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Reports

America's Animal Factories

How States Fail to Prevent Pollution from Livestock Waste

This is the complete text of the December 1998 report published by the Natural Resources Defense Council and the Clean Water Network. The report examines the environmental and health consequences of pollution from industrial livestock farms in 30 states, as well as the widely varying efforts to curtail it.

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INTRODUCTION AND EXECUTIVE SUMMARY

During the last twenty years, industrial livestock farms have been replacing the traditional family sized farms that once raised most of this nation's poultry, swine and cattle. The number of livestock animals produced in the United States has grown modestly in the past two decades but the number of farms raising them has shrunk dramatically, because large producers increasingly dominate the market. In the pork industry, the number of hog farms has fallen from 600,000 to 157,000 over the past fifteen years, while the number of hogs produced has stayed about the same.[1] Today, about 50 large pork producers are responsible for about 45 percent of the industry's product.[2] Their market domination is expected to rise to 75 percent within the next few years, industry officials predict.[3] "Ten companies produce 92 percent of the nation's poultry."[4] As the number of family farms has declined, research is beginning to demonstrate that small family farms can be more profitable to communities. A study comparing the impact on the local Virginia economy of adding 5,000 sows through a single large contract operation versus ten independent farms found the independent arrangement yielded thirteen more permanent jobs, a thirty-seven percent larger increase in *per capita* income and a twenty percent larger increase in retail sales.[5]

Today's large livestock operations look more like animal factories than animal farms. A typical hog factory farm has several metal barns, each containing several hundred to several thousand animals tightly confined cheek by jowl. Unlike traditional family farms, where pigs live in spacious barns in which straw bedding absorbs manure, or where they root about outside and leave their manure to decay in a pasture or open lot, these animals live in cramped conditions and may never see sunlight. They spend their lives standing slatted metal floors, beneath which their feces and urine are flushed. The manure is piped into open-air manure lagoons, where it is stored until it can be pumped out to irrigate fields, presumably to fertilize crops.[6] But the scale of factory farms is so great that enormous quantities of excess manure are now being spread on farmlands, posing threats to drinking water and fisheries. Huge dairy and poultry operations resemble hog factory farms—with their confinement sheds or barren feedlots that the animals never leave and the massive quantities of manure generated. In a typical large-scale poultry operation, tens of thousands of chickens are confined in bird houses from dry droppings, known as litter, are collected, mixed with other materials, and stockpiled before being spread onto fields.[7]

This trend toward industrial-scale farming has created an enormous increase in the concentration and quantity of manure that is generated at a single site. The storage lagoons on factory farms are often

stinking manure lakes the size of several football fields, containing millions of gallons of liquified manure.

A single animal factory can generate the waste equivalent of a town. As this report documents, manure lagoons have spawned environmental disasters in many states, spilling disease-causing bacteria into neighboring rivers and leaching manure into groundwater used for drinking. The volume of manure is so enormous that a single spill from the lagoon of an animal factory can be devastating to the health of a nearby river and the fish that live within it.

Seeking to dispose of vast quantities of excrement, factory farms tend to apply far more manure or "litter" (dry poultry manure mixed with other materials) to cropland than the soil can safely absorb. Over the long term, this practice promises to further pollute the drinking water on which many communities depend. Additionally, many factory farms now shoot liquefied manure and urine from irrigation pivot sprayers to fertilize cropland. By failing to immediately incorporate the manure into the soil adequately through either method, factory farms routinely risk the possibility that manure will run off into lakes, rivers or streams. Over-application and liquid manure application has poisoned drinking water and once-pristine waterways in many communities. According to the U.S. Fish and Wildlife Service, manure runoff has been identified as a culprit in the contamination of fisheries along 60,000 miles of streams.[8] In addition, in 17 states the groundwater is impaired by feedlot manure containing fecal streptococci and fecal coliform bacteria, according to U.S. Environmental Protection Agency (EPA) tests.[9]

The nation's federal and state regulatory systems for protecting environmental health have failed to keep pace with the rapid growth of factory farms. When Congress passed the Clean Water Act (CWA) almost 27 years ago, it had the foresight to identify feedlots as an industrial source of pollution and to require that feedlots be regulated as strictly as other industries. However, EPA has failed to enforce these statutory requirements and the implementation of the regulations has been pockmarked with loopholes. According to a 1995 General Accounting Office Report, in 1992 only 30 percent of the 6,600 farms that were large enough to be subject to federal permit requirements actually obtained a permit under the Clean Water Act.[10] To a greater or lesser extent, states have attempted to step into the void created by an ineffective federal approach. However, as this report will illustrate, the states have failed to curb factory farm pollution.

Pollution Problems

This report describes environmental pollution from animal factories in 30 states. In addition, livestock pollution is a problem or threat in many more states, including Delaware, Georgia, Idaho, New Mexico and New York. The combination of industry consolidation toward factory farming, inadequate technology to control manure pollution and lax regulatory controls has resulted in serious pollution problems across the country. Some examples from this report:

- In North Carolina, a hog manure lagoon burst in 1995, creating the biggest hog-waste spill on record—25 million gallons—killing as many as 10 million fish and closing 364,000 acres of coastal wetlands to shell-fishing.

- In Indiana, the LaGrange County Health Department identified six miscarriages among women

living near hog farms. Their drinking water wells had been contaminated with unsafe levels of nitrates.

- In California's Central Valley, dairy farmers have discovered their cows are aborting calves after drinking water from wells contaminated with nitrates. Farmers in this, the top milk-producing region in the nation, have been forced to dig deeper wells in search of water safe for their own cows to drink.

- In Torrington, Wyoming, cattle operations are possibly linked to nitrate levels in the groundwater that exceed the safe drinking-water standard. High concentrations of nitrates in drinking water can cause "blue-baby syndrome," a potentially fatal disease in infants that damages their red blood cells' oxygen-carrying ability.

- In North Carolina, 34 percent of wells located next to poultry and hog farms had elevated nitrate levels and 10 percent were contaminated above the health standard for safe drinking water, a state health agency found in a survey of more than 1,000 wells.

- In Minnesota, more than 50 families complained of nausea, vomiting and other flu-like symptoms associated with toxic hydrogen sulfide gas after 17 factory hog farms moved into their county. The state environmental agency found that half of factory farms of all animal types tested in the area exceeded safety standards for the gas—by as much as 50 times the state standard.

- In Missouri, swine factory farms have been the biggest culprit in polluting 150 miles of Missouri's streams, causing 61 fish kills and killing over 500,000 fish.

- Pollution from nutrients contained in animal manure, namely phosphorus and nitrogen, is one of the Chesapeake Bay's most serious problems and has led to reduced harvests of fish and shellfish. On the Eastern Shore of Virginia, close to one-third of the nitrogen and two-fifths of the phosporus nutrients entering the Chesapeake Bay from that region are attributed to animal waste pollution. In Maryland, toxic *Pfiesteria* outbreaks have occurred in the Bay due to excessive nutrient loading from animal waste and farm runoff.

State Programs Have Failed To Curb Factory Farm Pollution

State attempts to deal with animal factories are inconsistent. Some state programs for dealing with these animal operations are voluntary and some are mandatory. Some deal solely with manure management, some deal solely with manure storage and some programs focus on both. None of the state programs we evaluate have been effective so far in curbing factory farm pollution. Problems common among state programs include the following:

- **States continue to take aggressive steps to attract factory farms and grant these operations**

government benefits which were originally designed to help *family* farms survive. While five states—North Carolina, Oklahoma, Mississippi, Missouri and Kentucky—have established some form of moratorium on new livestock factories at one time or another, many other states are attempting to attract and retain them. Kansas granted Seaboard Farms, Inc., one of the nation's fastest growing pork producers, the right to issue $9.5 million in tax-exempt bonds toward the cost of building manure lagoons in its state. Many states, such as Wyoming, grant these massive operations agricultural tax breaks.

- **Several states have either no permitting system in place at all or have systems that, in fact or in practice, rely on voluntary compliance.** Indiana's factory farms can safely ignore state requirements for treatment of manure because the state relies on voluntary letters of approval. Pennsylvania, Colorado and Alabama have no permitting program, though programs are in the works. Illinois regulates only livestock operations with animal waste lagoons but not those with underground manure storage tanks, which are now the norm in Illinois. Some of these have leaked. California's Central Valley issues permits only after an operation is caught polluting.

- **Fast-track permits are given to factory farms.** Almost every state has adopted the type of easy-to-get permit known as a "general permit" under the federal Clean Water Act. It essentially grants factory farms a green light to operate with minimal controls on pollution. Under general permits, the states routinely accept at face value the factory farm owners' assurances that the feedlot can comply with existing statewide requirements. The state often does not make individual visits to the site to see if the applicant can actually comply or if the factory farm might pose unforeseen pollution threats. The permits are not site-specific. General permits do not provide citizens with notice of proposed factory farms or an opportunity to comment on the pollution controls needed to protect their communities. Nor do they require monitoring.

- **Lagoons and spray-field systems are the norm.** Despite the poor environmental record of factory farm lagoons and the documented problems with liquid manure spraying, most states continue to allow factory farms to rely upon this antiquated waste treatment technology. North Carolina passed legislation that required the State Department of Agriculture to develop a plan to phase out lagoons and sprayfields, but the Department's plan has failed to comply with this mandate.

- **Enforcement of statutory requirements and penalties tends to be weak.** Most states do not have aggressive compliance programs. Instead, many agencies respond and inspect operations only when citizens complain or when fish kills and other problems are documented. Some, such as South Dakota, sometimes fail to respond even then. Many states are reluctant to penalize factory farm polluters, so penalties are waived, reduced or not meaningful to begin with. For example, feedlot operators in Mississippi are often able to negotiate reduced fines with state officials after they have been found guilty of polluting.

- **Water quality monitoring by states and livestock operators is rare.** Industrial pollution permits under the Clean Water Act usually require industries to monitor their discharges and periodically report the information to the EPA. Yet neither the EPA nor the states has applied these

requirements to the animal factory industry, because these facilities are not supposed to discharge—a presumption that cannot be confirmed without a requirement that water quality be monitored. Only a few states appear to require routine water quality monitoring. Moreover, some states have failed to adequately monitor surface water quality near factory farms. Often citizens have had to step in and do the testing themselves. In Missouri, more than 1,000 citizens have formed their own "Stream Teams" to measure water pollution.

- **State programs fail to deal adequately with the siting of lagoons.** Many states now have setback rules requiring that new manure lagoons be situated a minimum distance from homes and rivers, although thousands of existing factory farms are exempt from recently imposed setbacks. But even these requirements are inadequate because lagoons are still allowed to locate on land sitting just above water sources, in floodplains and in coastal and other wetlands, and adjacent to wildlife refuges and other sensitive locations. For example, Kentucky and Tennessee allow livestock operations to locate on "karst" topography—geological limestone formations pockmarked with sinkholes, which provide pollutants easy access to groundwater.

- **The corporations that control factory farms are able to evade responsibility for pollution controls.** For most poultry operations and increasingly for pork operations, large corporations contract with smaller producers to operate factory farms. The corporations own the animals but contract with the smaller producers to raise them. Under the permits issued by most states, the small producer holds the permit obliging it to abide by environmental restrictions. The corporation has no obligation to contribute financially to cleanups or to pollution controls. Only one state, Kentucky, requires some, but not equal shared financial and legal responsibility on the part of the corporation and the contract producer.

- **Local control is restricted or under-utilized.** Some states have significantly restricted the authority of local governments to control the problem, while some localities have failed to use the powers they have been granted. Some states, such as Iowa, have prohibited localities from establishing controls on factory farms. In other states, localities have the right to utilize zoning and other tools to prevent factory farm pollution. In states such as Missouri and North Carolina, certains localities that tried to impose controls have faced the threat of costly lawsuits from factory farm corporations.

- **States have failed to devote adequate staff resources to their feedlot programs.** Compliance with regulatory programs is all but voluntary when there are almost no inspectors on the job. Colorado and Montana each have one part-time inspector, rendering their enforcement of feedlot pollution virtually nonexistent.

- **Poultry operations are generally unregulated.** In many states, poultry operations are not regulated. The over-application of poultry litter to cropland leads to pollution from phosphorus, a nutrient that accumulates in the soil. Manure runoff produced by rain or melting snow causes phosphorus to pollute nearby bodies of water. The misguided rationale used by states to exempt poultry factories from their regulatory systems altogether is that the litter is dry and therefore does not count as a discharge pollutant. Major poultry-producing states such as West Virginia,

Kentucky, Missouri, Virginia and Arkansas subscribe to this view. Maryland, Tennessee and Alabama have plans to include poultry operations in the regulatory system, but implementation has not yet begun.

- **Land application requirements are inadequate.** Most states require that manure spread as fertilizer be applied at rates that do not exceed the crops' ability to absorb nitrogen but they ignore the quantity of phosphorus—another nutrient—present in manure. Phosphorus accumulates in the soil and excess levels run off. More land area is needed to safely absorb this long-lived nutrient. Only Maryland has established rates for land-application of manure based on phosphorus that will be part of the state's regulatory requirements. The remaining states base their land-application requirements on nitrogen for regulatory purposes. In addition, no state restricts application of manure based on heavy metals. Many states allow manure to be applied to the land in a manner that allows polluted runoff to occur, such as application of manure on snow. One state, Ohio, allows at least one major factory farm to claim that its off-site manure application is a "trade secret," and thus the amount of manure applied to the land can never be known.

- **Only a handful of states have regulated air pollution.** Harmful hydrogen-sulfide and ammonia gases are emitted from open-air lagoons, dry litter storage facilities and aerial spraying of manure. While it appears that some states have the power to regulate air emissions from factory farms, Minnesota, Illinois and North Dakota are the only states that have used their power to so. Minnesota has established safety standards for hydrogen-sulfide, a toxic gas that can cause vomiting, diarrhea and other flu-like symptoms. That state's initial testing of emissions from feedlot operations found that state health standards for hydrogen sulfide were being violated in half of the facilities tested.

- **Public information about factory farms is lacking.** Many state permitting programs allow livestock operations to keep records tracking their compliance with manure management pollution controls on-site and inaccessible to the public view. This makes it extremely difficult for citizens to find out whether a factory farm they suspect of polluting is indeed fouling local waterways. In addition, there has been virtually no national reporting of state permitting activities relating to large feedlots. Most states have not been required to submit to EPA any information regarding permit violations, the number of facilities permitted or inspections conducted. The lack of data has meant that the public cannot assess how the state next door measures up.

Policy Recommendations

- Establish a moratorium on Clean Water Act permits for new and expanding factory farms until all existing facilities have effective permits in place and standards are upgraded.

- Ensure that local citizens are able to participate fully in the decision as to whether a factory farm is allowed to locate in their community. Give citizens the opportunity to help decide what pollution controls are needed on factory farms to protect their communities. Only individual site-specific

permits can accomplish this—followed by strict water quality monitoring by livestock operators and tough enforcement against Clean Water Act violators.

- Ban massive open-air manure lagoons at factory farms, and the spraying of manure and urine into the air. Encourage environmentally friendly farming systems.

- Prevent manure from running off the land.

- The nation's water must be protected from poultry manure. Regulate chicken factories under the Clean Water Act in the same fashion as other animal operations.

- Hold corporations that own livestock animals responsible for paying the costs of wate disposal and cleanup.

NOTES

1. John Lang, "U.S. Floating in Stinky Problem: Manure Pollution," *Deseret News* (April 29, 1998).

2. Gregory P. Kratz, "Will Corporate Farms Hog Market?" *Deseret News* (September 16, 1998).

3. Gregory P. Kratz, "Will Corporate Farms Hog Market?" *Deseret News* (September 16, 1998).

4. Gregory P. Kratz, "Will Corporate Farms Hog Market?" *Deseret News* (September 16, 1998).

5. Nancy Thompson,"Are Large Hog Operations Good for Rural Communities?" Center for Rural Affairs Newsletter, Walthill, Nebraska (November 1997).

6. John Lang, "U.S. Floating in Stinky Problem: Manure Pollution," *Deseret News* (April 29, 1998).

7. Minority Staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry, *Animal Waste Pollution in America: An Emerging National Problem*," Washington, D.C. (December 1997), p. 5.

8. John Lang, "U.S. Floating in Stinky Problem: Manure Pollution," *Deseret News* Archives (April 29, 1998).

9. John Lang, "U.S. Floating in Stinky Problem: Manure Pollution," *Deseret News* Archives (April 29, 1998).

10. U.S. General Accounting Office, Briefing Report to the Committee on Agriculture, Nutrition, and Forestry, U.S. Senate, *Animal Agriculture, Information on Waste Management and Water Quality Issues*, GAO/RCED-95-200BR, Washington, D.C., pp. 58-61.

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Chapter 1

ENVIRONMENTAL AND HEALTH CONSEQUENCES OF ANIMAL FACTORIES

Factory farms, which mass-produce animals in assembly-line fashion, have harmed aquatic life, human health and ecosystems across the nation. As industrial-sized farms stagger under the vast burden of manure they are generating, environmental disasters are inevitable. The scale of this unprecedented outpouring of animal waste is staggering: 130 times the waste generated by humans in this country each year.[1]

This section details how animal waste is poisoning our water and air. It also explains why more disasters are likely to occur unless the nation takes serious steps not only to regulate the way animal factories currently handle their waste but also to turn towards more benign methods of raising animals and managing the wastes they generate.

Water Pollution

Bursting and overflowing manure lagoons have spawned environmental disasters around the country, sending animal waste gushing into rivers, groundwater and coastal wetlands. In 1995, an 8-acre hog waste lagoon in North Carolina burst, spilling 25 million gallons of animal waste into the New River. The spill killed as many as 10 million fish and closed 364,000 acres of coastal wetlands to shellfishing.[2] In 1998, a 100,000-gallon spill into Minnesota's Beaver Creek killed close to 700,000 fish.[3] In 1997, animal feedlots were responsible for 2,391 spills of manure in Indiana.[4] Sixty-three percent of Missouri's factory farms suffered spills between 1990 and 1994, according to Missouri's Department of Natural Resources.[5] In 1996, forty spills killed close to 700,000 fish in Iowa, Minnesota and Missouri.[6]

A North Carolina study of nearly 1,600 wells adjacent to hog and poultry operations showed that 10 percent of the wells tested were contaminated with nitrates above the drinking water standard, and 34 percent were contaminated with some level of nitrates.[7] Another study in that state found severe seepage

losses of nitrogen from more then 50 percent of the lagoons tested by the state, posing a risk to groundwater.[8] While seepage can be reduced with the use of clay liners, even clay-lined lagoons may leak from several hundred to several thousand gallons per acre per day.[9]

While spills capture public attention, the more common problem is over-application of waste onto cropland, which sends polluted runoff into waterways and leaches pollutants into the groundwater.

Too Much Manure on Too Little Land

Animal manure can be a valuable fertilizer source. But the sheer quantity of manure that is the byproduct of large-scale animal confinement operations makes it more difficult to apply manure at a rate at which it can be absorbed by crops.[10] The quantity of manure is magnified since feedlots are often clustered in close proximity to each other in small geographic areas in order to be close to slaughterhouses and inexpensive feed supplies.

Applying too much manure to farmland sends pollutants into rivers, streams, groundwater and air, which serves as yet another pathway to water. In a North Carolina state study, the nitrates in shallow groundwater below fields sprayed with liquid manure have been measured at rates five times the human health standard; in long-term sprayfields, the rates have been as high as thirteen times the human health standard.[11]

Pollutants of Concern

The pollution from animal waste can harm waterways, human health and aquatic life. The primary pollutants of concern are nutrients (nitrogen and phosphorus), pathogens like bacteria and viruses, and heavy metals.

Phosphorus and nitrogen from manure are major water pollutants. At high levels, phosphorus is acutely toxic to fish; at lower levels, phosphorus and nitrogen over-enrich water bodies, causing an excess of algae (a process called "eutrophication").

Oxygen in water is a basic requirement for a healthy aquatic ecosystem. Severe oxygen depletion usually results when large quantities of organic matter, such as animal manure, pollute waterways. Prolonged exposure to low oxygen conditions can suffocate adult fish and their eggs or starve them by killing their prey. An example of the possible harm that may be caused by excessive nutrients is the development of a large oxygen-depleted "hypoxic" area known as the "dead zone" in the Gulf of Mexico. This dead zone, responsible for massive fish kills, now covers extensive areas of the continental shelf south of Louisiana at certain times of the year.[12] Related problems of nutrient enrichment and eutrophication include noxious algae that have toxic effects on marine life.[13] Nutrient pollution has been linked to the growth of a type of organism known as *Pfiesteria piscicida*,[14] which has been implicated in major fish kills in coastal waters in North Carolina. In 1997, *Pfiesteria piscicida* killed more than 30,000 fish in the Chesapeake Bay,[15] whose Eastern Shore suffers from the over-application of poultry manure on farmland. *Pfiesteria* is also toxic to humans.[16]

Ammonia is a toxic form of nitrogen that causes algae blooms and fish kills in coastal waters. Open-air lagoons emit ammonia into the air. Sprayfields and barns also contribute to the problem.[17]Some of the ammonia emitted from factory farms is deposited into waterways or fields about 50 miles away through water or fog, and the rest changes into a drier, airborne form that can travel hundreds of miles away.[18]In Sampson County, North Carolina, the amount of ammonia in the rain doubled between 1985 and 1996, a period of major expansion in the hog industry.[19]

Another pollution concern is the long-term contamination of soil from heavy metals added to livestock feed. For example, zinc and copper are added to swine and poultry feed to prevent disease and improve digestion. Plants absorb a small amount of these metals, but a significant quantity builds up in the soil. When the level gets too high, it can stunt plant growth. Human waste, which is applied to land as sludge, also contains heavy metals, and EPA regulations impose restrictions on the permissible level of heavy metals in sludge.[20] These restrictions do not apply to the land application of animal waste, however. In 1995, 17 percent of the soil samples in North Carolina's largest poultry-producing counties and 10 percent of the soil samples in the state's largest swine-producing counties had zinc levels that exceeded by ten times the levels needed by the crops for their growth. The number of soil samples from these counties that exceeded this level had doubled since 1985. Already this level of zinc makes it hard to grow peanuts, and other crops will begin to suffer in future decades as the metals reach higher concentrations.[21] Application onto the land of lagoon sludge, the buildup left on the bottom of the cesspool, poses another environmental threat. Lagoons are abandoned after ten or twenty years and the sludge that has accumulated over the years contains high concentrations of heavy metals, such as zinc and copper, from animal feed.[22]

Human Health Concerns

Human health is also at risk from animal waste pollution. Some of the main concerns include pathogens and excess nitrogen.

