivity of smell, topography of the land, size and orientation of the feedlot, wind velocity, wind direction, and temperature. *Id.*

163 SILVERSTEIN, *supra* note 1, at 4.

164 *Id.*

165 *Id.*

166 *Id.* at 4.

167 *Id.*

B. Soil Erosion and Desertification

The majority of cattle grazing occurs in the western United States. Unfortunately, those areas are the most effected by desertification.[168] The leading causes of desertification are: overgrazing by livestock, over-cultivation of farmland, waterlogging and salinization of irrigated lands, and deforestation.[169] Cattle production is the primary contributing factor to all of these leading causes of desertification.[170] The two primary means by which cattle damage land is by stripping vegetation and compacting the soil.[171] Overgrazing and other problems contribute to the significant degradation of nearly 685 million acres (85%) of rangeland in the Western United States.[172] Overgrazing alone caused a twenty-five to fifty percent yield reduction on 430 million acres of rangeland in the West.[173]

Twenty-nine percent of the earth's landmass is eroding from desertification.[174] Severe desertification will eventually render land unproductive for any use. The agency charged with administering programs on federal public lands is the Bureau of Land Management (BLM). As such, BLM controls livestock grazing on federal lands.[175] BLM manages approximately 177 million acres of land in the western United States.[176] BLM reports that nearly seventy-five percent of public lands need restoration due to overgrazing.[177] Each year an additional fifty-two million acres become permanent wasteland, unproductive for any use.[178] Additionally, seven billion tons of topsoil is destroyed annually in the United States, eighty-five percent of which is attributable to livestock production.[179] Loss of topsoil is a serious environmental problem because it takes one hundred to five hundred years for nature to produce one inch of topsoil.[180]

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168 SMITH, *supra* note 124, at 58. Desertification is defined as the conversion of rangeland, rain-fed cropland, or irrigated cropland to desert-like land, with an associated drop in agricultural productivity of 10% or more. G. TYLER MILLER, JR., LIVING IN THE ENVIRONMENT (2000). It is usually caused by a combination of overgrazing, soil erosion, prolonged drought, and climate change. *Id.*

169 SMITH, *supra* note 124, at 59.

170 *Id.*

171 *Id.*

172 *Id.*

173 *Id.*

174 *Id.*

175 Bruce M. Pendery, *Reforming Livestock Grazing on the Public Domain: Ecosystem Management Based Standards and Guidelines Blaze a New Path for Range Management*, 27 ENVTL. L. 513, 514 (1997).

176 *Id.* at 522.

177 SMITH, *supra* note 124, at 60.

178 *Id.* at 59.

179 *Id.* at 60. Worldwatch Institute reports that thirty-five pounds of United States topsoil are eroded for each pound of beef produced. *Id.*

180 SMITH, *supra* note 124, at 57.

VII. CONCLUSION

AFOs can no longer hide in the shadows of major industrial polluters. Due to recent administrative and legislative scrutiny, AFOs are now in the environmental spotlight. Despite the immense political influence of the corporate farm lobby, regulatory reform is inevitable. Legislatures are no longer protecting the family farmer. The result is that the public is less sympathetic to mega-corporate "animal factories."[181] The public demands accountability for the damage caused by AFOs to their health, homes, neighborhoods, communities, air, land, and water.[182] Recently, a citizens group called Community Association for Restoration of the Environment (CARE) convinced a district court in Washington that facilities and systems used to transfer and spread manure on the CAFO were "point sources."[183] The court further held that the CWA stormwater discharge exception[184] did not relieve the CAFO's responsibility of manure applications to the land which then discharge into waters of the United States.[185] The court interpreted "point source," broadly, resulting in a very favorable decision for the citizens group and the environment.

EPA's and USDA's collaborative effort at policy reform, the National Strategy, provides an effective framework for spearheading legislative change to stop the millions of gallons of manure leaking into our nation's water, killing our fish, and making us sick.[186] Human consumption of manure-contaminated water has contributed to many un-

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181 JAMES MASON & PETER SINGER, ANIMAL FACTORIES (1990).

182 Kershen & Dougherty, *supra* note 30. *See* Concerned Rosebud Area Citizens v. Babbitt, 34 F. Supp.2d 775 (D. D.C. 1999). In *Concerned Citizens*, a citizens group challenged the Bureau of Indian Affairs' (BIA) approval of a lease between the Rosebud Sioux Tribe and Sun Prairie, a Nebraska General Partnership, to build a "sizable pork production facility." *Id.* at 775. The case was dismissed when the BIA conceded that the lease was a major federal action and violated NEPA. Telephone Interview with Gretchen G. Biggs, Animal Law Center (Apr. 2, 1999). The attorneys for the plaintiff considered this a major victory for the environment. *Id. But see* Cross Timbers Concerned Citizens v. Saginaw, 991 F. Supp. 563, 565 (N.D. Tex. 1997) (plaintiffs filed claim against EPA, USDA, and NRCS for violations of CWA and NEPA with regard to CAFOs). In *Cross Timbers*, the court held that EPA had no duty to oppose a state environmental strategy that did not comply with effluent limitations contained in a Texas General Permit for CAFOs. *Id.* at 570. Thus, the citizen suit was barred. *Id.* The *Cross Timbers* court further held that EPA is "entirely exempt from obligation under NEPA for the preparation of an impact statement . . . [and] the agency is similarly exempt from NEPA obligations predicated on regulations implementing such impact statements." *Id.* at 572. For an examination of emerging caselaw, see Bloom & Cotter, *supra* note 87, at 14.

183 Community Ass'n For Restoration of the Env't v. Sid Koopman Dairy (CARE), 54 F. Supp.2d 976, 980 (E.D. Wash. 1999).

184 33 U.S.C. § 1362(14) (1994).

185 *CARE*, 54 F. Supp.2d at 981.

186 For an expanded discussion of the regulation of AFOs under the CWA, see Gail S. Shane, *Concentrated Animal Feeding Operations: Will Increased Enforcement and More Stringent Regulations Under the Clean Water Act Adequately Protect Public Health and the Environment*, 13 No. 3 NAAG NAT'L ENVTL. ENFORCEMENT J. 1 (1998).

necessary deaths. Legislation is required if we are to protect human health and the environment. The current NPDES program requires either increased enforcement or more stringent regulations to prevent AFOs, which produce millions of gallons of manure a year, to escape regulation. The 1.37 billion tons of animal manure produced annually in the United States must be regulated as would 1.37 billion tons of human waste.[187] Only then will our environment be safe from the destructive by-products of animal feedlot operations.

[187] *See* MINORITY STAFF OF SENATE COMM. ON AGRIC., NUTRITION, & FORESTRY, *supra* note 3, at 21. Senator Harkin proposes that the storage and treatment of manure should be required to utilize similar treatment as used with municipal wastewater. *Id.*