Animal waste can contain pathogens (including fecal coliform and other forms of coliform bacteria) that can, for example, contaminate drinking water and cause gastrointestinal illnesses. In some groundwater surrounding factory farms bacteria are present, which demonstrates the potential for microbial contamination.[23] In 1993, *cryptosporidium*, a pathogen found in Milwaukee's drinking water, made 400,000 people sick and led to the deaths of more than 100 people. A suspected cause was dairy manure.[24]

Pathogens in hog waste are 10 to 100 times more concentrated than they would be in human sewage which is diluted with water in sewage treatment plants. Additionally, human sewage is treated to reduce the nutrients, organic matter and pathogens and is then usually disinfected. In contrast, hog waste is typically stored in anaerobic lagoons, which scarcely reduce the microbial indicators of fecal contamination.[25]

High levels of nitrogen leaching into drinking water supplies increase the risk of methemoglobinemia, or blue-baby syndrome, which can cause deaths in infants.[26] In 1996, the Centers for Disease Control linked the high nitrate levels in Indiana well water near feedlots to spontaneous abortions in humans.[27] High nitrate levels may also foster the growth of harmful organisms like *Pfiesteria*. In humans, exposure

to *Pfiesteria* toxins in the air or water can cause skin irritation, short term memory loss and other cognitive impairments.[28]

Two studies have looked generally at the medical conditions of residents living near swine factory farms. One survey of residents living in the vicinity of a 2,500-sow facility found much higher reports of respiratory problems than those recorded in neighborhoods of farms where no livestock was raised. Another study from North Carolina found behavioral changes in individuals living near large-scale confinement operations.[29]

The intensive use of antimicrobials (including antibiotics) is an integral feature of industrial animal agriculture. Over 40 percent of the antibiotics sold in the United States are used in agriculture, more than 80 percent by weight for growth promotion and the rest for treatment of animal disease. Scientists now believe that agricultural use of antimicrobials has major implications for human health. There is growing evidence that animal use of antimicrobials is tied to the evolution of multiple drug resistance in food-borne disease agents and the loss of efficacy of drugs important in human medicine.[30] Concern about antimicrobial resistance has led scientists and public health officials to advocate curbs on antibiotic use in animal agriculture.[31] The Centers for Disease Control and Prevention (CDC) has also concluded that animal use of antimicrobials has adverse human health consequences and is targetting animal use in its campaign to halt the spread of antibiotic resistance.[32]

Pollution Associated With Poor Siting

Around the nation, lagoons and fields fertilized with manure are sited in locations where pollution is likely to occur. Many states allow lagoons and fields spread with manure to be situated in floodplains and wetlands, and in areas that directly connect to groundwater.

For example, in North Carolina, many factory farms are sited in sandy soils in the coastal plain, in or near "prior converted wetlands" (those drained and converted to agriculture prior to 1985). Although the Clean Water Act exempts these areas from wetlands protections, they still behave like wetlands in many ways; for example, they often have high water tables that may facilitate the overflow of lagoons.

In Kentucky and several other states, factory farms are located in karst terrain—porous, fragile limestone formations that directly connect to groundwater. A burst lagoon in karst areas can put both surface water and groundwater at risk.

Groundwater Depletion

Groundwater depletion is another concern associated with factory farms. Water is used to cool and water the animals and to flush waste from the confinement sites into the lagoons. Additionally, many animals consume large amounts of water. For example, pigs consume from between five to eight gallons of water a day. In Missouri, activists estimate that a swine operation that finishes 80,000 animals per year consumes over 200,000 gallons of water per day, or 73 million gallons per year.[33]

Air Pollution

The air quality problems associated with large-scale confinement operations include emissions of hydrogen sulfide, ammonia and methane.

Methane is a potent greenhouse gas implicated in global climate change. A commonly used manure "treatment" technology is anaerobic lagoons, which reduce the nutrient content of the waste but produce methane gas as a byproduct. EPA estimates that emissions from manure management were about ten percent of total U.S. methane emissions in 1995, and about 31 percent of the agricultural sector's emissions. Of these emissions, liquid-based manure management systems such as those found in factory farms accounted for over eighty percent of the total emissions from animal wastes.[34]

Hydrogen sulfide is a toxic gas associated with the decomposition of swine manure. Emissions of this gas turned out to be the cause of dizziness, nausea, vomiting and blackouts for residents of Renville County, Minnesota, living near factory farms. Initial tests by the Minnesota Pollution Control Agency in that county found that public health standards for hydrogen sulfide were exceeded by half of the ten facilities tested, some by up to 50 times the state standard.[35]

Conclusion

Factory farms have polluted our surface waters, our groundwater and our air. Moreover, public health is being threatened. It's time to recognize the damage that animal factories are wreaking on our environment.

NOTES

1. Minority Staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry, *Animal Waste Pollution in America:An Emerging National Problem*, Washington, D.C. (December 1997), p.3.

2. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March-April 1998), p. 27.

3. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March-April 1998), p.28.

4. Kyle Niederpruem, "Short Staffing Makes Policing Polluters Harder," *Indianapolis Star-News* (April 21, 1998).

5. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March-April 1998), p. 28.

6. Minority Staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry, *Animal Waste Pollution in America: An Emerging National Problem*, Washington, D.C. (December 1997), p. 5.

7. Memorandum from Dr. Kenneth Rudo, Toxicologist, to Dr. Dennis McBride, State Health Director, North Carolina Department of Health (August 1998).

8. R.L. Huffman and P.W. Westerman, "Estimated Seepage Losses from Established Swine Waste Lagoons in the Lower Coastal Plain in North Carolina," transactions of the ASAE 38(2):449-453 (1995).

9. Correspondence from Dennis Ramsey, North Carolina Department of Health and Natural Resources, to Karen Priest (May 19, 1997).

10. National Research Council, *Soil and Water Quality: An Agenda for Agriculture*, Washington, D.C. (1993), p.400.

11. Remarks of Joe Rudek, PhD., Senior Scientist, North Carolina Environmental Defense Fund in *Hog Waste and Environmental Quality in North Carolina, A Report on the Save Our State Forum*, Raleigh, North Carolina (June 11, 1998), p. 47.

12. Ann Robinson and Robbin Marks, *Restoring the Big River, a Clean Water Act Blueprint for the Mississippi*, Izaak Walton League, Minneapolis, Minnesota, and the Natural Resources Defense Council, Washington, D.C. (February 1994), p.13, referencing S.B. Lovejoy, "Sources and Quantities of Nutrients Entering the Gulf of Mexico from Surface Waters of the United States," EPA/800-R-92-002.

13. Ann Robinson and Robbin Marks, *Restoring the Big River, a Clean Water Act Blueprint for the Mississippi*, Izaak Walton League, Minneapolis, Minnesota, and the Natural Resources Defense Council, Washington, D.C. (February 1994), p. 13.

14. U.S. Environmental Protection Agency, et al., "What You Should Know About *Pfiesteria Piscicida*," Fact Sheet (June 1998), p. 2.

15. Minority Staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry, *Animal Waste Pollution in America: An Emerging National Problem*, Washington, D.C. (December 1997), p. 2.

16. U.S. Environmental Protection Agency, et al., "What You Should Know About *Pfiesteria Piscicida*," Fact Sheet (June 1998), p. 2.

17. Stuart Leavenworth and James Eli Shiffer, "Airborne Menace," *Sunday Raleigh News and Observer* (July 5, 1998), p. 8A.

18. Stuart Leavenworth and James Eli Shiffer, "Airborne Menace," *Sunday Raleigh News and Observer* (July 5, 1998), p. 8A.

19. Stuart Leavenworth and James Eli Shiffer, "Airborne Menace," *Sunday Raleigh News and Observer* (July 5, 1998), quoting Viney Anaja, a research professor in the Department of Marine, Earth and Atmospheric Sciences at North Carolina State University, p. 1A.

20. 40 CFR Part 503, "Use and Disposal of Sewage Sludge."

21. Joby Warrick and Pat Smith, "Heavy Metal Deposits in the Soil Pose A New Concern for Farmers," *The Raleigh New and Observer* (September 17, 1995), p. 5.

22. Remarks of Joe Rudek, PhD., Senior Scientist, North Carolina Environmental Defense Fund in *Hog Waste and Environmental Quality in North Carolina, A Report on the Save Our State Forum*, Raleigh, North Carolina (June 11, 1998), p. 47.

23. Remarks of Mark Sobsey, Professor of Environmental Biology, University of North Carolina at Chapel Hill in *Hog Waste and Environmental Quality in North Carolina, A Report on the Save Our State Forum*, Raleigh, North Carolina (June 11, 1998), p. 43.

24. David Letson and Noel Gollehon, "Confined Animal Production and the Manure Problem," *Choices* (Third Quarter 1996), p.18.

25. Remarks of Mark Sobsey, Professor of Environmental Biology, University of North Carolina at Chapel Hill in *Hog Waste and Environmental Quality in North Carolina, A Report on the Save Our State Forum*,

Raleigh, North Carolina (June 11, 1998), p. 43.

26. U.S. Environmental Protection Agency, *The Report of the EPA/State Feedlot Workgroup*, Office of Wastewater Enforcement and Compliance, Washington, D.C. (September 1993), p. 17.

27. "Spontaneous Abortions Possibly Related to Ingestion of Nitrate-Contaminated Well Water_ LaGrange County Indiana 1991- 1994," *Morbidity and Mortality Weekly*, Report 26, Centers for Disease Control (July 5, 1996), pp. 569-571.

28. U.S. Environmental Protection Agency, et al., "What You Should Know About *Pfiesteria Piscicda*," Fact Sheet (June 1998), p. 2.

29. Kelley J. Donham, The University of Iowa, "Occupational Health Risks for Swine Producers: Inferences for Public Health Risks of People Living in the Vicinity of Swine Production Units," in *Extended Abstracts of Papers and Posters Presented, Manure Management In Harmony With the Environment and Society*, hosted by The Soil and Water Conservation Society, West North Central Region, Ames, Iowa (February 10-12, 1998), pp. 299-303.

30. S. Levy, "Multidrug Resistance—A Sign of the Times," *New England Journal of Medicine* (May 7, 1998) Volume 338; S. Rankin and M. Coyne, "Multiple Antibiotic Resistance in Salmonella enterica serotype enteriditis," *The Lancet* (June 6, 1998), Volume 351.

31. V. Perreten, et al., "Antibiotic Resistance Spread in Food," *Nature* (October 23, 1997), Vol. 389; World Health Organization, "The Medical Impact of the Use of Antimicrobials in Food Animals, Report of a WHO Meeting," Berlin, Germany (October 1997).

32. Centers for Disease Control and Prevention, The CAUSE, Winter Quarter, Vol. 2. (January 1998) (*www.cdc.gov/ncidod/dbmd/cause/jan98.htm*).

33. "Hog Wars: The Corporate Grab for Control of the Hog Industry and How Citizens Are Fighting Back," Missouri Rural Crisis Center (undated).

34. U.S. Environmental Protection Agency, "Global Warming: Inventory of U.S. Greenhouse Gas Emissions," *http://www.epa.gov/global warming/inventory/methane.html* (updated October 20, 1998).

35. Chris Ison, "State Air Tests Find High Levels of Toxic Gas Near 5 Feedlots; Agency's Findings Confirm Neighbors Complaints," *Minneapolis Star Tribune* (April 26, 1998), p. A1.

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Chapter 2

RECOMMENDATIONS TO IMPROVE POLLUTION CONTROLS ON FACTORY FARMS

The Clean Water Act (CWA), enacted in 1972, works to help solve water pollution problems that are national in scope. Pollution from animal factories is a national problem, affecting more than half of the states in the United States. This report describes the pollution problems of thirty states and also documents the states' ineffective efforts to protect their citizens from animal factory pollution. However, even if a state were truly committed to solving the problems of factory farm pollution, it would be nearly impossible for a single state to accomplish that task given the extent to which factory farms pollute surrounding states. Pollutants gushing into waterways or wafting airborne do not stop at state boundaries. Moreover, because some of the largest operators try to site factory farms in states with the laxest environmental protections, only nationwide standards can assure this problem is addressed effectively. The pressing concern with factory farm pollution across the country provided the impetus for two bills being considered before Congress, S. 1323, "The Animal Agriculture Reform Act," sponsored by Senator Tom Harkin (D-IA) and H.R. 3232, "The Farm Sustainability and Animal Feedlot Enforcement Act," sponsored by Representative George Miller (D-CA).

In a proposal released earlier this year, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) give long-overdue recognition to the problems of factory farm pollution. Their "Draft Unified National Strategy for Animal Feeding Operations" (referred to here as the EPA-USDA Draft Strategy) calls for the implementation of a national Clean Water Act program—an urgent need documented by this report.[1] However, the strategy must be considerably strengthened if it is to stop factory farm pollution.

The following recommendations outline a Clean Water Act blueprint for the control of animal factory pollution.

A moratorium on Clean Water Act permits for new and expanding factory farms should be instituted, until all existing facilities have effective permits in place and standards are upgraded.

The current Clean Water Act standards under which factory farms operate are woefully inadequate. For example, the technology standards allow factory farms to build football-field sized, open-air manure cesspools. These manure lagoons have burst, leaked and overflowed—polluting waterways across the country.

A lack of clarity in another set of rules—the permitting rules—has allowed many factory farms to evade the environmental restrictions that do apply under the law. As currently administered, the Clean Water Act has allowed individual factory farms to claim they are not polluters, even when the facility in question poses real-life pollution threats in its everyday handling of manure. Depending on the state, such a claim may exempt a livestock operator from the Act's restrictions on how polluters operate—restrictions aimed at protecting water quality.

Under its new strategy, EPA is proposing to issue hundreds of permits to new and expanding factory farms. But these permits would be issued under the same antiquated technology rules that have allowed most factory farms to pollute.

EPA should impose a moratorium on permits for new and expanding animal factories that currently qualify as concentrated animal feeding operations. This moratorium should stand until all existing facilities have received permits, until EPA upgrades its standards regarding animal waste technology, and until EPA tightens its rules to insure comprehensively that all factory farms are required to obtain a permit. This time-out would also allow states to assess the water quality effects of existing CAFOs before new operations are built or existing operations are expanded. The wisdom of a temporary time-out has been recognized by states all over the country at one time or another, including North Carolina, Kentucky, Mississippi, Missouri and Oklahoma. Unfortunately, the EPA-USDA Draft Strategy does not include a moratorium.

Local citizens should be allowed to participate fully in the decision as to whether a factory farm is allowed to locate in their community. And citizens should have the opportunity to help decide what pollution controls are needed on factory farms to protect their communities. Only individual site-specific permits can accomplish this—followed by strict water quality monitoring by livestock operators and tough enforcement against Clean Water Act violators.

Despite the risk that factory farms pose to water supplies and to public health, citizens in most states do not have the right to be notified before a factory farm moves into their community. Once citizens are faced with the prospect of a huge animal factory that will generate more waste than several of their small towns put together, there is rarely anything they can do to stop the facility from operating. And once an animal factory has been established, there is little citizens can do to ensure stricter pollution controls. The lack of citizen participation in basic decisions about how to protect their communities from huge potential polluters is a basic feature of the general permit, which is the type of permit most commonly employed by states.

Rather than allow general permits for factory farms, the EPA should require that all factory farms be subject to more stringent individual permits. Individual permits require public notice before a factory farm can be permitted, set site-specific permit terms and may require an on-site evaluation prior to permit issuance. Site-specific permit terms might, for example, require the siting of a manure storage facility in the least ecologically vulnerable

location on a property, despite the owner's plans to put it elsewhere. An individual permitting system might have prevented the location of a controversial factory farm within close proximity to a wildlife refuge in Mississippi.

Unfortunately, the EPA-USDA Draft Strategy relies upon the use of general permits for animal factories, especially for existing operations. The strategy identifies a list of certain types of factory farms that should receive individual permits, such as new and significantly expanding operations and operations known to pollute or likely to pollute.[2] This is a good starting point but not enough. *All* factory farms should receive individual permits. Additionally, EPA undermines the use of this limited list by giving states the option of ignoring it.

Permits issued under the federal Clean Water Act should be required for all factory farms. A national permitting system is needed to create greater consistency and protection across the nation than is offered by the current patchwork of state laws. As is currently the case under the Clean Water Act, states would be free to adopt more environmentally protective standards but could not sink below the "floor" of federal technology and permitting standards. There are several reason to mandate Clean Water Act permits: (1) Clean Water Act permits are designed to insure that water quality standards are attained.[3] State permits are not necessarily based on this goal. (2) Under the Clean Water Act, if a nearby water body becomes polluted by feedlots and other industrial sources, EPA establishes pollution reduction goals for each polluter.[4] (3) Under the Clean Water Act, citizens have the right to bring lawsuits against polluters to enforce the Clean Water Act.[5] Few of the states allow a citizen to sue a polluter for a violation of a state water pollution control permit. To its credit, the EPA-USDA Draft Strategy recommends the use of Clean Water Act permits for all confined animal feeding operations.[6](Note: While some states now issue permits to feedlots under a variety of state laws, only Clean Water Act permits provide the consistent environmental protection and procedural rights we need.)

Finally, Clean Water Act permits for factory farms must be backed up with meaningful compliance. Most industries that are issued Clean Water Act permits must monitor receiving waters and periodically report the results to EPA. However, factory farms, which are not currently required to follow these water-testing requirements, should be required to follow them. A strict regimen of enforcement is needed, such as periodic and unannounced inspections and penalties for violations that will ensure compliance.

Open-air manure cesspools for factory farms and the spraying of manure and urine into the air should be banned. Environmentally friendly farming systems should be encouraged.

Factory farms generate so much manure and urine in one place that, unlike livestock operations on a smaller scale, their manure storage and land application practices are often more a matter of waste disposal than of fertilizing crops. Open air lagoons and aerial spraying by factory farms should be banned. They should be replaced with technologies that do not rely upon open air storage of vast quantities of liquid manure, or that store manure in a drier form. Additionally, environmentally friendly and more humane farming systems should be encouraged, including composting and pasture systems. These systems, as well as an innovative system in which hogs are raised on straw, have been proven to work in Europe and in the United States. North Carolina passed legislation that required the State Depart

ment of Agriculture to develop a plan to phase out lagoons and sprayfields, but the Department's plan has failed to comply with this mandate. H.R. 3232, the Farm Sustainability and Animal Feedlot Enforcement

Act, sponsored by Representative George Miller (D-CA), would phase out open-air lagoons for factory farms. The EPA-USDA Draft Strategy barely mentions more sustainable approaches. The strategy appears to support the continued use of liquid manure systems in the short-term, and does not commit to banning lagoons and sprayfields in the long-term.[7] Finally, the EPA-USDA Draft Strategy fails to embrace a comprehensive regulatory approach to addressing all elements of environmental degradation, not just water.[8]

Manure should be prevented from running off the land.

One of the best features of the EPA-USDA Draft Strategy would require factory farms to follow plans aimed at protecting soil and water from pollution through the land application of too much manure. Recognition has been growing that spreading vast quantities of manure on land can be as much of a pollution threat as a leaking manure lagoon.[9]

In an important move, the EPA-USDA Draft Strategy requires factory farms to develop and implement nutrient plans that will "ensure that the proper amounts of nutrients are applied in a way that does not cause harm to the environment or public health."[10] If this standard means restrictions based on the nutrient phosphorus and on pathogens, it would be a notable improvement over state permit programs that, for example, only consider nitrogen. Most states fail to prevent pollution from phosphorus, a nutrient in manure, even when they regulate the land application of manure. Polluted runoff rich in phosphorus poses environmental risks, including fish kills.

However, the EPA-USDA Draft Strategy is short on the details of what will be required in a Comprehensive Nutrient Management Plan or what nutrients it has in mind. Additionally, it appears that factory farms will have years to develop plans and several years thereafter to implement the plans, so the benefits of these plans will not occur for years to come. Finally, although the Comprehensive Nutrient Management Plans are recommended as core features of factory farms' Clean Water Act permits, especially for facilities issued general permits, the public is given no say on their terms. The plans are only available to the public after they have been approved by the USDA and EPA.[11]

The nation's waters must be protected from poultry manure. Chicken factories should be regulated under the Clean Water Act in the same fashion as other animal operations.

Many of the states described in this report spoke of significant pollution problems from poultry operations. Yet most states fail to impose any kind of water pollution permits to set environmental controls on the land application and storage of chicken litter. According to the U.S. General Accounting Office, close to 2,000 poultry operations were of sufficient size to warrant a permit in 1992, but only 39 operations had them.[12] The rationale used by most states and by EPA for exempting these operations was that poultry litter is dry. Yet even dry manure, when applied in excess quantities to the land, can create polluted runoff. Poultry

factory farms should be issued Clean Water Act permits, whether the manure generated is dry or wet. The EPA-USDA Draft Strategy needs to state clearly that all dry litter factory farms will be regulated in the same fashion as other animal operations.

Corporations that own livestock animals should be responsible for paying the costs of waste disposal and cleanup.

Large corporations often contract with smaller producers to raise their chickens and swine but do not take responsibility for disposing of the animals' waste. In many cases, farmers raising animals under contract are forced to become polluters because the major food corporations that own the animals will not provide enough acreage to apply wastes properly. As a result, small contract growers are often forced to over-apply manure to the fields that they have available. The EPA-USDA's Draft Strategy fails to impose legal liability and financial responsibility for factory farm pollution on the corporations pulling the strings. The onus to comply with permit restrictions should fall on the entity that owns the animals or that has control over how the animals are produced through production contracts. Shared responsibility for pollution between the corporation and the contract farmer is an approach taken by the state of Kentucky.

Finally, some corporations have subdivided their operations into smaller farms to evade permitting requirements for large-scale factory farms. To ensure that all operations which pose a pollution risk are covered, multiple facilities in the same area and owned by one corporation should be captured within the permitting systems.

NOTES

1. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998).

2. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998). p. 26.

3. Clean Water Act, Sections 101(a) and 402.

4. Clean Water Act, Section 303(d).

5. Clean Water Act, Section 505.

6. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), pp. 15-18.

7. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), p. 31.

8. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), p. 5.

9. Concerned Area Residents for the Environment, et al. vs. Southview Farm and Richard Popp, 834 F. Supp. 1410 (W.D.N.Y. 1993), Defendant's Motion for Judgment as a Matter of Law, 834 F. Supp. 1422 (Cir. 2 1993), (rev'd 34 F. 3d 114 (2d Cir. 1994) (reversing defendant's motion)), cert. denied, 115 S. Ct. 1793 (1995)

10. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998). p. 8.

11. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), p. 8-26.

12. U.S. General Accounting Office, Briefing Report to the Committee on Agriculture, Nutrition and Forestry, U.S. Senate, *Animal Agriculture, Information on Waste Management and Water Quality Issues*, GAO/RCED 95-200BR, Washington, D.C. (1995), pp. 58-61.

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Glossary

Agronomic Rates This is the rate at which manure can be applied so that it matches the nitrogen and phosphorus requirements of the crop. The rate is determined by evaluating the soils, the expected yield of the crop and the contributions made by nitrogen and phosphorus from other sources (such as crop residues and applied fertilizer).[1]

AFO (Animal Feeding Operation) Agricultural operations where livestock (chickens, dairy cows, hogs and beef cattle) are kept and raised in confined situations. AFOs confine animals, feed, manure, urine, dead animals, and production operations within a small land area. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures or fields.[2] Some states regulate AFOs, while others regulate only the largest_scale feedlots, known as CAFOs (see below). For the purposes of this report and in most regulatory programs, AFOs include operations that have fewer animal units (see below) than CAFOs. Although in practice it has not occurred, all CAFOs and a subset of AFOs linked to pollution problems should be regulated under Federal Clean Water Act NPDES permits (see below).[3]

Anaerobic Lagoon An impoundment designed to store and treat animal manure diluted with water. "A lagoon acts as a biological tank, in which the manure is partially decomposed before it is used on land as a fertilizer… in the form of irrigation liquid."[4] Lagoons are legally allowed to seep, and some have been associated with problems such as air and water pollution.

Animal Units A convention for "counting" animals to determine whether environmental rules apply. Under Clean Water Act regulations and many state permit programs, 1,000 animal units translates to: 1,000 slaughter and feeder cattle, 700 mature dairy cattle, 2,500 swine each weighing over 25 kilograms (approximately 55 pounds); 55,000 turkeys, 100,000 laying hens or broilers (with a continuous overflow watering system), 30,000 laying hens or broilers (with a liquid manure handling system), 500 horses, 10,000 sheep or lambs, or 5,000 ducks.[5]

Best Management Practices Refers to farming practices, such as the proper handling of manure, used to protect water quality.

CAFO (Concentrated Animal Feeding Operation) For the purposes of this report, CAFOs are animal feeding operations with at least 1,000 animal units—the equivalent of more than 1,000 head of cattle or 2,500 hogs. (See above for complete definition of animal units.) Not all types of CAFOs are regulated in

every state. For example, many states regulate hog CAFOs, but not poultry CAFOs that rely on dry litter systems.

Eutrophication The process by which phosphorus and nitrogen over-enrich water bodies and cause them to become overgrown with algae, which may be toxic to aquatic life.

General Permits, Individual Permits General permits are Clean Water Act NPDES or state permits that establish terms for preventing water pollution on a statewide basis. Any eligible applicant that agrees to meet those terms is granted a permit. In contrast,

individual Clean Water Act NPDES or state permits require that before a permit is issued, notice is provided to the public, public comment is allowed, permit terms are established based on site-specific conditions, and finally, in some cases, an inspection is required prior to permit issuance.

Impaired Waters Under the Clean Water Act, this term refers to waters polluted to a level that no longer fully supports the uses (such as boating, swimming or drinking water) designated by a state for that particular body of water.

Integrators Corporations that contract with smaller producers to raise livestock. Under these contracts, the corporation owns the animals, but the producer owns the buildings and the manure produced by the animals. Most of the producers, also known as "contractors" or "contract farmers," have contracts that offer them little control and leave them with scant financial resources. In 1995, the average salary of a broiler chicken contract grower was $16,000 a year.[6]

Karst A type of geology characterized by soluble rocks where streams and floodwaters disappear underground and then flow through channels into surface waters. In karst regions, acidic rain can dissolve the limestone rocks and cause cracks or sinkholes. Since all water that falls upon the ground in regions of limestone bedrock eventually finds its way into underground channels, karst regions are particularly vulnerable to pollution from animal waste because pollutants seep quickly into the groundwater and springs underneath.

Nonpoint Sources Under the Clean Water Act, nonpoint sources include polluted runoff from farms, streets, parking lots, mining sites, etc. The Clean Water Act imposes no direct regulatory controls over these sources. Though case law defines manure runoff from a factory farm as a regulated "point source," many permit programs applicable to feedlots, regulate only the storage of liquid manure, and allow the land application of manure to be dealt with on a voluntary basis.

NPDES Permits (National Pollutant Discharge Elimination System Permits) These permits which are issued to industrial-sized "point" sources include conditions aimed at limiting water pollution. Forty-two states have been delegated authority by EPA to issue these Clean Water Act permits. These permits must meet national minimum standards (known as effluent guidelines). The current effluent guidelines for CAFOs require that CAFOs produce essentially no pollution—known as "zero-discharge"—except during an exceptional rainstorm—one that is only likely to occur once every 25 years. NPDES permits also must assure the attainment of any applicable state- or tribe-established water quality standards. Where water quality standards are not attained, a process involving the calculation of the Total Maximum Daily Load of pollution in a stream (see below) is applicable, and NPDES permits must be revised to ensure that water quality standards will be attained.[7]

Though the Clean Water Act has designated CAFOs as point sources required to obtain NPDES permits,

in practice only a fraction of the CAFOs have obtained them. In lieu of or in some cases in addition to NPDES permits, many states have created their own permitting systems that may mirror some of the features of NPDES permits, but also may differ, for

example, in the ability of citizens to file citizen suits to enforce the permits.

Nutrients Food for plants, generally nitrogen and phosphorus. While a certain amount of these substances is beneficial for aquatic life, excess nitrogen and phosphorus over-stimulate the growth of algae and aquatic weeds. A glut of these organisms can clog navigable waterways and make them unusable for swimmers and fishermen. As algae decomposes, it depletes the water's supply of oxygen, killing fish and other aquatic life that depend on a healthy level of oxygen. In rural areas, animal manure is a common source of pollution for nitrogen, phosphorus or both.

Pfiesteria Piscicida An organism that has been known to cause fish kills and lesions in fish in coastal waters from Delaware to Florida. Water or water vapor containing this microbe can also produce the following symptoms in humans: skin irritation and lesions, gastrointestinal problems, short-term memory loss and other cognitive impairments.[8]

Point Sources Under the Clean Water Act, point sources of pollution include industrial facilities, municipal sewage treatment plants and combined sewer overflows. Under the Clean Water Act, point sources are required to obtain permits, known as National Pollutant Discharge Elimination System permits. The Clean Water Act defines feedlots as point sources, but loopholes and a lack of focus on this type of facility have often left feedlots out of this definition.

Surface Waters The Clean Water Act protects "waters of the United States," including all waters that are or could be used for such purposes as recreation, fishing, swimming, agriculture, industry, etc. Lakes, streams, tidal waters, estuaries, and other waters that flow on the surface of the land are covered, including waters that flow only part of the year. Wetlands are also protected. Groundwater (water that flows under the surface of the land in underground rock formations) comes under the Clean Water Act when it is `hydrologically connected' to these surface waters. The reason: under the Constitution, the Clean Water Act reaches only waters that could play a role in interstate or foreign commerce.

Total Maximum Daily Load (TMDL) Under the Clean Water Act, a TMDL identifies the amount of a particular pollutant a stream can handle without violating water quality standards. States are required to distribute this allowable pollution load, the total maximum daily load of pollution, among polluters.

Zero Discharge Permits Zero discharge permits are permits which are designed to meet the following standard for feedlots under the Clean Water Act: facilities must be designed, constructed and operated to keep wastewater from overflowing except during the largest 24-hour rainfall that occurs on the average of once every 25 years (the 25-year, 24-hour storm event).[9] However, while many permits require "zero discharge," few require any water quality monitoring or reporting to demonstrate compliance with this standard.

NOTES

1. Code of Best Agricultural Practice, European Fertilizer Manufacturers Association (www.efma.org/environment/use/sction01.asp).

2. U.S. Department of Agriculture and U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), p. 2.

3. U.S. Department of Agriculture and U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), pp. 16, 17.

4. Iowa State University fact sheet, "Design and Management of Anaerobic Lagoons in Iowa for Animal Manure Storage and Treatment," University Extension, Ames, Iowa, AE-3089 (October 1994).

5. 40 CFR Part 412.10, "Feedlots Point Source Category" (1974).

6. "Farmer Net Income From Broiler Contracts," Rural Advancement Foundation International (March 1995).

7. U.S. Department of Agriculture and U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), p. 13.

8. U.S. Environmental Protection Agency, et al., "What You Should Know About *Pfiesteria Piscicida*" Fact Sheet (June 1998).

9. Iowa Department of Natural Resources, Environmental Regulations and Guidelines for Animal Feeding Operations in Iowa, Des Moines, Iowa (March 1992), p. 2.

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How States Fail to Prevent Pollution from Livestock Waste

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About the Clean Water Network

The Clean Water Network is an alliance of over 1,000 organizations that endorse its platform paper, the *National Agenda for Clean Water*. The *Agenda* outlines the need for strong clean water safeguards in order to protect public health and the environment. The Clean Water Network includes a variety of organizations representing environmentalists, family farmers, commercial fishermen, recreational anglers, surfers, boaters, faith communities, environmental justice advocates, tribes, labor unions, and civic associations.

The Clean Water Network's Feedlot Work Group is comprised of 179 organizations in 41 states who work together to improve federal policies to stop pollution from animal feeding operations. The organizations represent family farmers, rural policy, tribal, sustainable agriculture, animal welfare and environmental interests.

Contact us at proinfo@nrdc.org

Reports

America's Animal Factories

How States Fail to Prevent Pollution from Livestock Waste

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Chapter 2

ALABAMA

- The vast amounts of chicken manure applied as fertilizer in Alabama's biggest poultry-growing counties pose a contamination threat to groundwater and potentially to drinking water.

- Citizens have no opportunity to voice concerns about the environmental impact of new animal factories under Alabama's draft permit system now being considered.

For the past 20 years, Alabama has been faced with the problems of a growing poultry industry, including the potential contamination of the state's water from chicken manure applied too generously to farmland. Now other types of factory feedlots are moving into the state. According to the Alabama Department of Environmental Management (ADEM), Alabama has approximately 220 swine facilities, 248 dairies, about 3,445 broiler chicken facilities and 33,000 beef cattle farms.[1] ADEM does not know how many of these facilities have 1,000 animal units or more.[2]

Pollution Problems

Alabama is one of the leading poultry-producing states in the nation. The state's poultry production is geographically concentrated in the Sand Mountain region of northern Alabama, resulting in a large quantity of poultry litter spread in a few places.[3] In 1991, Alabama's agriculture statistics noted that nearly half of the broiler chickens were concentrated in four counties—Cullman, Blount, Dekalb and Marshall.[4] A study of poultry litter applied to land in these counties showed that the nutrient nitrogen had been applied in excess of plant needs and had seeped underground to a depth at or near the bedrock, indicating the potential for groundwater contamination at levels that might exceed the safe drinking water standard.[5] In 1994, two million tons of poultry litter were produced annually and applied to crop land and pasture land as a fertilizer.[6]

Regulatory Climate

The only permit that operators of large feedlots are required to obtain is a general construction permit written by ADEM. There is no other permit required to construct and begin operating a factory farm.[7] Citizens have no opportunity to comment other than on the general construction permit, which has no relevance to the facility's waste management.

Inspections only occur in response to a complaint or when other information about water pollution problems from a facility is available.[8]

Alabama has circulated draft regulations to create a Clean Water Act permitting system for feedlots including poultry operations.[9] Under the proposal, however, large feedlots would merely be required to register with ADEM. They would not be required to apply for stricter individual permits under the Clean Water Act, which establish terms based on the conditions of the individual farm site and which allow the public to comment on the granting of the permit to a specific operation.[10]

The proposal calls for zero-discharge (see Glossary) except during a major storm event and requires the feedlot to have a waste management plan approved by the U.S. Department of Agriculture's Natural Resources Conservation Service.[11]

Under the proposed regulations, weaning operations raising piglets need not even register. The new regulations would require neither periodic inspections of large feedlots nor groundwater monitoring. In addition, the proposal's public notice and siting requirements are inadequate.[12]

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NOTES

1. "Roundup of Rules," *The Birmingham News* (July 11, 1998).

2. Remarks by Richard Hulcher, Chief, Permits/Compliance Unit, Alabama Department of Environmental Management, CAFO Workshop Meeting, Montgomery, Alabama (February 25, 1998).

3. W.L. Kingery, et al., "Impact of Long_Term Land Application of Broiler Litter on Environmentally Related Soil Properties," *Journal of Environmental Quality* (1994), Vol. 23, pp. 139-147.

4. W.L. Kingery, et al., "Impact of Long_Term Land Application of Broiler Litter on Environmentally Related Soil Properties," *Journal of Environmental Quality* (1994), Vol. 23, p. 139.

5. W.L. Kingery, et al., "Impact of Long_Term Land Application of Broiler Litter on Environmentally Related Soil Properties," *Journal of Environmental Quality* (1994), Vol. 23, p. 146.

6. B.M. Hall, C.W. Wood, et al., "Nutrient Losses in Runoff from Land-Applied Broiler Litter," Alabama Agricultural Experiment Station, Auburn University, Alabama, Vol. 41, No. 2.

7. Alabama Department of Environment Management, AFO Regulatory and CAFO Permitting Program History, Fact Sheet (January 25, 1998).

8. Alabama Department of Environment Management, AFO Regulatory and CAFO Permitting Program History, Fact Sheet (January 25, 1998).

9. Draft Regulations: AFO/CAFO NPDES Chapter 335-6-17 of the Alabama Department of Environmental Management's Rules and Regulations.

10. Southern Environmental Law Center, "Comments on Draft Regulations: AFO/CAFO NPDES Chapter 335-6-17" (August 21, 1998).

11. Draft Regulations: AFO/CAFO NPDES Chapter 335-6-17 of the Alabama Department of Environmental Management's Rules and Regulations.

12. Southern Environmental Law Center, "Comments on Draft Regulations: AFO/CAFO NPDES Chapter 335-6-17" (August 21, 1998).

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Reports

America's Animal Factories

How States Fail to Prevent Pollution from Livestock Waste

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Chapter 3

ARKANSAS

- More than half of the state's hog farms have been cited by the state for environmental violations. The majority involve major pollution problems like animal waste leaks, spills and overfull manure lagoons, according to a survey by public interest groups.

- To make up for too few water pollution inspectors, the state has entered into a controversial agreement with major pork producers to have them police their own contractor farms.

- The state does not impose manure management requirements on poultry factories that generate dry manure.

Throughout the 1980s, Arkansas, the nation's twelfth largest pork producer, experienced a major expansion in the role played by corporate farmers contracting with small farmers to raise hogs. Under the contract system, corporations pay hog farmers to raise company hogs, leaving the farmers solely liable for any environmental violations. Today the state has approximately 400 contracted operations with 1,500 to 6,000 swine each. About half these farmers contract with Tyson Foods, Inc., a food processing giant that transports grown pigs to its slaughterhouses. Arkansas has about 40 hog operations directly owned by corporations, in which case the corporation holds the permit and is responsible for any environmental infraction. The state has about 4,500 poultry operations.[1] With no independent slaughterhouses remaining in Arkansas, factory farm opponents say, small farmers have no other market for their hogs besides the corporate giants.

As industrial pork operations have moved into Arkansas, small family farmers have been the losers. The total number of traditional family-size hog farms in Arkansas has been steadily declining while factory farms have proliferated. Between 1982 and 1992, the total number of farms raising hogs declined by 50 percent. Most of that reduction came from a 60 percent drop in the number of small farms raising fewer than 25 hogs. Although fewer farmers raise hogs today, the total number of hogs produced in Arkansas has skyrocketed because the number of factory farms—those holding at least 1,000 hogs in tightly confined feeding situations—had risen by 253 percent in that period.[2]

When Arkansas passed regulations governing hog farms in 1991, the rules were considered among the strongest in the nation. Since then, however, agricultural states like Oklahoma, Missouri and South Carolina have passed tougher environmental regulations in important areas like odor control and water quality. Now that Arkansas' regulations are comparatively weaker, citizen groups fear the state will become a magnet for factory farms seeking to escape stiffer environmental standards elsewhere.

Pollution Problems

Hog operations in Arkansas often build manure lagoons and other facilities on karst limestone, a geological formation pockmarked like Swiss cheese with hollow pockets. Karst is situated just above groundwater, and is highly porous and subject to collapse—all characteristics making it particularly vulnerable to groundwater pollution from animal manure. Much of the western half of Arkansas is karst limestone.

One of the worst pollution problems in the state has been the long-term degradation of its rivers. Environmental activists contend that northwest Arkansas rivers are already polluted. State officials concede it is only a matter of time before they could pose serious health problems to the area's residents. According to a recent study by the U.S. Geological Survey (USGS), Ozark farmland streams, which feed into northwest Arkansas rivers contain more nutrients from animal waste than most other streams in the nation. The study concluded that nutrient levels there do not yet approach danger levels. But USGS hydrologist Jim Petersen, pointing to poultry and cattle production as the major source of nutrients in northwest Arkansas, has warned that unless farms and waste water treatment plants are closely watched, nutrient levels will rise with the booming population in that part of the state. In northwest Arkansas the pace of development poses environmental risks to the Illinois and White Rivers. In the Ozarks, private wells are also vulnerable to contamination from neighboring poultry, cattle or hog farms, Petersen said. One-third of people living in the Ozarks take their drinking water untreated from wells.[3]

"I think most people generally agree that the nutrients in northwest Arkansas, if they're not problems right now, they're on the verge of that because there's been so much development," Bill Keith, who heads planning at the Arkansas Department of Pollution Control and Ecology's (DPC&E) water division, recently said.[4]

Of particular concern is the White River, which feeds into Beaver Lake, the source of drinking water for much of northwest Arkansas, including the towns of Fayetteville, Springdale and Rogers.

Yet environmental activists say the department takes shockingly few enforcement actions even in the face of overwhelming evidence of environmental pollution by livestock farmers. In 1991, DPC&E issued a permit allowing a Cargill contract hog operation in Mena to double in size despite a long history of violations. Between March 1988 and January 1996, the department issued the facility nine citations for 20 violations of state law ranging from allowing manure lagoons to overflow to illegally discharging lagoon wastewater. The facility has never been fined or otherwise penalized.[5]

In another glaring case in 1992, the department dropped a fine for a Tysons Food, Inc. contract farmer despite clear evidence that he was dumping waste from his 6,000-head hog operation directly into a stream in Mineral Springs. The action came to the attention of DPC&E, the state's enforcement agency,

when a neighbor reported it. The department's inspection found that an irrigation line had been laid from the farmer's manure lagoon across a pasture to the creek. The evidence of pollution was overwhelming: in areas where the hog waste had leaked out on the pasture, the grass had died; DPC&E also measured extremely high, unsafe levels of fecal coliform in the creek. The state fined the farmer $10,000 for pumping waste and $2,000 for dumping carcasses illegally into an open pit. The farmer disputed the violation, arguing that the leak came from another line used for recycling wastewater and had not reached the creek. The department dropped the fine.[6]

The state's blatant failure to curb environmental pollution from factory hog farms has spurred demand for stronger environmental regulation among small farmers and rural neighbors of livestock operations. The Arkansas Coalition for Responsible Swine Production, a coalition of community groups with over 500 members, organized citizens to testify at public hearings in December 1997 and January 1998 for tougher regulation of odors, water pollution and air pollution from factory hog farms. "I've worked on farms before and think that farming is essential to our economy, but we have to put stricter controls on how hog factory farms are run," says Shirley Hardin, a Coalition member who lives next to a hog feeding operation in Pope County. "I've had to leave my home because my kids were getting sick from the gases coming out of that facility. There's no one protecting me or my family's property rights."

Regulatory Climate

Both state officials and citizens' groups have documented numerous failures in DPC&E's inspection and enforcement of environmental violations at Arkansas hog farms.[7] An audit conducted for factory farm opponents in 1997 by the Arkansas Public Policy Panel, a public interest support center in Little Rock, found that half of the state's large hog farms had been cited for violations of state environmental regulations.[8] DPC&E has since publicly admitted that more than half of the state's hog facilities were in violation of its regulations.[9]

More than two-thirds of violations by farms since 1992 involve major problems like animal waste leaks, spills and overfull waste lagoons, concluded the Public Policy Panel's August 1998 survey.[10] Representatives of the Arkansas Coalition for Responsible Swine Production, the citizens' group that released the study jointly with the Public Policy Panel, said this lack of regulatory supervision could lead to disasters such as destroyed fisheries and polluted water supplies.

The Public Policy Panel, in its 1997 and 1998 audit, found that DPC&E inspects swine facilities only once every three years, even though state law requires yearly inspections. Many operations have been repeatedly cited for the same violation—some every time they were inspected. Yet enforcement actions are rare and there are very few fines.[11]

In the spring of 1998, DPC&E Water Division Chief Chuck Bennett agreed with public interest groups that the state's inspection team is under-equipped.[12] This team covers water pollution control permits for facilities of all kinds across the state, including commercial car washes and septic tanks. Assistant Water Division Chief Bruck Kirpatrick acknowledged that with only 15 inspectors to cover the whole state, they can only inspect a hog farm once every three years.[13]

In the spring of 1998, the state adopted a controversial corporate self-policing plan to solve its

understaffing problem. The Pollution Control & Ecology Commission, a body of 12 Governor's appointees that oversees the department's regulatory decisions, adopted a plan put forward by the chairman of its regulations committee, Randy Young. Under the plan, representatives from major pork companies like Tyson and Cargill inspect farms they have under contract on a monthly basis. Young said the plan was needed to "beef up our enforcement."[14] The corporations' self-policing plans have been in effect since April 1998.

At a March meeting where the plan was adopted, Young argued that industry "self-monitoring" would offset the need for more state inspectors.[15] But the plan came under immediate criticism. The editorial board of the *Arkansas Democrat-Gazette* slammed the self-policing plan as the ultimate conflict of interest.[16] "[T]o shift the responsibility for health, safety and the environment to a few corporate citizens rather than beef up the state's own independent inspection teams would be … irresponsible," the newspaper declared. Even DPC&E commission's administrative law judge said he had doubts about the self-policing policy,saying "it was not something he'd rely on."[17]

The failure of self-policing to correct hog farm pollution drew public attention shortly after it took effect. In June, a state environmental official revealed that as many as half of the state's hog farms were storing animal waste inadequately in their manure lagoons. In a memo to DPC&E's director, DPC&E Water Division Chief Chuck Bennett said farmers were not determining whether holding ponds contain too much hog waste and suggested the state needs regulations to force farmers to drain their manure ponds before spring rains. He also criticized the corporate self-policing policy, noting that the department is "severely short of resources to provide proper oversight of farm operations. The self-inspection programs just commencing by industry also will not be of any help."[18]

Surprisingly, corporate field managers are actually reporting violations to DPC&E—at least for now, a recent paper by the Public Policy Panel reports.[19] But Coalition for Responsible Swine Production activists are suspicious that corporations are reporting contract farmers' violations mainly in hopes of forestalling the establishment of a more powerful state inspection force. DPC&E Director Randall Mathis has said he will seek additional funding from the legislature next year for four more inspectors if self-policing proves ineffective.[20] In the meantime, contract farmers are getting hit with state fines for which they bear the entire financial burden—one that should be shared by the corporations, say Coalition members.

"From a social justice perspective, this is outrageous; the contract growers are already under incredible financial pressure from the corporations. Now they are getting hit by fines by DPC&E," says Pat Ford, a London, Arkansas, member of the Coalition for Responsible Swine Production. "The industry has a gun at its head to do a good job. Right now they're nailing their own growers." The group is highly skeptical about how long they'll be willing to do that.

In 1991, the state of Arkansas adopted Regulation 5, the state's primary guideline for regulating hog factory farms. At the time, Arkansas had one of the nation's stiffest regulations of hog farms on the books, contributing to a leveling-out in the state's hog farm growth by the mid-1990s. The regulation mandates that any operator with a liquid waste management system must have a permit, a waste management plan, record-keeping and design standards for lagoons before construction can begin. The state also issues NPDES permits under the Clean Water Act to facilities with more than 1,000 animal units and state water pollution control permits to those with less than 1,000 animal units. Almost all factory hog operations in Arkansas are required to obtain a permit under Regulation 5.[21] Permit

applicants are required to publish a notice in the newspaper.

Today, these guidelines are weaker than regulations in some neighboring states when it comes to areas of major public concern like odor control, water pollution and buffer zones between hog operations and nearby homes. For example, the buffer distances are smaller than those required in Missouri or Oklahoma. Among the regulation's major weaknesses, Arkansas does not require that factory farms install monitoring wells near their waste lagoons to monitor groundwater quality for any sewage leaks.[22] Under the regulations, there is no requirement that heavy metal contamination from animal waste be monitored in fields where waste is spread.[23] Heavy metals such as copper and zinc are added to hog feed in low concentrations to stimulate growth. The metals become more concentrated in waste ponds and fields posing a major environmental threat. Additionally, in the case of contract farms, the corporations that own the animals are not jointly responsible with the farmer for complying with the permit,[24] leaving the cost of manure-handling solely on the back of the contract farmers.

Compliance with the state's best management practices—which provides guidance on handling liquid manure and applying it to land—is mandatory for hog farms. Compliance for chicken farms, which produce dry litter, is voluntary. Best management practices include having a waste management plan (WMP). The soil and water division of DPC&E recommends that animal waste be applied to land based on the maximum absorption rates possible during ideal growing conditions. Unfortunately, applying manure at these rates quickly overwhelms the soil during less than ideal conditions.

In response to citizen concern over the weaknesses in the state's environmental protection rules, DPC&E held hearings in December 1997 and January 1998 on whether to initiate the process of amending Regulation 5. DPC&E is currently considering opening the formal process for changing Regulation 5, which would include additional public hearings.[25]

Appeals of permits for new factory hog farms must be based on technical deficiencies in theconstruction of the operation such as an inadequate buffer zone. Unfortunately, such deficiencies are often difficult for citizens to prove.

One community, Slaty Crossing, contested a permit on the grounds that the contract hog operator for Cargill planned to build an operation that violated the required buffer zone between the farm and his neighbors. DPC&E refused the permit. The operator, however, changed his proposal from an adult pig facility to a piglet facility, which has less stringent setback requirements than an adult facility. With the changes, DPC&E approved the permit. Neighbors who organized themselves as the Slaty Crossing Community Group continued to fight the hog farm in a six-year, $30,000 battle in which they presented evidence that the pig operation could threaten the environmental integrity of a nearby aquifer and wildlife refuge. The residents lost the final round of their battle in a decision by the Arkansas Supreme Court this spring, which found that the permit issued by DPC&E met the agency's requirements.[26]

Citizens appealed another permit when an operator proposed to build a 2,400-pig facility on a wetland outside of Houston, Arkansas, in June 1996. In the end, the operator got his permit by moving the proposed facility a mere 50 feet from the wetland.[27]

State agencies are almost powerless to enforce air quality standards for confined hog operations because they are classified as agricultural farms and are therefore exempt from many Clean Air Act regulations, as well as occupational health and safety standards. Arkansas Department of Pollution Control and Ecology officials admit that confined hog operations have serious effects on air quality, but they say

Arkansas law leaves them powerless to do anything about it.[28] Odors from agricultural operations are specifically exempted from state regulation under the state's 1949 Water and Air Pollution Act.

Local Control

One way to regulate factory hog farms is through zoning. Counties in Arkansas have the authority to pass zoning ordinances, but the majority of counties have not exercised their authority, according to the state Attorney General's office.[29] Two cities in Arkansas—Lockesburg and Houston—have passed resolutions banning hog farms within city limits. Houston enacted its ordinance after a factory farm was proposed three miles outside its city limits in 1996. Houston tried to block the farm by annexing the area outside its city limits and passing a zoning ordinance, but the ordinance was overturned at the circuit court level.[30]

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NOTES

1. Arkansas Agricultural Statistics Office.

2. Arkansas Agricultural Statistics Office.

3. Associated Press, "Survey Says Some Ozark Streams Contain Nitrates," *Russellville Courier* (May 3, 1998).

4. Michael Whiteley, "Waste Water is Next Area Challenge," *Benton County Daily Record/Northwest Arkansas News* (October 3, 1998).

5. Arkansas Public Policy Panel, "Hog Factories vs. Family Farms, Little Rock, Arkansas" (October 1998); DPC&E compliance files, March 1988 to January 1996.

6. Review of the Department of Pollution Control and Ecology Compliance and Inspection Folders, by Arkansas Public Policy Panel (1992).

7. Seth Blomeley, "Hog Farms Cited on Major Issues, Study Suggests," *Arkansas Democrat-Gazette* (August 28, 1998), p. B1.

8. Arkansas Public Policy Panel with the Coalition for Responsible Swine Production, "Anti-Factory Hog Farm Coalition Formed: Problems at DPC&E Documented," Press Release (June 26, 1997).

9. Seth Blomely, "Hog Waste Packs Ponds, Memo Says," *Arkansas Democrat-Gazette* (June 10, 1998), p. A1; Department of Pollution Control and Ecology, "Report on DPC&E Regulation 5" (July 11, 1997).

10. The Arkansas Public Policy Panel with the Coalition for Responsible Swine Production, "Hog Farming in Arkansas, Audit," Russellville, Arkansas (August 27, 1998).

11. The Arkansas Public Policy Panel with the Coalition for Responsible Swine Production, "Hog Farming in Arkansas, Audit," Russellville, Arkansas (August 27, 1998).

12. Seth Blomeley, "Hog Waste Packs Ponds, Memo Says," *Arkansas Democrat-Gazette* (June 10, 1998).

13. Seth Blomeley, Proposal Would Let Hog Industry Police Itself," *Arkansas Democrat-Gazette* (March 23, 1998).

14. Seth Blomeley, Proposal Would Let Hog Industry Police Itself," *Arkansas Democrat-Gazette* (March 23, 1998).

15. Seth Blomeley, Proposal Would Let Hog Industry Police Itself," *Arkansas Democrat-Gazette* (March 23, 1998).

16. "Don't Be Piggy: A Plan for the Unnatural State," *Arkansas Democrat-Gazette*, Editorial Page (March 27, 1998).

17. Seth Blomeley, Proposal Would Let Hog Industry Police Itself," *Arkansas Democrat-Gazette* (March 23, 1998).

18. Seth Blomeley, "Hog Waste Packs Ponds, Memo Says," *Arkansas Democrat-Gazette* (June 10, 1998).

19. Arkansas Public Policy Panel, "Hog Factories vs. Family Farms," Little Rock, Arkansas (October 1998).

20. Seth Blomeley, "Hog Waste Packs Ponds, Memo Says," *Arkansas Democrat-Gazette* (June 10, 1998).

21. Under Regulation 5, an exception to the permit requirement is made for hog farms using dry litter rather than liquid manure. State of Arkansas Polluton Control and Ecology Commission, Regulation # Five, Liquid Animal Waste Systems, effective August 30, 1992.

22. State of Arkansas, Pollution Control and Ecology Commission, Regulation # Five, Liquid Animal Waste Management Systems, effective August, 30, 1992. By contrast, Oklahoma's 1998 law governing large swine feeding operations (SB1175) requires that monitoring wells be installed next to manure lagoons.

23. State of Arkansas, Pollution Control and Ecology Commission, Regulation #Five, Liquid Animal Waste Management Systems, effective August 30, 1992.

24. State of Arkansas, Pollution Control and Ecology Commission, Regulation #Five, Liquid Animal Waste Management Systems, effective August 30, 1992.

25. Jim Brooks, "Panel Delays Hog-Farm Vote, Says Potliner Dumping OK," *Arkansas Democrat-Gazette* (March 28, 1998).

26. Supreme Court of Arkansas, Opinion 97-900, delivered May 28, 1998**.**

27. Source: Carl Hillis, Coalition for Responsible Swine Production, Houston, Arkansas. Mr. Hillis filed suit against the facility, but lost.

28. "PC&E Commission panel Gets Earful About Odors," *Russellville Courier* (July 12, 1997), p. A1.

29. Personal communication between Sarah Glazer and attorney Charlie Moulten, Office of Arkansas Attorney General (October 1998).

30. Arkansas Public Policy Panel, "Hog Factories vs. Family Farms," Little Rock, Arkansas (October 1998).

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America's Animal Factories

How States Fail to Prevent Pollution from Livestock Waste

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Chapter 4

CALIFORNIA

- Many of California's 2,400 dairies appear to be illegally polluting water with cow manure, threatening the safety of drinking water supplies for millions of residents.

- California's Central Valley, the state's primary milk-producing region, is suffering severe surface and groundwater pollution from dairies. But the region only has four water quality inspectors and livestock operations have rarely been penalized for illegal pollution.

California is the number one milk producer in the nation.[1] Home to 1.3 million milk cows, California produces one of every five gallons of milk consumed in the United States.[2]

California's feedlots, and especially dairies, are highly concentrated in only a few regions of the state. Most dairies, egg, and poultry operations are concentrated in the Central Valley, whose rivers provide drinking water for cities nearby and as far south as Los Angeles. The majority of cattle feedlots are in the southwestern part of the state in the Colorado River Basin area.[3]

Pollution Problems

California's Central Valley is home to approximately 1,600 of the state's 2,400 dairies.[4] Its 891,000 cows create as much waste as 21 million people[5] with nominal treatment.

A mature dairy cow typically produces as much waste as 34 people.[6] That's an average of 114 pounds of waste per day or 22.5 tons of manure a year.[7] Dairy waste contains prodigious concentrations of ammonia that is highly toxic to aquatic life. Equally problematic are the huge piles of stored silage used to feed cows. Silage wastes, with high ammonia and low pH levels, result from the fermentation of sap or juices in forage crops.[8]

Long-time dairy inspector Louis Pratt puts it succinctly, "When a dairy has too many cows on too few acres with too small a waste lagoon, it's going to pollute."[9] "The manure washing off the valley's dairy

farms runs into creeks that empty into the Sacramento-San Joaquin Delta, an estuary that has long been home to rare fish and birds."[10]

Pollution in the extensive Central Valley affects much of the rest of the state, because the area is an important source of drinking water. Each year, approximately six million acre feet of water is pumped out of the Delta and sent south via aqueducts to irrigate crops and quench the insatiable thirst of Southern California urban areas.[11] Dairy manure in the form of polluted runoff poses a potential threat to the drinking water of some 20 million Californians—about 65 percent of the state's population—who are served by Delta water supplies.[12]

According to California's State Water Resources Control Board's 1996 water quality report, dairies and other animal feeding operations in California's Central Valley are responsible for poisoning hundreds of square miles of groundwater, rivers and streams. "Creeks upstream of the San Joaquin River and the Tuolumne River, a tributary, often contain 200 times more ammonia than the level that is poisonous for fish. Many creeks are already so polluted that there are no more fish left to kill."[13]

According to Bill Jennings of the DeltaKeeper, an environmental group that regularly patrols the Delta's waterways and tributaries by boat, land and aircraft, "Dairies are the single largest source of water pollution in San Joaquin and Stanislaus Counties. Our volunteers frequently encounter massive discharges of dairy waste that literally cauterize waterways and kill fish."

In April of 1998, the *Los Angeles Times* reported, "State and federal inspectors suspect that a majority of California's 2,400 dairies are illegally allowing manure to pollute water."[14] "From Fresno to Kern County, where inspections began in January, more than half of the 50 farms inspected had problems that threaten groundwater, according to Lonnie Wass, a water board senior engineer."[15]

Jennings, who also chairs the California Sportfishing Protection Alliance, observes that California's once legendary anadromous fisheries are in serious jeopardy: all of the Central Valley's salmon and steelhead runs and a number of native species like Delta smelt, threespine stickleback and Sacramento splittail are already listed or proposed for listing under the federal Endangered Species Act.[16] Water quality officials suspect that dairy manure is a significant cause of fishery depletion, since the creeks feeding into the Delta's rivers and receiving dairy runoff are crucial spawning and feeding grounds.[17] Zooplankton and phytoplankton, the tiny underwater plants and insects that form an essential link in the aquatic food chain, are down 90 to 99 percent since the early 1970s.[18] Salmon and steelhead fisheries are down more than 90 percent from their historic levels.[19] "We're in the process of losing one of the most marvelous and diverse aquatic ecosystems in the world," lamented Jennings.

Alarm over the degradation of the Delta has spurred a joint federal-state multi-billion dollar effort to clean up the estuary and to solve California's perennial water problems. The effort is known as the CALFED Bay Delta project. Los Angeles metropolitan water district officials involved in the project have expressed concern over *cryptosporidium*, a parasite in animal waste harmful to human health, and other disease-causing pathogens from the Central Valley's dairy waste that could contaminate Los Angeles drinking water. Los Angeles receives about 20 percent of its drinking water from the Delta.[20] "Any contaminants flowing into the Delta are pumped south to Los Angeles," Jennings said.

The state of California has classified 22 groundwater basins and 15 areas of waterways as "impaired" or significantly polluted by livestock operations.[21]

In a state like California, plagued with chronic water supply problems, groundwater from underground

aquifers constitute a crucial contribution to the water supply.[22] "According to California's water quality report, more than 10,000 square miles of aquifers in California are polluted with nitrates, and state officials say that agriculture, including cows, is the major source.[23] In high concentrations, nitrates in drinking water can cause "blue-baby syndrome," a disease in which an infant's red blood cells are unable to carry sufficient oxygen. High nitrate levels have also been linked to miscarriages in women.[24] Some dairy farmers have found that their cows abort their calves after drinking water polluted with nitrates and have been forced to dig deeper wells in search of water for their cows to drink.[25]

The Chino Basin was once the number one milk-producing area in California. Regional water quality officials say dairies deserve much of the blame for contaminating the groundwater in an area whose permeable soil made underground water supplies particularly vulnerable.[26] "We had the highest concentration of cows in the country and the soils were sandy in many places," said Mark Kinsey, water resources engineer for the Chino Basin Municipal Water District.[27]

> In Chino, 300,000 cows in 50 square miles generate a football-field sized pile of manure as high as the Empire State Building. The manure mixes with some 15 million gallons of water each day used to wash the cows and clean the barns, and some of it seeps into the groundwater. Heavy rains in 1998 washed manure downstream from the Chino dairies straight down the Santa Ana River and into the aquifer that supplies half of Orange County's drinking water…[28]

Ever since the widespread contamination of Chino Basin, many dairies have moved further north to Tulare County, contributing to a doubling of the dairy herds there over the past 10 years, making Tulare the top milk-producing county in the nation.[29] Almost 40 percent of the 100 dairies in Tulare County are located within seven miles of the city of Tulare.[30] This high concentration of dairies elevates the risk of severe nitrate contamination of groundwater sources. Nitrate levels have increased in city wells around Tulare County but the water is still within state standards, officials say.[31]

Regulatory Climate

A dearth of inspectors in California's biggest dairy producing region has contributed to some of the worst water pollution in the nation.[32]

"Until the Spring of 1998, the Central Valley Regional Water Quality Control Board has had only one water pollution inspector for the 1,600 dairies in the valley. The most productive dairies in the state's top milk-producing county, Tulare, had not undergone inspection for 18 months as of March 1998."[33] As part of a recent effort to crack down on dairies, three more inspectors have recently been hired for the region, but a force of four inspectors is still inadequate to inspect all of the Valley's dairies.[34]

"A new clean water task force was recently formed to crack down on Central Valley dairies, beef up inspections and prosecute farmers violating environmental laws."[35] In March, the operator of a large dairy near Stockton became the first dairyman in the state to receive a jail sentence for polluting water. He was charged with multiple counts of discharging dairy wastes into streams over four years. Under a plea bargain, the farmer received a 90-day jail term, a $100,000 fine and agreed to make $101,000 worth of improvements to his dairy.[36]

Despite this high-profile case and the protests it roused in the dairy industry, "The reality of the crackdown is less than the promise," says DeltaKeeper's Bill Jennings. Monitoring hundreds of dairies will require enormous resources. "Enforcement is substantially less than the pledges made by state and local officials," Jennings observes.

There are several levels of permitting in California. The State Water Resources Control Board is divided into a Division of Water Rights and a Division of Water Quality.. Under the state board are nine regional water quality boards. It is these regional boards that can decide whether or not to issue waste discharge permits at all, whether to waive them in most cases or to issue the permits universally to all large feedlots. Large feedlots that constitute a point source pursuant to the federal Clean Water Act are required to have a Clean Water Act permit under the state's General Industrial Stormwater Permit. However, in the Central Valley Region less than half of the 400 dairies subject to this permit have filed the required Notice of Intent to comply.[37]

California also issues waste discharge permits, covering pollution discharges to land, surface water and groundwater under the state's Porter-Cologne Water Quality Control Act. In 1996 the Central Valley Regional Board issued a general waste discharge requirement applicable to dairies.

However, if an operation is in compliance with the state requirements for feedlots, such as preventing water pollution from manure, ensuring that waste lagoons do not leak, limiting the amount of liquid manure sprayed on fields or fixing faulty wastewater equipment, the regional water board may waive the issuance of a waste discharge permit. Almost all of the dairies in the Central Valley are operating under waivers.[38]

The waiver process waives the permits and the fees associated with permits, which are $2,000 for a waste discharge permit and $2,000 for a NPDES permits. (By contrast, factories, sewage plants and other industries pay annual fees, to help fund regulation of their waste.) If a producer violates the regulations (waiver terms) and pollutes, that producer may be issued a permit which includes a compliance schedule.

Only about 100 dairies are operating under this permit.[39] Regional Boards have been reluctant to issue many of these state permits since the associated fees do not begin to cover the cost of administering the permits and the dairy industry has been exempted from payment of annual waste fees by the Legislature.[40]

Inspection and enforcement is so lax in California's major dairy-producing regions that most dairy operators are effectively living under a self-enforcing compliance program. On the whole, the state of California does not routinely inspect livestock operations. Inspections are primarily complaint-driven. Louis Pratt, the Central Valley Regional Board's dairy specialist, estimates that "60 percent of the region's dairies are in non-compliance with water quality laws and that during particularly wet winters this number can increase to almost 80 percent."[41] The opportunity to conduct more inspections is hindered by a chronic lack of funds.

The political power of the dairy industry in California cannot be ignored. Dairies are California's largest agricultural industry churning out $3 billion worth of milk and cream each year. Dairy groups have contributed more than $700,000 in state election campaigns over the last six years.[42] Larry Glandon, who retired as a dairy inspector after 16 years, observes, "Dairies have been rather untouchable, They have a lot of political significance in Sacramento. It's kind of understood."[43] When David Irey of the San Joaquin's County's Environmental Prosecutions Unit brought charges against 12 dairies,[44] winning fines

or settlements of between $3,000 and $80,000, dairy operators appealed to the County Board of Supervisors. Three county supervisors accused the District Attorney's Office of a "reign of terror," "harassment" and "Gestapo" and "secret police" tactics and unsuccessfully attempted to reduce the District Attorney's budget.[45]

Individual Permits

The state issues individual permits when there is something unique about the location of a livestock operation. It may be on a slope or close to a waterway. The state may also issue an individual permit to an operation with a history of pollution problems to keep a closer eye on it.

California is one of the top egg producers in the country, but only a handful of its poultry operations have permits—typically those that are on a slope or near a waterway. Nearly all poultry farms operate under waivers of wastewater discharge requirements.[46] In January 1998, the Justice Department announced that it fined Modesto area Foster (Poultry) Farms $500,000 for massive violations of the federal Clean Water Act.[47]

Citizen Influence

Farm operators applying for waivers of waste discharge requirements present their proposal to their regional Water Quality Control Board in a public hearing. Meeting notices are published in local newspapers and members of the public may appear or submit comments in writing.[48]

Citizens groups are increasingly working with enforcement and regulatory agencies to augment their limited resources. For example, the DeltaKeeper sends out volunteers equipped with cameras, sample bottles and electronic meters to measure conductivity, pH and dissolved oxygen two or three times a week during the rainy season. When illegal dairy discharges are discovered, samples are collected for analysis and state and local agencies are notified.

Local Control

Counties have the authority to regulate factory farms and can pass regulations that are stricter than the state's. Tulare County, for example, requires that the bottom of manure lagoons be placed at least 10 feet above the top of the groundwater table.[49] However, the county does not require linings for lagoons, claiming that the clay soil seals the bottoms.[50]

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NOTES

1. California Department of Food and Agriculture, 1997 California Dairy Information, Internet, www.cdfa,ca.gov/agfacts/dairy.

2. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

3. Personal communicaton beteen Rebecca Knuffke and Jack Hodges, Dairy Program Coordinator, Division of Water Quality, State Water Resources Control Board (October 19, 1998).

4. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section; EIliot Diringer, "In Central Valley, Defiant Dairies Foul the Waters," *San Francisco Chronicle* (July 7, 1997).

5. Personal communication between Bill Jennings, DeltaKeeper, and Louis Pratt, Inspector, Regional Water Quality Control Board (Spring 1998).

6. EIliot Diringer, "In Central Valley, Defiant Dairies Foul the Waters," *San Francisco Chronicle* (July 7, 1997); Jim Nickles, "Pollution Detectives Beefing Up Surveillance," *The Stockton Record* (January 11, 1998).

7. Jim Nickles, "Pollution Detectives Beefing Up Surveillance," *The Stockton Record* (January 11 1998).

8. Personal communication between Bill Jennings and Louis Pratt, Dairy Inspector, Central Valley Regional Water Quality Control Board (Fall 1998).

9. Personal communication between Bill Jennings and Louis Pratt, Dairy Inspector, Central Valley Regional

Water Quality Control Board (Fall 1998).

10. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

11. California Department of Water Resources, California Water Plan Update, Bulletin 190-93, 1993

12. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

13. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

14. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

15. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

16. Personal communication between Rebecca Knuffke and DeltaKeeper Bill Jennings (November 1998).

17. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

18. S. Obrebski, et al., "Long Term Trends in Zooplankton Distribution and Abundance in the Sacramento-San Joaquin Estuary," Technical Report 32, Interagency Ecological Studies Program for the Sacramento-San Joaquin Estuary (1992).

19. California Department of Fish and Game Records reported by Bill Jennings. For example, the federally listed winter-run chinook salmon declined from 108,853 spawners in 1969 to just 153 in 1991.

20. California Department of Water Resources, California Water Plan Update, Bulletin 190-93 (1993).

21. 1996 California 303(d) and TMDL Priority List, contained in the 305(b) Report of Water Quality, State Water Resources Control Board (August 1996).

22. California Department of Water Resources, California Water Plan Update, Bulletin 190-93 (1993).

23. California Department of Water Resources, California Water Plan Update, Bulletin 190-93 (1993).

24. Centers for Disease Control, "Spontaneous Abortions Possibly Related to Ingestion of Nitrate-Contaminated Well Water - La Grange County, Indiana, 1991-1994," *Morbidity and Mortality Weekly Report*, Vol. 45, No. 26 (July 5, 1996).

25. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

26. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

27. Mark Grossi, "Dairy Waste: Is Water Safe?" *Fresno Bee* (March 2, 1998).

28. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

29. Mark Grossi, "Dairy Waste: Is Water Safe?" *Fresno Bee* (March 2, 1998).

30. Mark Grossi, "Dairy Waste: Is Water Safe?" *Fresno Bee* (March 2, 1998).

31. Mark Grossi, "Dairy Waste: Is Water Safe?" *Fresno Bee* (March 2, 1998).

32. The U.S. Geological Survey has concluded that the San Joaquin and Tulare water basins are among the most polluted basins in the country, N.M. Dubrovsky, *et al.*, "Water Quality in the San Joaquin-Tulare Basins, California, 1992-1995," U.S. Geological Survey Circular 1159 (1998).

33. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

34. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

35. Personal communication between Rebecca Knuffke and Jack Hodges, Dairy Program Coordinator, Division of Water Quality, State Water Resources Control Board (October 19, 1998).

36. Stuart Gordon and Alvie Lindsay, "Polluting Dairyman Gets Jail," *The Modesto Bee* (March 14, 1998).

37. Personal communication between Bill Jennings and Louis Pratt, Dairy Inspector, Central Valley Regional Water Quality Control Board (Fall 1998).

38. Personal communication between Rebecca Knuffke and Jack Hodges, Dairy Program Coordinator, Division of Water Quality, State Water Resources Control Board (October 19, 1998).

39. Personal communication between Bill Jennings and Louis Pratt, Dairy Inspector, Central Valley Regional Water Quality Control Board (Fall 1998).

40. Elliot Diringer, "Regulators Go After Polluting Dairies, Central Valley Water Endangered by Cows," *San Francisco Chronicle* (July 19, 1997).

41. Personal communication between Bill Jennings and Louis Pratt, Dairy Inspector, Central Valley Regional Water Quality Control Board (Fall 1998).

42. EIliot Diringer, "In Central Valley, Defiant Dairies Foul the Waters," *San Francisco Chronicle* July 7, 1997).

43. EIliot Diringer, "In Central Valley, Defiant Dairies Foul the Waters," *San Francisco Chronicle* (July 7, 1997).

44. Jim Nickles, "Pollution Detectives Beefing Up Surveillance," *The Stockton Record* (January 11, 1997).

45. Jim Miller, "SJ Board Set to Hold DA Funding, Supervisors Lambast Environmental Team," *Modesto Bee* (June 26, 1998); Amy Starnes, "Supervisors to Vote on Budget," *Stockton Record* (June 26 1998).

46. Mark Grossi, "Dairy Waste: Is Water Safe?" *Fresno Bee* (March 2, 1998).

47. Stuart Gordon and Alvie Lindsay, "Polluting Dairyman Gets Jail," *The Modesto Bee* (March 4, 1998).

48. Marla Cone, "State Dairy Farms Try to Clean Up Their Act," *Los Angeles Times* (April 28, 1998), A Section.

49. Mark Grossi, "Dairy Waste: Is Water Safe?" *Fresno Bee* (March 2, 1998).

50. Mark Grossi, "Dairy Waste: Is Water Safe?" *Fresno Bee* (March 2, 1998).

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Chapter 5

COLORADO

- The State of Colorado currently issues no permits of any kind to feedlot operations.
- Colorado's environmental agency has only one part-time employee assigned to oversee its feedlots.
- Colorado has regulations on the books intended to prevent water pollution at feedlots, but it has no enforcement capacity. For all practical purposes, feedlot operations are not regulated.
- Colorado voters have just adopted an initiative on large-scale hog operations, but these regulations have yet to be implemented.

Historically, Colorado has been a home to many open-air cattle feedlots, which Colorado citizens have not perceived as a pollution problem. Beef cattle is an entrenched industry that has largely escaped regulation in this western state proud of its frontier individualism. Only in the past five to ten years has eastern Colorado become a magnet for large-scale hog operations due to its sparse population, feed-corn production, and lax regulation. The recent influx of massive hog operations, some raising hundreds of thousands of pigs, has roused vocal political opposition among small family farmers and ranchers in eastern Colorado who fear giant hog factories will pollute this environmentally vulnerable region.

The most important source of water in large parts of eastern Colorado, both for irrigation and drinking, is groundwater. Many families living in rural eastern Colorado depend solely upon their own wells for drinking water. Many hog operations lie directly over the same groundwater aquifer tapped by these wells. One such aquifer, Ogallala Aquifer, is one of the nation's largest, and supplies water to seven states in the West and Midwest. The threat of hog operations contaminating ground water, the "life blood" of rural Colorado, brought independent farmers and ranchers together with environmentalists to adopt a ballot initiative, "Amendment 14," to strengthen Colorado's laws and protect the quality of life.[1]

On November 3, 1998 Coloradans voted to adopt Amendment 14 to regulate the state's increasing numbers of large hog factories. Before this new law was passed large-scale hog operations were not required to receive permits of any kind and were virtually unregulated. Backers of Amendment 14

crafted the law to address current problems of contaminated wells and soil associated with certain large-scale hog operations and to prevent more severe problems in the future.

National Farms, one of the nation's largest pork producers, first located in Weld County in 1990. Now, an increasing number of the state's hogs are being raised on factory farms, and the number of small hog farmers is declining. In the past two years, hog production jumped by 25 percent, while the number of hog producers plummeted by 35 percent.[2]

Pollution Problems

Most of the state's hog farms are located in eastern Colorado, directly over the Ogallala Aquifer,[3] which is one of the most important sources of water for Colorado, Wyoming, Oklahoma, Nebraska, Kansas, South Dakota, Texas and New Mexico. The Ogallala Aquifer is the primary source of drinking water and all other water needs for farmers, ranchers and communities in the Eastern Plains. Farmers in the region fear that once their groundwater is contaminated, it would be difficult and prohibitively expensive to clean up.

In southeastern Colorado, members of the Rush Creek Users Association in Kiowa County discovered that three wells at a large-scale hog farm owned by pork producer Newsham Hybrid were contaminated. They also found high concentrations of nitrates, a form of nitrogen, 12 feet under the surface of a field. Although, it would take further analysis to determine the exact source of this pollution, this field had been sprayed with hog waste as fertilizer[4] and hog waste is a rich source of nitrogen. Drinking water contaminated with nitrates has been linked to "blue-baby syndrome" in infants—an impaired ability to carry oxygen in the bloodstream—and miscarriages in women.[5]

Colorado's feedlot water issues, however, could extend far beyond contamination problems. Water availability is of particular concern in semi-arid Colorado. CAFOs in the state use a tremendous amount of water, mostly extracted from aquifers, for flushing animal waste out of pig houses and watering the animals.

Regulatory Climate

The amendment adopted this fall sets, for the first time in Colorado, a statewide permitting system for large hog operations.[6] Prior to the adoption of the amendment, operations were not required to get any state permits. Until the new permitting system is implemented and enforced, the exact number of large-scale hog operations and lagoons will remain a mystery.

For years, Colorado had feedlot regulations on the books designed to assure compliance with the Clean Water Act, but the state has never had the staff or funds to enforce them beyond the occasional response to a complaint. Colorado has had only one employee working on regulation of feedlots, who works between half time and full-time on the issue at the Colorado Department of Public Health and Environment.[7] The new law, among other benefits, will give the state a permitting system with fees that it can use to fund enforcement of its regulations.

The requirements of Amendment 14 include covering waste lagoons to limit gas emissions and water quality and soil testing for fields where animal waste is applied.[8] Large hog operations, those holding in the range of 2,500 hogs and above, would have to obtain permits under the Clean Water Act, therefore regulating them like industrial polluters—known as "point source" polluters under the Act. Permit information would be available to the public. This initiative is supported by family farmers and ranchers, the Rocky Mountain Farmer's Union and several Colorado environmental groups.

Currently, a citizen worried about pollution of drinking water from feedlots has few options. The state also has no air quality standards governing feedlots.[9]

The challenge for Colorado now is to ensure that the new regulations are implemented properly and are enforced. The Water Quality Control Commission and the Air Quality Control Commission will create the guidelines for the state to follow. These commissions are part of the Colorado Department of Public Health and Environment.

Local Control

Colorado law gives counties the authority to establish some regulatory controls on factory farms. Only one third of Colorado's counties have used this authority.[10] And in eastern Colorado, where hog farms are concentrated, only one-half have used this authority.[11]

In many Colorado counties, there has been no permitting, no monitoring of water or soil and no setbacks required between hog farms and residences.

Dean Jarrett, an independent cow and calf producer in eastern Colorado's Yuma County, found out just how powerless he was in 1996 when the county commission gave an out-of-state pork producer permission to raise 400,000 sows and piglets over the hill from his family homestead. At the time, Yuma County had no regulations governing hog operations.

Earlier this year, Jarrett, who is a member of the local planning commission, helped push through a county requirement that makes new hog factory farms obtain a development permit providing information on the size of the operation and the waste management methods used. He says the county still does not require hog operations to install monitoring wells to check for any pollution of groundwater from hog waste. Jarrett says his greatest concern is pollution of the groundwater from hog farmers applying more manure to the land than it can safely absorb.[12]

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NOTES

1. Amendment 14, "Regulation of Commercial Hog Facilities," amending Part 5 of Article 8 of Title 25, Colorado Revised Statutes (Section 25-8-501.1) (passed November 4, 1998).

2. Dave Carter, President, Rocky Mountain Farmers Union, Editorial, *Ft. Lupton Press* (June 27, 1998), p. 21.

3. U.S. Geological Survey Map, Principal Aquifers, National Atlas Series, compiled by James A. Miller (1998).

4. Soil and water testing results for 1997 provided by Newsham Hybrids to The Rush Creek Water Users Association (August 14, 1998).

5. Centers for Disease Control, "Spontaneous Abortions Possibly Related to Ingestion of Nitrate_Contaminated Well Water_LaGrange County, Indiana, 1991-1994," *Morbidity and Mortality Weekly Report*, Vol. 45, No. 26 (July 5, 1996).

6. Amendment 14, "Regulation of Commercial Hog Facilities," amending Part 5 of Article 8 of Title 25, Colorado Revised Statutes (Section 25-8-501.1) (passed November 4, 1998).

7. Personal communication between Rebecca Knuffke and Darold Lang, Specialist, Department of Public Health and Environment, Colorado Water Quality Division (October 6, 1998).

8. Amendment 14, "Regulation of Commercial Hog Facilities," amending Part 5 of Article 8 of Title 25, Colorado Revised Statutes (Section 25-8-501.1) (passed November 4, 1998).

9. Colorado Confined Animal Feeding Operations Control Regulations, 15 CF 8, 8-92.

10. Personal communication between Scott Ingvoldstad, Environmental Defense Fund, Colorado and Darold Lang, Specialist, Department of Public Health and Environment, Colorado Water Quality Division (September 1998).

11. Personal communication between Rebecca Knuffke and Darold Lang, Specialist, Department of Public Health and Environment, Colorado Water Quality Division (October 6, 1998).

12. Personal communication between Rebecca Knuffke and Dean Jarrett, Commissioner, Yuma County Planning Commission (November 23, 1998).

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Chapter 6

ILLINOIS

- Illegal releases of animal waste into streams are common among factory farms, according to a random state survey of a selected number of manure lagoons.
- Local governments are barred from establishing siting restrictions on factory farms.
- Illinois does not regulate construction of any manure storage facilities other than lagoons. Underground concrete tanks, which are exempt from regulation, are becoming the most popular form of manure storage for factory farms.

More than 160 new factory farms have opened in Illinois since May 1997, when the state adopted new rules for livestock operations.[1] Rather than imposing new restrictions to protect the environment, however, the loophole-ridden law has encouraged out-of-state food corporations to open new hog farms under contract in Illinois in an effort to escape stricter regulation in other states, environmentalists charge.

"The weak 1997 law passed by the state was a green light for corporations to establish factory farms in Illinois," said Pam Hansen of the Illinois Stewardship Alliance, a citizens group. "Absentee owners and managers of factory farms are not being held accountable for polluting the air and the water and degrading the quality of life in our rural communities."

Pollution Problems

Factory-sized hog farms have been responsible for several major manure spills into state streams since 1997. In several cases, the farm operators' attempt to get rid of excess manure by diverting it to state streams has been shockingly deliberate. Even more shocking has been the state's lackadaisical response.

The state agency responsible for environmental protection issued no fines for an 800,000-gallon manure

spill at a Hancock County hog facility managed by the brother of the State Agriculture Director. The incident occurred in June 1997, after a period of heavy rain. The hog farm operator, faced with a dangerously full manure lagoon, dug a ditch into the earthen berm containing the liquid manure to let the waste flow out, according to a report from the Illinois Environmental Protection Agency (IEPA).[2] The farm operator's desperate excavation dumped 800,000 gallons of raw pig sewage into Bear Creek, a tributary of the Mississippi River.[3] Neither the farm operator nor the IEPA, which was fully aware of the incident, made the public aware of the spill.[4] (Until June 1998, livestock facilities were under no legal requirement to report a pollution discharge.) Eventually members of the Illinois Stewardship Alliance discovered the incident, and issued a press release notifying the public of the spill. Hancock County health officials warned the public to avoid drinking water from shallow wells near the creek and to avoid contact with the creek itself.[5]

On June 24, 1998, the state experienced another large spill in Greene County. An estimated 250,000 gallons of hog waste from Hanor Farms Inc. spilled into a creek near Eldred, 60 miles southwest of Springfield, the state capital. At the 35,000-piglet nursery, the operator was spraying liquid manure with a "traveling gun," an irrigation sprinkler, over a 250-foot wide path on a farm field. However, the field was already saturated with water from several days of heavy rain and was unable to absorb much more liquid. The liquid manure gushed out over the saturated field, spilling into a nearby stream that flows into the Illinois River. The state has investigated the spill but no citations have been issued.[6]

It took three notices from the state before Hanor Farms corrected manure-handling problems at another hog operation it owns in Greene County, where baby pigs are raised for market. Between March and June 1997, the IEPA found numerous violations of its rules for managing lagoons and livestock waste. For example, Hanor Farms started operating pig production sites near White Hall even though the accompanying waste lagoons had not been completed, forcing the operator to double-load other lagoons with manure, the IEPA inspections found. In July 1997, following numerous complaints from neighbors about the odor emanating from the White Hall facility, IEPA ordered Hanor Farms to correct its waste management practices there.[7]

Factory farms continue to foul Illinois' rivers and stream. In August 1998, a cattle feedlot operator pumped out a manure pit, discharging the contents into a tributary of the Fox River. The flood of animal waste killed every fish for 4.5 miles, according to the state investigation.[8]

Outlaw releases of animal waste from factory farms are common, according to a report recently issued by IEPA. The report shows 15 out of 22 randomly inspected manure lagoons in western Illinois were illegally discharging wastewater into streams in the first quarter of 1998.[9] Illinois prohibits any discharge of livestock waste except during heavy rainfalls occurring once every 25 years (known as a 25-year, 24-hour storm event).[10] This type of extraordinary precipitation was not a factor in these lagoon discharges, according to the IEPA.[11]

Regulatory Climate

Illinois does not require livestock facilities of any size to obtain Clean Water Act permits on a routine basis.

IEPA's interpretation of the Clean Water Act has been that a Clean Water Act permit is only needed for a CAFO when it discharges pollution.[12] Consequently, the few permits issued by the state have been triggered by massive manure spills, according to Pam Hansen of the Illinois Stewardship Alliance. In practice very few Clean Water Act permits are issued in Illinois: by 1997 only 40 facilities had active NPDES permits.[13]

The chief regulatory mechanism in the state is the 1997 Livestock Management Facilities Act, which established regulations for factory farms and smaller facilities with lagoons. The new rules mandate basic construction standards for manure lagoons, a prohibition on construction in flood plains, a waste management plan at livestock operations and a requirement that a certified livestock manager be on site.[14]

However, the law includes several major loopholes, effectively exempting broad categories of factory farms from the new rules. A glaring loophole is a provision allowing existing livestock facilities to expand to 50 percent of the value of the total facility every two years without having to subscribe to any of the toughened requirements in the law.[15]

Another loophole allows a single large operation to escape regulation entirely by establishing several adjacent facilities, each holding slightly fewer animals than would trigger the new regulatory requirements. The provision making this possible states that a factory farm's multiple sites can be regulated separately as long as they are one-quarter mile apart or use separate waste storage facilities at each site.[16] According to Pam Hansen, that loophole has allowed Hanor Farms' 35,000 piglet nursery at Eldred, for example, to escape regulation because the operation is composed of four barns, each with its own separate waste lagoon and each with slightly fewer sows and piglets than would trigger the requirements. As a result, the nursery is not required to comply with requirements such as having a waste management plan.

The biggest loophole in the regulatory system is the provision limiting animal waste regulation to lagoons. Underground concrete tanks for storing waste are not subject to construction requirements.[17] Consequently, such tanks are becoming the most popular technology in Illinois for manure storage on a large scale. Though water quality monitoring of these underground tanks is not required, in 1997 IEPA documented at least 12 pollution discharges from concrete pits attributed to mechanical failures. A number of these discharges resulted in water quality degradation.[18]

Although the state of Illinois has established restrictions on the land application of manure based on its nitrogen content, records are kept on site and most factory farms are not required to submit waste management plans to the state for approval. Facilities with more than 7,000 animal units are required to file manure management plans with the state.[19] The state allows unlimited land application of phosphorus,[20] another nutrient in manure that tends to build up in the soil, and can contribute to pollution of rivers and streams when excess quantities of the nutrient are washed into bodies of water.

Illinois requires buffer zones between livestock farms and other properties, even for those operations with only 50 animal units. Livestock facilities of more than 1,000 animal units must be set back from residences.[21] But the required buffer strip of one-fourth to one-half a mile is inadequate, especially given that the distance is measured between the home itself and the feedlot facility.

Moreover, the setbacks do not take into consideration all the factors needed to protect water quality, such as the soil type and location of an individual factory farm. For example, Little Timber Ltd. Liability

Corp. was allowed to build its 2,400-sow operation on sandy soils and a shallow water table. When the construction crews started digging one of the lagoons, groundwater began percolating up into the bottom.[22] Neighboring citizens get their drinking water from the shallow aquifer immediately underneath the lagoon.[23] In an effort to protect their drinking water, Hancock County residents filed for an injunction to stop further construction of the facility on March 11, 1997, but were unsuccessful.[24]

At least on paper, air quality is regulated under the Illinois Environmental Protection Act. According to this law, if air contamination impedes neighbors' quality of life, citizens can file complaints and IEPA can pursue enforcement actions.[25] In an ongoing case, the Illinois attorney general is suing a Henderson County hog producer under contract to an Iowa-based corporation for multiple violations of air contamination rules. The hog producer could be fined $50,000 per violation.[26] However, citizens find they must prod IEPA to exercise its clean air authority when it comes to farm factories.

Citizen Involvement

Public hearings are only required when a county board requests one for a facility that will be using a lagoon. Public hearings are informational only. No permits are restricted or denied with this process. County boards and citizens cannot request hearings for new facilities that will not be using a lagoon.[27]

Prior to construction, facilities must notify property owners and the Illinois Department of Agriculture. This is the only type of notice required.[28]

Local Control

Local governments have no control over factory farms despite their impact on communities. Under Illinois state law, agriculture is exempt from counties' authority to regulate the siting of new buildings.[29] The only measure of control that residents have over factory farms is to protest tax assessments on their property, since noxious odors and other nuisances from nearby livestock facilities may diminish the value of residential property. Recently, 23 residents living within two miles of a 7,200-sow factory in DeWitt County appealed their property assessments to their local government. The county ruled that the hog facilities lowered the residential property values and the residents were granted reductions of between 10 and 30 percent on their property assessments because of the air contamination caused by feedlots.[30]

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NOTES

1. Data gathered by the Illinois Stewardship Alliance (ISA) from the Department of Agriculture. ISA counted Intents to Construct which they obtained through the Freedom of Information Act.

2. John Husar, "Manure Spill Claims 100,000 Fish," *Chicago Tribune*, Outdoors Op-Ed (August 24, 1998); Hancock County Circuit Court Case #97 Ch. 9, People vs. Jerry Grauf and Dan Carlisle, filed August 6, 1997.

3. Deborah Gertz, "Hog Waste Spurs Inquiry," *Herald-Whig* (July 11, 1997); "Health Officials: Avoid Bear Creek Water," *Herald-Whig* (July 11, 1997); Hancock County Circuit Court Case #97, Ch. 9, People vs. Jerry Grauf and Dan Carlisle, filed August 6, 1997.

4. Deborah Gertz, "Hog Waste Spurs Inquiry," *Herald-Whig* (July 11, 1997); "Health Officials: Avoid Bear Creek Water," *Herald-Whig* (July 11, 1997); Hancock County Circuit Court Case #97, Ch. 9, People vs. Jerry Grauf and Dan Carlisle, filed August 6, 1997.

5. "Health Officials: Avoid Bear Creek Water," *Herald-Whig* (July 11, 1997).

6. Adriana Colinders, "Hog Waste Fouls Greene County Stream," *The State Journal Register* (June 27, 1998).

7. Adriana Colindres, "Hog Waste Fouls Greene County Stream," *The State Journal Register* (June 27, 1998).

8. Illinois Department of Natural Resources, "Site Investigation Report" (August 21,1998) (obtained under Freedom of Information Act).

9. Illinois Environmental Protection Agency, "Livestock Waste Lagoons" (1998).

10. Title 35, Environmental Protection Subtitle E, "Agriculture Related Pollution," Section 502.102, "Twenty Five Year Storm Event."

11. Illinois Environmental Protection Agency, "Livestock Waste Lagoons" (1998).

12. Title 35, Environmental Protection Subtitle E, "Agriculture Related Pollution," Section 502.102, "Twenty Five Year Storm Event."

13. Personal communication between Rebecca Knuffke and Bruce Yurdin, Illinois Environmental Protection Agency, Permits Division (November 5, 1998).

14. Ill. Compiled Stat. ch. 510, para. 77/1, et seq.

15. Ill. Compiled Stat. ch. 510, para. 77/1, sec.10.45, "New Facility;" sec. 10.30, "Livestock Management Facility."

16. Ill. Compiled Stat. ch. 510, para. 77/1, sec. 10.45, "New Facility;" sec. 10.30, "Livestock Management Facility."

17. Ill. Completed Stat. ch. 510; para. 77/1, et seq., "Animals," Livestock Management.

18. Illinois Environmental Protection Agency's 1997 documented discharges from concrete waste handling facilities in Illinois, information obtained from the IEPA through the Freedom of Information Act requests.

19. Ill. Compiled Stat. ch. 510, para. 77/1 et seq., sec. 20 (f).

20. Ill. Compiled Stat. ch. 510, para. 77/1 et seq., sec. 20 (f).

21. Ill. Compiled Stat. ch. 510, para. 77/1 et seq., sec. 35.

22. Illinois Environmental Protection Agency Inspection Report from Freedom of Information Act requests (April 12, 1998 and October 29, 1997).

23. Illinois Environmental Protection Agency, Bureau of Water, Groundwater Map.

24. Bill and Phyllis Whitaker, Valley Dale Alliance, Press Release, "Hancock County Residents Filed for an Injunction Against Large-Scale Hog Factory," Carthage, Illinois (March 11, 1997).

25. Ill. Compiled Stat. ch., Air Quality_415 ILCS 5/9(a), 1996 Illinois Environmental Protection Act Section 210.144; Pollution Control Board Regulation 35IL, Admin. Code Section 501.102(c)(3) of Pollution Control Board, "Agriculture Related Pollution Regulations."

26. Henderson County, Illinois, 9th Judicial District, The People of the State of Illinois v. Alan Durkee and Eastern Iowa Pumping, Inc., filed March 11, 1998.

27. Ill. Compiled Stat. ch. 510, para. 77/1 et seq. was amended January 2, 1998 to become effective June 1, 1998, section 15, Livestock Waste Lagoon (B) and (B-5).

28. 35 Ill. Admin. Code 506.703, initial determination of setbacks.

29. County ordinances, 55 Ill. Completed Stat. 5/5-12001, ch. 34, para. 5-12001.

30. "Stench Spreads Property-Value Debate," Tara Burghart, Journal Star, Peoria, Illinois, May 26, 1998.

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Chapter 7

INDIANA

- Dangerously high levels of nitrate pollution stemming from large-scale feedlots threaten portions of the state's drinking water supplies.
- Miscarriages near a hog farm have been linked to high levels of nitrate pollution in private wells.
- Indiana relies on unenforceable "guidance" letters to regulate factory feedlots.

According to the *Indianapolis Star*, animal feedlots were responsible for 2,391 spills of manure in Indiana in 1997.[1] The state water quality agency employs only nine staff persons to respond to emergency spills.[2] In 1996, emergency response staff were called on the scene when a confined feeding operator in Howard County caused a fish kill by dumping 9,600 gallons of hog manure on a cornfield that was just six feet from a culvert leading to a creek. The operator was charged only $374.46 for the fish kill, and no further enforcement action was taken.[3]

According to a report released in the *Indianapolis Star*, a number of prominent institutions and individuals have been cited for spills from lagoons of large feedlots. Purdue University, home of Indiana's Cooperative Extension Service, which advises farmers about agricultural practices, has been cited for two spills. The state cited former Senator Wayne Townsend for a number of spills, including a 1992 fish kill in Little Walnut Creek. According to the *Star* article, no enforcement action was taken after Townsend filed a written apology.[4]

Pollution problems

Of 6,451 river miles assessed, approximately 81 percent are unsafe for swimming or other human contact due to high levels of the bacteria *E. coli*.[5] According to the Department of Environmental Management, one of the possible sources is agricultural feedlots.[6]

Many Indiana cities get their drinking water from rivers that flow through agricultural areas. DuBois County has more CAFOs than any other county, mostly poultry operations. *E. coli* levels in the county's Patoka River watershed are six times higher that the state standard. The Patoka River is the only water supply available for the city of Jasper. Indiana's Department of Environmental Management (DEM) is now undertaking a study of the watershed to identify sources of pollution, but says that results will not be used to take enforcement action against producers.[7]

The full extent of surface water pollution problems is unknown. Part of the problem is that DEM's fish kill records are disorganized and unreliable.[8] For example, the DEM will only record a fish kill if the agency has staff available to investigate and the inspector arrives in time to see the fish kill (before it gets washed downstream). Many fish kills are attributed to unknown or natural causes.[9]

Groundwater contamination is also a problem. More than 60 percent of Indiana's population relies on groundwater for its drinking water supply, and nitrate levels in groundwater are dangerously high in some areas of the state.[10] Purdue University has identified feedlots as a potential major contributor to nitrate contamination.[11]

A case in point is the city of Delphi, located in Carroll County. The county leads the state in hog production. Delphi Mayor Sam Deiwert recently wrote to the Water Pollution Control Board that the city has been exploring for new wells since 1996.

"In the course of that exploration, only two sites were discovered that would yield the quantities of water needed...[and] both sites proved unacceptable," he wrote. "One had significant nitrate contamination and the second had significant bacterial contamination including *E. coli*. Contamination of both sites was attributed to regional agricultural activities."[12]

Much of northern Indiana's drinking water supply is vulnerable to pollution due to the presence of a sand and gravel outwash plain, a type of sensitive geology composed of sandy soils overlaying the aquifer.[13] In 1993, the LaGrange County Health Department identified a cluster of women living near a hog operation who experienced miscarriages (always in the eighth week of pregnancy) after drinking water with high levels of nitrates from their private wells. Nitrates were as high as 19 to 26 mg/l, well above the federal drinking water maximum of 10 mg/l. The U.S. Centers for Disease Control in Atlanta, Georgia published this report in 1996.[14]

Regulatory Climate

Indiana does not issue permits to feedlots. Instead the program relies on letters of approval based upon a guidance document known as the Animal Waste 1 (AW1). The preamble to the AW1 indicates that the guidance is only a recommendation; thus the conditions specified in the approval letters are not mandatory.[15] In response to a citizen's petition, the state is in the process of developing enforceable rules.[16]

Under the existing law, Indiana defines a CAFO as an operation with more than 300 cattle, 600 swine, or 30,000 poultry, and these operations are required to register for state approval. Operations that have a history of pollution problems are also labeled CAFOs and required to seek state approval.[17] As a result of this approval program, the state has a record of the location of most confined feeding operations.

When an operator submits an application for approval to the DEM, the operator must notify "affected parties," who have 18 days to respond. "Affected parties" has been interpreted to mean adjoining landowners.[18]

The agency is supposed to issue approvals within 90 days, but the agency is struggling with a backlog of more than a hundred pending applications.[19] Legislation passed in 1997 requires the agency to inspect the site before construction. The agency is currently using

- andfill inspectors and temporary help to eliminate the backlog.[20] The state has not routinely inspected animal feedlots during construction to insure that manure storage structures are built according to the design specifications.

The approval letters outline best management practices for the operation. However, the conditions specified in the approval letter are not enforceable. Citizens have tried to get the agency to deny approvals in cases where incorrect information was submitted in the application materials or where there is sensitive geology, but the agency has apparently never denied an approval.[21]

Citizens also tried to get the agency to revoke approval in a case where an operator was not meeting the conditions specified in the approval letter. But the state views approval conditions as unenforceable guidelines. An appeal was directed to the Office of Adjudication where an administrative law judge heard the case. The Office of Adjudication ruled against citizen appeals on the basis that the approval letters are not permits, are based on guidance only and are therefore optional.[22]

Local Control

Because CAFOs are considered agricultural operations they are exempt from many controls. For example, farm building inspections are not required, and farm vehicles do not have to meet Department of Transportation load limits. There is little that can be done to prevent a CAFO from moving next door in areas zoned for agriculture.

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NOTES

1. Kyle Niederpruem, "Short Staffing Makes Policing Polluters Harder," *Indianapolis Star* (April 21, 1998).

2. Kyle Niederpruem, "Short Staffing Makes Policing Polluters Harder," *Indianapolis Star* (April 21, 1998).

3. Kyle Niederpruem, "Quick Response Leads Investigator to Spill," *Indianapolis Star* (April 21, 1998).

4. . Kyle Niederpruem, "Pork Pollution: Spills That Kill," *Indianapolis Star* (April 19, 1998).

5. . Indiana Department of Environmental Management, Office of Water Management, *Indiana 305(b) Report, 1994-95*, p. 9**.**

6. . Indiana Department of Environmental Management, Office of Water Management, *Indiana 305(b) Report, 1994-95*, p. 8.

7. Kyle Niederpruem, "State Measuring Waste's Impact on Water Supply," *Indianapolis Star* (April 22, 1998).

8. . Kyle Niederpruem, "Obstacle Course Awaits Those Seeking Livestock Farm Files," *Indianapolis Star* (April 19, 1998).

9. Indiana Department of Environmental Management, Office of Water Management, *Indiana 305(b) Report, 1994-95*, pp. 19-23.

10. Indiana Department of Environmental Management, Office of Water Management, *Indiana 305(b) Report, 1994-95*, p. 4; U.S. Geological Survey, Water Resources Division, Indianapolis, Press Release: "Study Summarizes Data on Nitrate in Indiana Group Water" (December 11, 1995).

11. Indiana Department of Environmental Management, Office of Water Management, *Indiana 305(b) Report, 1994-95* , Table 50, pp. 291-293.

12. Letter to the Water Pollution Control Board of Indiana Department of Environmental Management from Mayor Sam Deiwert, City of Delphi, Indiana (March 9, 1998).

13. Indiana Department of Environmental Management, Office of Water Management, *Indiana 305(b) Report, 1994-95*, p. 296.

14. Centers for Disease Control, "Spontaneous Abortions Possibly Related to Ingestion of Nitrate_Contaminated Well Water_LaGrange County, Indiana, 1991-1994," *Morbidity and Mortality Weekly Report*, Vol. 45, No. 26 (July 5, 1996).

15. Indiana Department of Environmental Management, Confined Feeding Program Technical Guidance AW-1, Nonrule Policy Document, Waste, 0024-NPD (December 31, 1997).

16. Petition to Governor Frank O'Bannon and Indiana General Assembly. Hoosier Environmental Council; Associated Press, "Confined Feeding Farms to Get State Regulations," *The Journal Gazette* (October 10, 1997).

17. Indiana Department of Environmental Management, Fact Sheet, "The Indiana Confined Feeding Control Law and Approval Program" (undated).

18. Indiana Department of Environmental Management, Fact Sheet, "Public Participation Steps for Confined Feeding Approvals" (December 1997).

19. Kyle Niederpruem, "Pork Pollution: Spills That Kill," *Indianapolis Star* (April 19, 1998).

20. Personal communication between Rae Schnapp, Hoosier Environmental Council, and Aaron Lauster, Compliance Section Inspector, Indiana Department of Environmental Management, Office of Solid and

Hazardous Waste (September 9, 1998).

21. Personal communication between Rae Schnapp, Hoosier Environmental Council, and Dennis Lasiter, Confined Feeding Section Chief, Indiana Department of Environmental Management, Office of Solid and Hazardous Waste (September 25, 1998).

22. Motion for Summary Judgment before the Office of Environmental Adjudication, Cause No.97-W-J-1693, State of Indiana, County of Marion, In Re Matter of: Objections to the Issuance of Permit Approval No. 4245, Top Sow, LLC, Flora, Indiana (May 9, 1997). In this case, an administrative law judge granted DEM's motion for summary judgment against citizens who argued that a feedlot should be denied a permit because its water pollution control proposal was inadequate. The judge concluded DEM's approval was based on a document that is for guidance only and is not enforceable. On October 2, 1997, another administrative law judge, Kyle Endris, issued a final order vacating DEM's approval of the confined feeding operation. On October 31, 1997, DEM petitioned the State Attorney General for review of this decision. That review is still pending.

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Chapter 8

IOWA

- The proximity of animal factories to Iowa's unique underground drainage system poses a serious threat to the state's water quality, including surface water and underground drinking water supplies.

- The Iowa state legislature has virtually barred local governments from regulating animal factories and their impact on the environment.

- Iowa state law has made it extremely difficult for a citizen to bring a successful suit against an animal factory for creating nuisances like odors, air pollution or health threats. However, in September 1998, the Iowa Supreme Court overturned the "flagrantly unconstitutional" nuisance immunity for designated agricultural areas. This Supreme Court ruling will almost certainly affect the nuisance suit provisions of Iowa's livestock laws.

Iowa is the number one pork producer in the country. Iowa's 14.5 million hogs and pigs constitute almost a quarter of the nation's total swine population. Eighteen percent of Iowa's farms, or 18,000 in all, raise hogs. The state ranks sixth in the country in the number of chickens raised and seventh in cattle.[1]

Iowa has an estimated 1,200 animal factories classified as CAFOs, with 1,000 animal units or more. Of these, fifteen have federal Clean Water Act permits known as NPDES permits.[2] (See glossary.)

Iowa has a long tradition of family farm pork production and has historically led the nation in the number of hogs produced. Iowa farmers have demonstrated that there are many ways to raise hogs profitably and protect the environment. Thousands of Iowa farmers are doing both right now. Yet, the number of farmers raising hogs has dropped from 41,000 in 1988 to 18,000 in 1997 while the number of hogs has remained relatively constant.[3]

Unfortunately, this shift toward concentration of livestock is due, in part, to state policies that encourage the development of factory farms while protecting them from local regulation and citizen suits. Iowa still provides forgivable loans for factory farms under the theory that it spurs economic development. In

addition, the state legislature has severely curtailed the power of local governments to regulate agriculture and protect the environment.[4] Under Iowa state law, livestock operators were presumed not to be a nuisance, thus limiting the suits that neighbors could bring against operators for such nuisances as odors, air pollution or health problems.[5] However, nuisance suit protection for designated agricultural areas was recently overturned by the Iowa Supreme Court as "flagrantly unconstitutional."[6] (See further explanation under "Local Control" section of this chapter.)

With its favorable regulatory climate, excellent soil, good water resources and feed production, Iowa is an attractive location for pork production. One of the companies that Iowa has attracted is DeCoster "Family" farms. The company is one of Maine's major chicken producers and has been fined for violating feedlot regulations there. While in Maine, the owner, Jack DeCoster, was fined for OSHA violations and pollution problems.[7] DeCoster brought his large-scale poultry business to Iowa and after five years started opening large hog confinements.

In Iowa, DeCoster has been fined for multiple environmental violations. Under Iowa's law prohibiting issuance of permits to confinement owners with pending enforcement actions,[8] DeCoster has been barred from obtaining new permits. DeCoster may have tried to avoid this limitation by selling land to his son, Peter DeCoster, who is building more confinement facilities.[9]

Pollution Problems

Spills

In the past four years there were over 51 manure spills into Iowa streams, rivers and lakes serious enough for financial penalties. Overflowing manure storage lagoons were the source of the biggest spills, while application of liquid manure onto fields caused the most frequent spills.[10]

More than 1.1 million fish have been killed along with countless other aquatic species as a result of these manure spills.[11] The state's largest fish kill was in 1996. A man who was feeding pigs for an operator tried to lower the level of a overfilled lagoon by siphoning off some of the liquid into a gully (illegally). He forgot, left the pump running for four hours and dumped 100,000 gallons of lagoon water into North Buffalo Creek. The liquid killed an estimated 586,753 fish, flowed into a wildlife area and finally into a lake. The state fined the operator $3,000 for the spill and $30,000 for fish restitution for a total financial penalty of $33,000. This is the second largest financial penalty (including fish restitution) assessed in Iowa to date. The largest feedlot fine to date is $59,000 assessed against A.J. DeCoster for multiple manure management violations and spills.[12]

The largest volume spill in Iowa, however, was in 1995 when a malfunctioning lagoon at SNB Farms in Webster City spilled 1.5 million gallons of manure into the South Fork of the Iowa River. The manure broke into an underground drainage pipe and flowed one and a half miles before emptying into the river. The spill killed an estimated 8,861 fish, polluted thirty miles of river and closed a primary recreation area.[13]

Iowa's largest spill of 1998 came from the Williams Finishing confinement facility and dumped 420,000 gallons of hog manure into Hamilton County's Tipton Creek.[14] The number of fish killed was not that

high, because the creek had been hit hard by a similar spill two years earlier that nearly wiped out the fish population.[15] Tipton Creek had not recovered from the last spill, leaving fewer fish to kill. And though the most recent spill was not a total fish kill, it wiped out tens of thousands of fish.[16] The frequency of spills in Iowa raises the question of whether penalties are too small to act as an effective deterrent. This is particularly true in cases such as Tipton Creek, where frequent spills into the same water body result in reduced fish populations and therefore lower penalties assessed for fish restitution.

Air Quality

Odor, which is unregulated, is a serious problem in many communities. While other industries' toxic air emissions are controlled, agribusiness is exempt from air quality controls under the state's agricultural exemption.

Agricultural Drainage Wells (ADWs)

When Iowa was first settled, much of it consisted of waterlogged marshlands. Starting in the early 1900s, farmers drilled wells in the aquifer but instead of pumping water out, they injected excess water into the well so the land could be farmed. Some of these agricultural drainage wells (ADWs) are as deep as 400 feet within the limestone aquifer from which many Iowa residents obtain their drinking water. To increase the area drained, networks of clay pipes, known as "tiles," were buried a few feet beneath the land surface in surrounding fields to collect and channel water into ADWs.[17] It is not unusual for manure lagoons to be situated above this network of clay pipes, some of which empty directly into rivers or streams. In the past four years, three spills have involved manure from earthen lagoons breaking into underground lines. Iowa's largest manure spill ever, from SNB Farms into the South Fork of the Iowa River, is one example.

Agricultural drainage wells, particularly those near feedlots, are a huge threat to Iowa's water quality. ADWs are direct routes for contaminants from the land's surface to enter the aquifer. Research has shown that ADWs increase contaminant concentrations, including pesticides, fertilizer, manure, bacteria, and sediment in the receiving aquifers.[18] These wells drain an estimated minimum of 40,000 acres in north-central Iowa. The aquifers that receive this drainage are the same aquifers that provide water for drinking, agriculture, and business for thousands of people.[19]

By the mid 1990s CAFOs were expanding in Iowa and began building their multi-million gallon earthen manure storage lagoons. Many of the largest facilities were located close to ADWs in north-central Iowa.[20] The close proximity of large livestock confinement facilities to ADWs presented two main concerns: 1) impact to aquifers from surface drainage contaminated by runoff after land application of manure, and 2) risk of a catastrophic spill from a manure storage basin or lagoon entering an ADW.[21]

These risks are particularly evident in Wright County where there are 46 large-scale permitted livestock facilities and 38 active ADWs.[22] In Lincoln Township, just southeast of the town of Clarion, there are 12 permitted hog confinements and 28 ADWs. Including the area surrounding Lincoln Township, there are 27 ADWs within one mile of a permitted hog confinement facility. The Mississipian aquifer into which these ADWs drain is the main water supply for public and private water supplies in Wright County and much of north-central Iowa.[23]

In April 1997, land application of hog manure from a DeCoster farm confinement ran down a Wright

County ADW and contaminated the area's water supply aquifer. The EPA fined DeCoster $10,000 under the federal Safe Drinking Water Act for contamination of the aquifer.[24]

In 1997, Iowa passed new legislation to address potential pollution through the highest-risk ADWs.[25] Now, all ADWs that are within a drainage area that includes a permitted earthen manure storage structure must be closed by December 31, 1999. This includes about 20 ADWs in Wright County. New construction or expansion of an earthen manure storage structure within an area that is drained by an ADW is now prohibited.[26] However, some 270 ADWs still remain in operation in the state, notes Susan Heathcote of the Iowa Environmental Council. They are located in farm areas where there is a risk of contamination from spills of other types of manure storage, such as concrete pits, and from the application of manure on fields.

Regulatory Climate

In 1995 Iowa enacted a law that required some operations to prepare a manure management plan providing information about the timing and method of manure application, other factors related to application, and proof that there is sufficient land available for manure disposal.[27] Manure may not be applied within 200 feet of certain "designated areas" (defined as sinkholes, cisterns, abandoned wells, agricultural drainage wells, water wells, lakes and farm ponds), unless the manure is injected or incorporated into the soil within twenty-four hours after application, or if permanent vegetative cover exists around the designated area for at least fifty feet (and manure may not be applied on this fifty foot area) and there are certain restrictions on aerial spraying of manure. The law also created a complex system of setback distances for manure application and manure storage. While the state has recommended phosphorus application rates, operators may ignore those recommendations since the plans are required to be based on nitrogen rates only.[28] Nitrogen breaks down in the soil while phosphorus accumulates and thus requires less area for the safe application of manure. Manure management plans are kept on site unless the operator is a habitual violator, so they are not available to the public. They are only submitted to the Department when an operation applies for a contruction permit.[29]

According to the Animal Agriculture Consulting Organization, a state advisory group, in their recommendations to the Iowa Department of Natural Resources (DNR), "The DNR is required to inspect a habitual violator's facilities regularly. In the past DNR staffing levels were such that investigative inspections occurred only in response to complaints or field staff observations."[30] Iowa does not require a construction permit for swine operations that are small animal feeding operations (less than 200,000 pounds of hogs). Iowa does require confinement operations with more than 200,000 pounds of hogs (500 sows, 1,333 market hogs or 105 farrow-to-finish sows—ten pigs per litter) to obtain construction permits if they use a lagoon or earthen manure storage structure.[31] All swine confinement feeding operations with over 625,000 pounds of hogs must get a construction permit if they begin new construction.[32] The requirements for a construction permit include a separation of four feet between the bottom of an earthen manure storage facility and the groundwater table. If the distance is less than two feet, a synthetic liner must be used. Construction permits may not be issued to facilities with enforcement actions pending before the Department of Natural Resources.[33]

The Department of Natural Resources is responsible for enforcing the laws. From January 1992 to

September 1997, there were sixty-seven enforcement actions related to manure spills, against pork producers that resulted in fines and fish restitution ranging from $100 to $59,000.[34] Violations of manure management requirements usually result in civil, rather than criminal penalties. In Iowa there is reluctance to file criminal charges against CAFO owners. The Department has inadequate staff to properly enforce the law,[35] although in recent years the number of inspectors has risen from eight or nine to nineteen full-time equivalent positions. Even under the 1998 bill, annual inspections are only required for operations with earthen manure storage structures.[36] For facilities using other types of storage, such as concrete pits or metal tanks, inspections are driven either by citizen complaints or by self-reporting.

Water Quality Monitoring

The state is doing a poor job of monitoring the extent of water pollution produced by animal factories. The state tests water quality in only a few locations and is not testing for every contaminant. "We could have a sharp decline in water quality and we would never know it because the state's water quality data is so sparse," former state legislator David Osterberg charged in the Cedar Rapids *Gazette*.[37]

John Olson, a water quality specialist for the Department of Natural Resources, told the *Gazette* that the state's monitoring network is not useful in documenting the impact of confined animal feedlots on water quality. "We are spread too thin to capture that type of information," he said.[38]

Local Control

Various Iowa laws make it difficult to assert local and individual control. A 1946 law prevents counties from zoning land or buildings used for agriculture. In a long string of cases interpreting the statute, courts have said that counties have no zoning authority over hog confinements regardless of their size or nature. In 1996 Humboldt County adopted four ordinances not designed to "zone" but to protect public health. These ordinances required operations with more than 300,000 pounds of animal weight to obtain county construction permits that included a public hearing process, financial assurance, and restrictions on manure applications. While the district court upheld the ordinances, the Supreme Court overturned them.[39] During the 1998 session, the legislature passed a bill that preempted counties from making any local decisions regarding animal feeding operations. The bill did allow counties to appeal DNR permit decisions, but only on matters of law and not due to community opposition.[40]

Nuisance Suit Protection

Under a 1995 law, livestock producers received an almost absolute guarantee that no nuisance suit could be brought against them, even if an operation moved in next to someone living there first. The law said that there had to be clear and convincing evidence that the operation unreasonably and continuously interfered with a person's enjoyment of life or property and the nuisance was caused by the negligent operation of the facility.[41] A 1998 law somewhat relaxed the nuisance suit protection, including changing the clear and convincing standard of proof to an easier standard—a preponderance of evidence.[42] Also, an exemption from nuisance suit protection for operations found in violation of state environmental laws

(which was so strict that it was only applied to DeCoster, with multiple environmental violations) was expanded to include operators who did not use prudent, generally accepted management practices.[43]

In a unanimous September 23, 1998 decision, the Iowa Supreme Court struck down a state law giving immunity from nuisance lawsuits (such as for odor from large-scale hog confinement lagoons) to farms operating in designated agricultural areas.

The Justices concluded that "the challenged statutory scheme amounts to a commandeering of valuable property rights without compensating the owners, and sacrificing those rights for the economic advantages of a few… (and) is plainly we think flagrantly unconstitutional."[44] While the ruling dealt specifically with a 1982 law governing "agricultural areas," it will undoubtedly affect subsequent laws written to shield livestock confinement operations from neighbors' lawsuits.[45]

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NOTES

1. U.S. Department of Agriculture and Iowa Farm Bureau, *1998 Iowa Agricultural Statistics* (August 1998), pp. 77, 78, 106.

2. "Iowa Data," Fact Sheet citing AFO and CAFO information by the Natural Resources Conservation Service and Iowa Department of Natural Resources (Spring 1998), source unknown.

3. U.S. Department of Agriculture and Iowa Farm Bureau, *1998 Iowa Agricultural Statistics* (August 1998), pp. 77, 78, 106.

4. In 1998, the state legislature reduced the burden of proof for plaintiffs suing feedlots but reiterated that local communities would be severely restricted in regulating animal factories; House File 2494. "In return

(for making it a little easier for a neighbor to sue a livestock operator), counties are preempted from making any local decisions regarding animal feeding operations… Counties are… allowed to appeal DNR permit decisions, but only on matters of law and not because neighbors oppose the project." House Democratic Research staff, "Livestock Regulations, House File 2494," End of Session, 1998.

5. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law* (January 1997); House File 2494 maintained, but reduced the nuisance suit protection provisions; House Democratic Research staff, "Livestock Regulations, House File 2494," End of Session, 1998.

6. Borman v. Board of Supervisors, No. 192/96-2276 (Iowa , September 12, 1998).

7. Joann Alumbaugh, "Habitual Headache, Jack DeCoster and Others Keep Industry in the Spotlight, but Some Members of the Audiences are Booing," *Wallace Farmer* (November 1997); "OSHA Socks DeCoster," *Iowa Globe-Gazette* (July 13, 1996);

8. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law*, Livestock Industry Facilities & Environment, Pm-1700 (January 1997).

9. The new 1998 law specifically prohibits the transfer of land from family members if there is a pending enforcement action against the operator; House Democratic Research Staff, "Livestock Regulations, House File 2494," End of Session, 1998; Joann Alumbaugh, "Habitual Headache, Jack DeCoster and Others keep Industry in the Spotlight, but Some Members of the Audiences are Booing," *Wallace Farmer* (November 1997).

10. Department of Natural Resources Database, Iowa Department of Natural Resources, "Prohibited Discharges At Iowa Livestock Operations Resulting in Monetary Penalties and/or Restitution for Fish Kill Bening Proposed, Collected, or Pending—1992 To Present" (November 24, 1997).

11. Iowa Environmental Council, *Iowa Environmental Journal* (Spring 1998), p. 4.

12. Department of Natural Resources Database, Iowa Department of Natural Resources, "Prohibited Discharges At Iowa Livestock Operations Resulting in Monetary Penalties and/or Restitution for Fish Kill Being Proposed, Collected, or Pending—1992 To Present" (November 24, 1997); Mike Glover, "Judge Fines DeCoster $59,000," *Times Republican* (March 4, 1997).

13. Department of Natural Resources Database, Iowa Department of Natural Resources, "Prohibited Discharges At Iowa Livestock Operations Resulting in Monetary Penalties and/or Restitution for Fish Kill Being Proposed, Collected, or Pending—1992 To Present" (November 24, 1997).

14. "Pipeline of Poison," *Des Moines Sunday Register*, The Register's Editorials (July 26, 1998).

15. Lindsey Henry, "Spill's Toll is Limited by Earlier Fish Kill," *Des Moines Register* (July, 21 1998).

16. Lindsey Henry, "Sewage Spews into Creek," *Des Moines Register* (July, 20 1998).

17. Lynette Seigley, Deborah Quade and Susan Heathcote, "Agricultural Drainage Wells in Wright County," *Geological Society of Iowa, Guidebook 65*, Stop 6, Part 1 Geologic Setting, Figure 1 and Part II, Agricultural Drainage Well Policy (April 26, 1998).

18. Lynette Seigley, Deborah Quade and Susan Heathcote, "Agricultural Drainage Wells in Wright County," *Geological Society of Iowa, Guidebook 65*, Stop 6, Part 1 Geologic Setting, Figure 1 and Part II, Agricultural Drainage Well Policy (April 26, 1998).

19. Lynette Seigley, Deborah Quade and Susan Heathcote, "Agricultural Drainage Wells in Wright County," *Geological Society of Iowa, Guidebook 65*, Stop 6, Part 1 Geologic Setting, Figure 1 and Part II, Agricultural Drainage Well Policy, (April 26, 1998).

20. Lynette Seigley and Deborah Quade, "An Introduction to Hogs in Iowa," *Geological Society of Iowa Guidebook 65*, Figure 2 (April 26, 1998), p. 49; Frank L. Moore, *Water Protection Fund Project Final*

Report, Floyd County Groundwater Protection Project, WPF-034-1, 1991-1996, Appendix D, Agriculture Drainage Well Inventory Map (1996).

21. Lynette Seigley, Deborah Quade and Susan Heathcote, "Agricultural Drainage Wells in Wright County," *Geological Society of Iowa, Guidebook 65*, Stop 6, Part 1 Geologic Setting, Figure 1 and Part II, Agricultural Drainage Well Policy (April 26, 1998).

22. Lynette Seigley, Deborah Quade and Susan Heathcote, "Agricultural Drainage Wells in Wright County," *Geological Society of Iowa, Guidebook 65*, Stop 6, Part 1 Geologic Setting, Figure 1 and Part II, Agricultural Drainage Well Policy (April 26, 1998).

23. Lynette Seigley, Deborah Quade and Susan Heathcote, "Agricultural Drainage Wells in Wright County," *Geological Society of Iowa, Guidebook 65*, Stop 6, Part 1 Geologic Setting, Figure 1 and Part II, Agricultural Drainage Well Policy (April 26, 1998).

24. "DeCoster Hit With $10,000 EPA Fine, *Waterloo-Cedar Falls Courier* (October 5, 1997).

25. 1997 Iowa Acts, Senate File 473.

26. Lynette Seigley, Deborah Quade and Susan Heathcote, "Agricultural Drainage Wells in Wright County," *Geological Society of Iowa, Guidebook 65*, Stop 6, Part 1 Geologic Setting, Figure 1 and Part II, Agricultural Drainage Well Policy (April 26, 1998).

27. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law*, Livestock Industry Facilities & Environment, Pm-1700 (January 1997).

28. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law*, Livestock Industry Facilities & Environment, Pm-1700 (January 1997).

29. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law*, Livestock Industry Facilities & Environment, Pm-1700 (January 1997).

30. Animal Agriculture Consulting Organization, *Recommendations to Iowa Department of Natural Resources* (February 28, 1997), p. 19.

31. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law*, Livestock Industry Facilities & Environment, Pm-1700 (January 1997).

32. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law*, Livestock Industry Facilities & Environment, Pm-1700 (January 1997).

33. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law*, Livestock Industry Facilities & Environment, Pm-1700 (January 1997).

34. Department of Natural Resources Database, Iowa Department of Natural Resources, "Prohibited Discharges At Iowa Livestock Operations Resulting in Monetary Penalties and/or Restitution for Fish Kill Being Proposed, Collected, or Pending—1992 To Present" (November 24, 1997).

35. Animal Agriculture Consulting Organization, *Recommendations to Iowa Department of Natural Resources* (February 28, 1997),

36. House Democratic Research Staff, "Livestock Regulations, House File 2494," End of Session (1998).

37. Orlan Love, "Water Quality Mostly a Mystery," *The Gazette* (March 6, 1998).

38. Orlan Love, "DNR Says Lack of Funding for Water Quality Among Chief Concerns,"*The Gazette* (March 6, 1998).

39. Frank Santiago,"County Hog-Lot Rules Voided," *Des Moines Register* (March 6, 1998); Borman v.

Board of Supervisors, No. 192/96-2276 (Iowa, September 23, 1998).

40. House Democratic Research Staff, "Livestock Regulations, House File 2494," End of Session, 1998.

41. Iowa State University, University Extension, *Swine Manure Management and Iowa's Manure Law*, Livestock Industry Facilities & Environment, Pm-1700 (January 1997).

42. House Democratic Research Staff, "Livestock Regulations, House File 2494," End of Session (1998).

43. House Democratic Research Staff, "Livestock Regulations, House File 2494," End of Session (1998).

44. Borman v. Board of Supervisors, No. 192/96-2276 (Iowa, September 23, 1998).

45. Frank Santiago, "Hog Lots Lose Lawsuit Protection," *The Des Moines Register* (September 24, 1998), p. 1A.

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Chapter 9

KANSAS

- Nineteen counties have voted in public referenda to keep out corporate hog farms, but corporations are finding ways to skirt citizen opposition.

- A state law passed in April 1998 to toughen hog farm regulation fails to adequately address odor problems and bars counties from passing tougher environmental regulations than the state's.

Until 1994, Kansas' anti-corporate farming law[1] had effectively kept most industrial swine operations out of the state. The situation has changed. Under a 1994 state law, county commissioners were given the option of welcoming corporate hog factories into their borders through passage of a resolution approving them.[2] State leaders were so anxious to attract this industry that they expedited permitting for Seaboard Farms, Inc.,[3] one of the fastest growing pork producers in the nation. The state also granted the corporation the right to issue $9.5 million in tax-exempt bonds to help the company build its manure lagoons.[4]

In 1994 and 1995, county commissioners passed resolutions allowing Seaboard Farms to set up shop in four counties in the southwestern corner of the state—Stanton, Morton, Grant and Stevens. Initially, Seaboard faced no local opposition to its factory hog farms. Residents now say they were not aware of the environmental and economic havoc that could result from having a half million hogs in the neighborhood.[5] Since Seaboard's arrival, residents have complained of the terrible stench and the pollution threat posed to their drinking water by vast quantities of hog manure.

It did not take long for other Kansas counties to object to factory hog operations, once they saw the effect that Seaboard had on the quality of life in these first four counties. Under the 1994 law, citizens can veto a county commission resolution approving the operation of corporate hog and dairy farms. The resolution is subject to a protest petition, for which citizens have 60 days to gather names. If protested, a referendum on opening county borders to corporate farms is put to vote on the local ballot. So far, 19 of the 21 counties that have held referenda have rejected corporate hog farming by resounding margins—a 72 percent majority altogether for the counties voting "no" on corporate hog farms.[6] Kansas is one of the few states that has allowed their counties to vote out corporate hog and dairy operations.

However, environmental activists fear that major pork producers will successfully skirt local opposition by contracting with independent farmers to grow their pigs. Already, Seaboard has applied to the state for permits to build 11 large "contract farms" in the western part of the state, totaling some 200,000 hogs. The largest single operation would raise 43,000 hogs.[7]

Pollution Problems

Most large cattle and hog operations are concentrated in western Kansas, the state's most arid area.[8] The western half of the state is entirely dependent on groundwater for its drinking water.[9] According to Craig Volland, an engineer and technical advisor to the Sierra Club and Stewards of the Land, feedlots and other agricultural activities are contributing to the depletion of the water table through their use of water. Hog facilities require vast quantities of water to wash out hog barns and water the hogs. They also require water to maintain a minimum level in the animal waste lagoons due to high evaporation rates, to dilute the saline content of lagoon waste making it suitable for application to crops and finally to grow crops to absorb the animal waste.

In addition, there is a question about whether the state's groundwater can tolerate additional pollution threats on the scale posed by large hog farms. According to a 1994 study, 24 percent of the private drinking-water wells in Kansas are already contaminated with nitrates above the drinking water standard of 10 parts-per-million (ppm).[10] The source of contamination is undocumented.[11]

Even though there is little or no water quality monitoring at hog facilities, the hog industry claims hog factories don't pollute groundwater. However, in June 1997, a geologist at the Kansas Department of Health and Environment (KDHE) found highly contaminated groundwater at a site where a 9,000-head hog confinement facility had previously operated. The groundwater was overloaded with nitrates. The geologist found 138 milligrams of nitrates per liter, which greatly exceeds the 10 milligrams per liter health standard.[12]

The potential for hog waste to pollute drinking water is also a concern for Wichita and south-central Kansas, where half a million people rely for their drinking water on the Equus Beds, an underground water supply the size of Rhode Island. State regulations allow hog manure lagoons to leak up to a quarter of an inch a day. That means 1.2 million gallons of wastewater a year could seep out of a one-acre lagoon into the aquifer, according to Mike Dealy, who directs the Equus Beds Groundwater Management District.[13] In Kansas, lagoons used to store hog manure and urine are often four to eight acres and can be as large as 13 acres.[14]

Large hog confinement facilities have spurred numerous citizen complaints about odors and flies. Particularly noxious odors emanate from hog factory farms using anaerobic wastewater lagoons. The bacteria in these lagoons, which thrive on a lack of oxygen, generate hundreds of compounds that stink. Some citizens living near these waste lagoons complain that they are unable to conduct normal outdoor activities much of the year.[15]

The twelve major river basins in the state show evidence of pollution, including fecal coliform bacteria from animal confinement areas and low dissolved oxygen from nutrient/organic pollution from livestock.The state's 1998 water quality assessment reported that intensive animal confinement

operations are a major source of water pollution.[16]

Regulatory Climate

State water pollution control permits are required for CAFOs with a capacity of 300 to 999 animal units if they are deemed to represent a significant water pollution potential.[17] Federal Clean Water Act (NPDES) permits are required for all facilities with a capacity of 1,000 animal units or more.[18] Voluntary registration or "certification" is available for facilities under 300 animal units.[19] Regulations cover public notice, site assessments, plan review, lagoon and storage basin construction standards, separation distances, guidelines for wastewater application, dead animal disposal, facility inspections and require no discharge.[20]

In 1998 the legislature passed a law (HB 2950) aimed at strengthening regulation of hog factory farms. However, its strengthening effect was only modest. Weaknesses remain regarding groundwater monitoring, separation distances required between hog factories and residences or private wells, manure lagoon seepage standards, verification of crop yields and nitrogen uptake, and assurance that operators will have the financial ability to clean up facilities once they close them.[21]

A little-noticed provision of HB 2950 torpedoed efforts by Seward County and any other counties that were working on strenghtening regulation of CAFOs to a tougher standard than the state's. The provision lists at least a dozen areas, including water pollution control and permitting, in which county governments are not allowed to alter what is in the state's regulations.[22]

The provision took activists by surprise, who said it was inserted quietly toward the end of the legislative session. "The state legislature seems intent on preventing citizens from having a say on this matter through their local governments," commented Sierra Club technical advisor Craig Volland.

The Kansas Department of Health and Environment does not generally require that animal feedlot operations (AFOs) monitor the quality of the groundwater around the operation.[23] As a result, only between 20 and 30 (almost all are cattle rather than swine facilities) of the 4,000 regulated AFOs located in Kansas monitor their groundwater quality.[24]

Kansas contends with serious odor problems from hog farms as well as odor and dust from cattle feedlots.[25] In recent cases, sprinklers have been required at cattle facilities to help keep down the dust.

The state's recent attempt to tackle hog farm odors in its 1998 hog farm regulation bill falls far short of the mark. The most common way to address the odor problems is the requirement of a setback—a separation between the livestock facilities and homes. Before 1994, setbacks were defined as being 5,280 feet for a facility of 5,000 head or more.[26] In 1994, the legislature reduced that to 4,000 feet for facilities with more than 2,500 head.[27] In 1998, the state legislature passed a new law increasing the setback size for swine operations to 5,000 feet for 9,300 head or more.[28] Unfortunately, the new rule is still weaker than the pre-1994 rule. In addition, the secretary of KDHE can waive a setback, "if there is no substantial objection from a neighbor." However, the law does not define "substantial." The state legislation also requires an odor control plan, "but there are no enforceable standards aside from separation distances."[29]

The state recently beefed up its inspection of swine facilities.[30] However, an audit conducted by a state

legislative committee last year found that nearly half of the facilities had not been inspected according to that schedule.[31] In January 1997, when the audit was completed, the state had only eight full-time field staff to inspect 4,000 operations. In response to the weak enforcement revealed by the audit, the state has since added more staff. Now the state has 20 field staff.[32] Under the law passed this year, the state also incorporated a mandatory inspection schedule into regulations.

In addition, the audit found that four out of ten complaints were improperly handled and that 32 of 36 feedlots reviewed had at least one violation.[33]

Local Control

A major battle is shaping up over plans by Seaboard to build a new packing plant in the city of Great Bend[34] that would slaughter four million hogs a year, double what is raised in Kansas. Seaboard plans to supply half its plant's meat requirements—some two million pigs—through contract factory farms within 150 miles of Great Bend.[35]

In addition to the strain imposed on the housing and roads of Great Bend by a plant of that size, the proliferation of factory farms supplying Seaboard's plant would pose a serious threat to environmentally valuable areas nearby. These include the Cheyenne Bottoms Wildlife Area and the Quivira National Waterfowl Refuge, both of which serves as a key stopping place for migratory waterfowl, including endangered Whooping cranes. Seaboard claims it will avoid situating farms near the wildlife area and waterfowl refuge, but citizens remain concerned about the effects of nearby factory hog farms.

This spring the Great Bend City Council withdrew its support of the Seaboard Farms hog processing plant. Four new members of the council were elected in the spring of 1998 as anti-hog write-in candidates and won their seats by 60 percent of the vote.[36] Despite this decision and the obvious sentiment of the voters, Seaboard appears to be moving forward with its plans for the plant, saying it will site the plant somewhere in surrounding Barton County. The company has not announced a specific site yet.

Another battle involves an attempt by Murphy Family Farms, the nation's largest pork producer, to bring their swine operation into Hodgeman County in western Kansas.[37] The county has voted in a public referendum not to allow corporate hog farms into the county. But shortly after the referendum, Murphy Family Farms announced it was moving ahead anyway with its plans to construct an 11,000-sow operation in the county. Murphy claims it fits under the definition of a family farm. Murphy Family Farms is a family-owned corporation. Environmentalists contend the state's anti-corporate farming law was never intended to offer protection to the largest pork producer in the country or to industrial-scale farms. A Hodgeman County citizens' group, Families Against Corporate Takeover (FACT), has sued Murphy to prevent the corporation from locating in the community,[38] and a judge recently found that FACT had sufficient standing to pursue a lawsuit.[39]

In a recent development, Murphy Family Farms announced that it has put on hold its plans to create two large hog farms in western Kansas—one originally planned for Hodgeman County and a 22,000-pig operation in Lane County. A corporation spokesman said the decision was primarily a response to the current hog market's sinking prices and oversupply of hogs.[40] However, Murphy's opponents say the

battle is not over. "We still have a legal battle with Murphy's regarding whether they really are a family farm in the state of Kansas," commented Richard Ford, a farmer active in FACT.[41] In June, Governor Graves issued permits to Murphy for the two factory farms, but Lane County citizens are still contesting Murphy's permit in their county.

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NOTES

1. Senate Bill 554, Kansas Statutes Annotated 17-5904.

2. Kansas Statutes Annotated 17-5908.

3. Letter from Ron Hammerschmidt, Acting Director, Division of Environment, Kansas Department of Health and Environment (KDHE) to the Secretary, KDHE (February 21, 1995).

4. Mike Hendrix, "Hog Farms Slip through Tax Loophole," *Kansas City Star* (January 13, 1996).

5. Jean Hayes and Steve Painter, "Hog on the High Plains," *Wichita Eagle* (June 23, 1996).

6. Kansas Rural Center, *Rural Papers* (December 1997).

7. Kansas Department of Health and Environment, printout of applied for and issued permits (August 5, 1998).

8. Kansas Department of Health and Environment map showing location of CAFOs;Legislative Division of Post Audit, State of Kansas, Report to the Legislative Post Audit Committee, "Reviewing the KDHE's Efforts To Protect Water Pollution Caused by Confined Livestock Feeding Operations" (January 1997).

9. Kansas Department of Health and Environment Groundwater Quality Monitoring Network, 1993 Annual Report.

10. Kansas Department of Health and Environment, Bureau of Environmental Health Services, *Kansas 1993-94 Private Water Well Survey*.

11. Legislative Division of Post Audit, State of Kansas, Report to the Legislative Post Audit Committee, "Reviewing the KDHE's Efforts To Protect Water Pollution Caused by Confined Livestock Feeding Operations" (January 1997).

12. Doug Doubek, Kansas Department of Health and Environment, *Limited Site Investigation Gjerstad Cattle Co.*, Dodge City, Kansas (June 11, 1997).

13. Jean Hayes, "Risk to Water and Economy Drives Hog Battle," *Wichita Eagle* (October 11, 1998).

14. Personal communication between Rebecca Knuffke and Craig Volland, Spectrum Technologists (November 19, 1998).

15. Letter from Lelia and Don George to Governor Bill Graves (January 30, 1998); fact sheet, Citizens for a Healthy Environment, Seward County, Kansas.

16. Kansas Department of Health and Environment, Bureau of Environmental Field Services, The 1998 Kansas Water Quality Assessment, 305(b) Report (April 1988).

17. Kansas Statutes Annotated 65-171.d.

18. Kansas Statutes Annotated 65-171.d.

19. Kansas Statutes Annotated 65-171.d.

20. Kansas Statutes Annotated 65-159 et seq. and Kansas Statutes Annotated 65-1178, 65-1199.

21. Kansas HB 2950 (May 1998), K.A.R. 28-18; Design Standards for Confined Livestock Feeding Operations (November 1993); Spectrum Technologists, "Final Analysis of HB2950" (May 1998).

22. Walter Rubel, "State Law May Nix Task Force Rules," *Southwest Daily Times* (October 7, 1998).

23. Craig S. Volland, "Critique of the Kansas State University Lagoon Research Project," Spectrum Technologists, Kansas City, Kansas (August 1998); from legislative testimony and Kansas Department of Health and Environment documents.

24. Testimony by Don Carlson , Kansas Department of Health and Environment to Kansas Legislature (February 1998).

25. Letter from City of Larned, Kansas to Kansas Department of Health and Environment (April 22, 1997); personal communication between Craig Volland and several citizens in Larned and Dodge City.

26. Kansas Department of Health and Environment, Design Manual, Confined Livestock Feeding Operations (November 1993).

27. Kansas HB 554 (1994).

28. Kansas Statutes Annotated 65-171.d.

29. Kansas HB 2950, Hog bill.

30. Legislative Division of Post Audit, State of Kansas, Report to the Legislative Post Audit Committee, "Reviewing the KDHE's Efforts To Protect Water Pollution Caused by Confined Livestock Feeding Operations" (January 1997).

31. Legislative Division of Post Audit, State of Kansas, Report to the Legislative Post Audit Committee, "Reviewing the KDHE's Efforts To Protect Water Pollution Caused by Confined Livestock Feeding Operations" (January 1997).

32. Personal communication between Craig Volland of Spectrum Technologists and State Representative Laura McClure (June 9, 1998).

33. Legislative Division of Post Audit, State of Kansas, Report to the Legislative Post Audit Committee, "Reviewing the KDHE's Efforts To Protect Water Pollution Caused by Confined Livestock Feeding

Operations" (January 1997).

34. Susan Thacker, "New Great Bend City Council Withdraws Support for Seaboard," *The Hutchinson News* (April 21, 1998).

35. Jim McLean, "Great Bend Vote Reverberates in Statehouse," *The Topeka City-Journal* (April 10, 1998).

36. Susan Thacker, "Write in Takes Seats in Great Bend," *Hutchinson News* (April 8, 1998).

37. Eric Swanson, "Fact Files Lawsuit," *Dodge City Daily Globe* (December 31, 1997); Anne Marie Bush, "Judge Meeks Rules Fact Can Proceed with Law Suit," *Dodge City Daily Globe*.

38. Eric Swanson, "Fact Files Lawsuit," *Dodge City Daily Globe* (December 31, 1997).

39. Anne Marie Bush, "Judge Meeks Rules Fact Can Proceed with Law Suit," *Dodge City Daily Globe*.

40. Mary Clarkin, "Market Stalls Murphy Plan for Hog Farms," *Hutchinson News* (October 8, 1998).

41. Mary Clarkin, "Market Stalls Murphy Plan for Hog Farms," *Hutchinson News* (October 8, 1998).

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Chapter 10

KENTUCKY

- Kentucky's geology makes large portions of the state particularly vulnerable to groundwater pollution from leaking hog manure lagoons.

- Kentucky is experiencing a boom in chicken houses, but they escape water pollution regulation.

In Kentucky, the number of farms raising hogs has dropped dramatically over the past 20 years as factory-scale operations have replaced family-size farms. The number of hog farms plunged from 33,000 in 1976 to some 2,500 in 1997.[1] A trend toward larger hog operations, concentrated in a few pockets of the state, has led to big increases in overall hog production in some parts of Kentucky. Eleven counties have experienced a 25 percent jump in the number of hogs produced since 1982.[2]

Of Kentucky's approximately 2,500 hog operations in 1997, an estimated 50 operations had more than 2,000 hogs (an average of 5,850), and 70 operations had between 1,000 and 2,000 hogs.[3]

Kentucky's booming poultry industry is projected to expand dramatically in the next few years. Approximately 3.3 million birds are killed per week in Kentucky, raised in an estimated 1,100 broiler houses on an estimated 350 farms, according to projections for 1998. By the year 2000, the total number slaughtered will rise to an estimated 5.7 million birds killed per week in 2,100 broiler houses on an estimated 534 farms.[4] Though nearby residents complain of intense odor problems and flies,[5] the state's Economic Development Authority has provided significant tax incentives to two major food corporations to open poultry operations: Cagle-Keystone Foods and Hudson Foods (which has now been acquired by Tyson Foods, Inc.).[6]

Pollution Problems

Fifty percent of Kentucky is comprised of limestone, which is permeated with caves, sinkholes, and springs. In these limestone formations, known as karst, water runs underground through caves and

aquifers and then emerges from springs into streams and lakes.[7] Areas of karst geology are particularly sensitive to nutrient pollution and are ill-suited for siting hog waste lagoons or concentrated animal feeding operations.[8] Unfortunately, Kentucky is now experiencing a proliferation of chicken houses and an increased concentration of swine operations in areas that are formed from karst, including areas close to Mammoth Cave National Park.[9] Depositing animal waste in karst areas poses the following water pollution threats:

- Because underground water moves very rapidly and unpredictably, disease-causing bacteria from manure spread onto the ground have greater opportunity to enter groundwater and to contaminate nearby streams and lakes.[10]

- The rapid movement of animal waste into the groundwater limits the ability of soil and plants to take up nutrients, increasing the risk of nutrient pollution of groundwater and above-ground bodies of water.[11]

- Karst geography is by definition unstable. Sinkholes can form in unexpected areas, in particular where ground excavation occurs and where there is a change in the groundwater flow rate, both of which occur frequently with feedlot construction. Examples of the risks involved with lagoon construction in karst regions are documented by Dr. Nicholas Crawford of Western Kentucky University's Department of Geography and Geology in an August 5, 1998 report. He has documented a 1984 sinkhole collapse under a hog waste lagoon in southwest Barren County, which poured 2.4 million gallons of hog waste into the karst aquifer in less than five hours. Another sinkhole collapse under a hog waste lagoon in Logan County on April 29, 1991, drained more than one million gallons of hog waste into the karst aquifer, according to Crawford. This lagoon had a synthetic liner, but the collapse occurred above the synthetic liner. Crawford also documented lagoon leakage from two lagoons in Logan County which contaminated a spring.[12]

Regulatory Climate

Poultry facilities are excluded from any water pollution regulation under the state's interpretation of the Clean Water Act because poultry litter is not considered an industrial source of pollution. Despite documentation of well-water contamination linked to nearby land application of litter, the state agency claims it has no authority to take enforcement action against poultry factories.[13]

A major failing of Kentucky's environmental regulatory system has been its use of "no discharge" permits to CAFOs. Given the lack of water quality monitoring requirements for CAFOs and other assurances, this requirement is difficult to enforce. Moreover, requirements for waste management plans are not enforceable.

Even for processing plants, the "no discharge" permit is offered. For example, Cagle-Keystone's new chicken processing plant in Clinton County has been issued a "no discharge" permit and will be allowed to spray-irrigate up to 1.43 million gallons a day of plant wastewater on a hay farm near Lake Cumberland. The permit has no water quality limits, and inadequate monitoring requirements.[14]

Until recently, the state's regulation of swine was very lax. However, in response to the prospect of additional hog facilities coming into Kentucky, the Governor imposed a three-month moratorium in 1997, which was followed first by emergency regulations and then by permanent regulations for new factory swine operations with over 1,000 swine units. Existing swine operations of this size and other animal types (with the exception of dry litter poultry operations) are still covered under the old CAFO rules. The new regulations include notice to citizens in the vicinity, setbacks, restrictions of the land application of waste, and some additional regulatory requirements.[15] However, among other deficiencies, the setbacks are inadequate, the nutrient management requirements are based on nitrogen limits rather than phosphorus limits, allowing more pollution to occur, and operators are not required to obtain training to run a factory farm.[16] The Farm Bureau attempted to repeal the regulations with legislation in the 1998 session,[17] but that effort was defeated. The newest version of the regulations, which took permanent effect in November 1998, requires that the owner of a livestock operation's pigs (typically an absentee food corporation) join with the owner of the operation's land (typically a farmer under contract to the corporation) in applying for a CAFO permit.[18] This means that well-endowed corporations will share some of the responsibility for complying with environmental requirements with their contract farmers, who have historically shouldered the costly burden of manure-handling alone. Unfortunately, the Farm Bureau was able to weaken this important requirement from the proposed version, which made the corporations and the farmers equally responsible.[19]

The Kentucky Natural Resources and Environmental Protection Cabinet, the agency that issues permits under the Clean Water Act, currently permits 143 agricultural waste systems with 1,000 or more head of swine.[20] The Cabinet estimates that there are between 50 to100 swine facilities that are required by law to get a water pollution control permit as a CAFO but have not been issued one.[21] The failure to regulate these CAFOs stems largely from weak agency enforcement and a lack of state funding for inspectors, according to environmentalists.

The effectiveness of local controls is generally untested, because they are all relatively new. However, several counties have attempted to implement local controls on animal waste facilities.[22]

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NOTES

1. Community Farm Alliance, "Hogs in Kentucky." Frankfort Kentucky (September 23, 1997), numbers agreed to by Mike Ovesen, Kentucky Pork Producers Assn. at September 26, 1997 meeting of the Kentucky Agriculture Water Quality Authority, Livestock Committee meeting, Frankfort, Kentucky.

2. Regulatory Impact Analysis prepared by Kentucky Division of Water, 401 Kentucky Administrative Regulations 5:009 (August 6, 1998).

3. Community Farm Alliance, "Hogs in Kentucky," Frankfort Kentucky (September 23, 1997), numbers agreed to by Mike Ovesen, Kentucky Pork Producers Assn. at September 26, 1997 meeting of the Kentucky Agriculture Water Quality Authority, Livestock Committee meeting, Frankfort, Kentucky.

4. Dr. A. J. Pescatore comments to the Kentucky Agriculture Water Quality Authority, Livestock Committee, Elizabethtown, Kentucky (October 15, 1997).

5. Democracy Resource Center, et al., Tyson Fact Sheet, Lexington, Kentucky, quoting statement by Leesa Webster, Sebree, Kentucky, who lives near 16 chicken houses, the closest one 600 feet from her home, and statement by Norma Caine, Onton, Kentucky, who lives within site of 24 chicken houses, the closest one 278 feet from her back door. Caine has experienced odor problems, dust problems, flies and other pests.

6. Community Farm Alliance (CFA) letter to U.S. Department of Agriculture (July 21, 1997); CFA News, "Corporate Agriculture in Kentucky and an Economic Development Strategy Gone Wrong," Frankfort, Kentucky (July 1997).

7. Nicholas Crawford, Ph.D., "Leakage and Sinkhole Collapses Under Hog Waste Lagoons in Kentucky" (August 5, 1998), p. 10.

8. Nicholas Crawford, Ph.D., "Leakage and Sinkhole Collapses Under Hog Waste Lagoons in Kentucky" (August 5, 1998), p. 10.

9. Nicholas Crawford, Ph.D., "Leakage and Sinkhole Collapses Under Hog Waste Lagoons in Kentucky" (August 5, 1998), p. 1; U.S. Department of Agriculture, Draft Environmental Impact Statement, City of Albany, Cagle Water Expansion Project map, figure 14, p. 81.

10. Cooley testimony (July 13, 1998), pp. 131-135 and Ewers testimony (July 15, 1998), pp. 21-23, Sierra Club et al. v. NREPC, et al., KY NREPC File DOW-23778-043.

11. Cooley testimony (July 13, 1998), pp. 131-135 and Ewers testimony (July 15, 1998), pp. 21-23, Sierra Club et al. v. NREPC, et al., KY NREPC File DOW-23778-043.

12. Nicholas Crawford, Ph.D., "Leakage and Sinkhole Collapses Under Hog Waste Lagoons in Kentucky" (August 5, 1998).

13. Personal communication between Hank Graddy, Kentucky Sierra Club, and Jack Wilson, Director, Kentucky Division of Water concerning Gary Hale's fecal coliform test results, Frankfort, Kentucky (May 6, 1998).

14. Kentucky Natural Resources and Environmental Protection Cabinet, "No Discharge Permit Issued to Cagle," Keystone Foods (September 15, 1997).

15. 401 Kentucky Administrative Regulations 5:009, Section 4.

16. 401 Kentucky Administrative Regulations 5:009, Section 5 and Section 9; Letter from Kentucky Resources Council to Jack Wilson, Kentucky Division of Water (June 21, 1998); Letter from Sierra Club to Jack Wilson, Kentucky Division of Water (June 21, 1998).

17. "House Bill Would Weaken Some Rules for Hog Farms," *Courier Journal* (February 26, 1998).

18. 401 Kentucky Administrative Regulations 5:009, Section 1(5).

19. "Sprague Says Liability Provision in Swine Regulations Should Be Amended," *Greenburg Record-Herald* (October 21, 1998).

20. Regulatory Impact Analysis prepared by Kentucky Division of Water, 401 Kentucky Administrative Regulations 5:009 (August 6, 1998).

21. Comments of Peter Goodman, Kentucky Division of Water, to the Kentucky Agricultural Water Authority, Frankfort, Kentucky (November 20, 1997).

22. Re: Webster County setback requirements; "Webster Fiscal Court Enacts Poultry Rules," *The Messenger* (August 19, 1997); Allen County moratorium, personal communication between Hank Graddy, Kentucky Sierra Club and Bettye Glover, Friends of the Drakes Creek and Red River (September 9, 1998).

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Chapter 11

MARYLAND

- Dramatic growth over the past 20 years in the size of chicken farms on Maryland's Eastern Shore of the Chesapeake Bay is generating massive quantities of chicken manure, contributing to the decline in the health of the Chesapeake Bay.

- Until the state legislature passed a new law this year, poultry operations were not regulated for environmental protection purposes. (The new regulations, however, will not come into full effect for seven years.)

- The new state law will not require involvement of the large poultry companies in the regulatory scheme, thereby leaving the full responsibility for compliance on the contract poultry growers.

- The state has exercised its permit authority over swine and cattle factories only recently and allows little public participation in the process.

The poultry industry has operated in Maryland for more than fifty years. During that time, the industry has developed into a major component of Maryland's Eastern Shore economy.

The runoff from manure applications poses a significant threat to Maryland and the Chesapeake Bay,[1] which suffers from a serious nutrient pollution problem.[2] A major source of this pollution is animal manure, which is rich in nitrogen and phosphorus. In natural bodies of water such as the Bay, a glut of these substances fuels the runaway growth of algae, ultimately leading to the death of fish, shellfish and other aquatic life. In the Chesapeake Bay, the excessive quantities of nitrogen and phophorus have dramatically degraded water quality and fostered the growth of the toxic microbe *Pfiesteria piscicida*, which has been responsible for major fish kills. People exposed to water or water vapor containing *Pfiesteria* have experienced symptoms ranging from skin irritation and gastrointestinal problems to short-term memory loss.[3]

In 1991, there were 1,901 chicken farms in Maryland with an average farm size of 50 acres.[4] A typical chicken farm raises 200,000 chickens each year, supplying more than enough nitrogen and phosphorus in

chicken droppings to fertilize more than 100 acres of crops—twice as much acreage as the average farm.[5]

Maryland has agreed with other states in the Chesapeake Bay watershed to reduce the level of nitrogen and phosphorus nutrients entering the Bay by 40 percent by the year 2000 under the Chesapeake Bay Agreement.[6] Unfortunately, the problem of nutrient pollution in the Bay persists and it is unlikely that the goal will be reached within the next two years.[7]

Pollution Problems

In 1996 the Maryland Department of the Environment (MDE) reported that approximately 93 percent of Maryland waters that are known to be failing to meet state water quality standards fall short of these standards because of excessive nutrient pollution.[8] The U.S. Environmental Protection Agency (EPA) Chesapeake Bay Program estimates that 326 million pounds of nitrogen and 19 million pounds of phosphorus enter the Bay every year.[9] While there are numerous sources of this pollution to the Bay and its tributaries, the Chesapeake Bay Program Model reveals that agriculture is the largest source.[10] Agriculture is responsible for some 127 million pounds of nitrogen and nine million pounds of phosphorus entering the Bay each year.[11]

A chief component of this agricultural pollution is found on Maryland's Eastern Shore, where hundreds of chicken houses produce about 300 million chickens each year.[12] The industry's annual production of 720 million pounds of chicken manure[13] contains twice as much phosphorus as the human waste generated by Maryland's entire population annually.[14] Manure contributes an estimated 40 percent of the nitrogen and 48 percent of the phosphorus entering the Chesapeake Bay from Maryland's Eastern Shore.[15]

The shallow groundwater table on the Eastern Shore makes the area extremely vulnerable to nitrogen pollution.[16] Consequently, in areas where feedlots are concentrated, drinking water can be contaminated with nitrates, which have been linked to a potentially fatal inability to carry oxygen in blood in infants and miscarriages among women.

Furthermore, the land areas being fertilized with the highest concentrations of manure are the least capable of assimilating the nutrients, due to the existing content of phosphorus in the soil—whether from past applications of manure, the soil's natural make-up or a combination of both. As much as 90 percent of the soils in the heavily farmed © lower four Eastern Shore counties—Somerset, Dorchester, Wicomico, and Worcester—already have phosphorus levels rated as "high" or "very high," indicating that no additional phosphorus is needed for plant growth.[17] Because the soil phosphorus levels are high, there is far greater potential for phosphorus runoff into waterways and subsequent water pollution should additional manure be applied.

Regulatory Climate

Maryland, home to the headquarters of the Perdue Corporation, does not require environmental permits for poultry-growing operations. With regard to protecting water quality, the state regulates swine and cattle CAFOs only through the use of general permits, which allow little public input prior to the permitting of specific facilities and do not set environmental protection conditions based on individual farm sites. These general permits have been in use for less than two years.[18]

For more than ten years, Maryland has had a voluntary nutrient management program, which provides guidance to farms, including poultry operations, on the handling and land application of manure. The management program bases its manure application recommendations on nitrogen and largely ignores phosphorus, a nutrient that accumulates in the soil. The total farm acreage in Maryland, including pasture land, is 2.1 million acres. Approximately 996,000 acres have nutrient management plans.[19] However, because these plans are completely voluntary, there is no information concerning their implementation.

Recently passed legislation mandates nutrient management plans for many agricultural operations. The legislation addresses the application of manure based not only on its nitrogen content but also on its content of phosphorus,[20] a controversial move favored by environmentalists and opposed by some in the industry as too burdensome. However, implementation of these more comprehensive plans for managing animal manure will not take full effect for seven years.[21]

Furthermore, liability for compliance has been placed squarely on the contract growers,[22] those least capable of bearing the burden, while the large poultry companies have avoided financial liability and public accountability for the adverse environmental impacts associated with the growing of their chickens. Legislation that would have held the large poultry companies liable for manure management and disposal was introduced in the state general assembly but failed to pass out of committee.

The new legislation also extends a cost-share program for construction of manure storage sheds to chicken farmers and to farmers receiving manure. Under the state's voluntary cost-share program, the state can finance up to 87.5 percent of the cost of building manure storage if the farmer follows the state's recommended manure management practices. The state is also establishing a voluntary program to match farmers who have excess manure with the people who need it. Additionally, the state has established a fund to promote the development of alternative uses for animal manure.[23]

Citizen Involvement

Citizen input in the permitting process for CAFOs is minimal, and use of general permits do not require public notification. Without notification and information, citizens lack the tools to participate in animal factory siting and pollution decisions.

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NOTES

1. Scott W. Ator and Matthew J. Ferrari, U.S. Geological Survey, "Nitrate and Selected Pesticides in Ground Water of the Mid-Atlantic Region" (1997), p. 2.

2. U.S. Geological Survey, "Overview of the U.S. Geological Survey Chesapeake Bay Ecosystem Program" (1997), p. 1.

3. U.S. Environmental Protection Agency, et al., "What You Should Know About *Pfiesteria Piscicida*," Fact Sheet (June 1998), p. 2.

4. U.S. Department of Agriculture Census, 1992, pp. 25, 233.

5. Herbert Brodie, University of Maryland and Louise Lawrence, Maryland Department of the Environment, "Nutrient Sources on Agricultural Lands in Maryland," Final Report of Project NPS#6 for the Chesapeake Research Consortium (September 3, 1996), p. 18 and Table IX; U.S. Department of Agriculture Census (1992), pp. 25, 233.

6. 1987 Chesapeake Bay Agreement, p. 2; 1992 Amendments, p. 1.

7. U.S. Geological Survey, "Overview of the U.S. Geological Survey Chesapeake Bay Ecosystem Program" (1997), p. 1.

8. 9. Personal communication between Chesapeake Bay Foundation staff and Louis Linker, Modeler at the Chesapeake Bay Program (September 11, 1998).

10. Chesapeake Bay Program Website: www.chesapeakebay.net/bayprogram.

11. Chesapeake Bay Program Website: www.chesapeakebay.net/bayprogram.

12. Maryland Department of Agriculture, "Maryland Agriculture Statistics, Summary for 1996," p. 27.

13. Herbert Brodie, University of Maryland and Louise Lawrence, Maryland Department of Agriculture, "Nutrient Sources on Agricultural Lands in Maryland," Final Report of Project NPS#6 for the Chesapeake Research Consortium (September 3, 1996), p. 18 and Table IX; Maryland Department of Agriculture, Maryland Agriculture Statistics, Summary for 1996, p. 27.

14. U.S. Department of Agriculture, Agricultural Waste Management Field Handbook; Maryland Office of Planning, Planning Data Services, "Demographic and Socio_Economic Outlook," revised August 1997, p. 1.

15. Maryland Department of the Environment, 1997 Bay Model Re-evaluation.

16. Scott W. Ator and Matthew J. Ferrari, U. S. Geological Survey, "Nitrate and Selected Pesticides in Ground Water of the Mid-Atlantic Region" (1997), pp. 4-5, Figure 2 (p. 3).

17. Data from University of Maryland Soil Testing Laboratory (1996).

18. Correspondence from Robert Daniel, Project Manager, Environmental Permits Service Center, Maryland Department of the Environment (May 8, 1997); General NPDES Permit No. MDR000010.

19. Maryland Department of Agriculture, Maryland Agricultural Statistics, Summary for 1996, p. 1; Maryland Nutrient Management Program, 1997 Annual Report, p. 1.

20. Maryland General Assembly, SB178/HB399, signed May 12, 1998.

21. Maryland General Assembly, SB178/HB399, signed May 12, 1998.

22. Maryland General Assembly, SB178/HB399, signed May 12, 1998.

23. Maryland General Assembly, SB178/HB399, signed May 12, 1998.

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Chapter 12

MINNESOTA

- Large-scale hog feedlots are emitting hydrogen sulfide—a gas that produces flu-like symptoms in humans—at levels vastly exceeding state air quality standards. (Minnesota is the first state to measure hydrogen sulfide gas at farm operations.)

- The state's implementation of Clean Water Act permit requirements for animal factories has been lax. Only 3.5 percent of the state's 700 factory-sized farms have been issued the federal Clean Water Act permit required by law.

The state has classified 34 percent of the river miles and 30 percent of the lake acres within four major river basins in Minnesota as "impaired," or polluted, by feedlots.[1] This classification means that the pollution levels have put these waters off-limits all or some of the time for state-designated uses, including swimming and consumption of fish from these waters.

Animal factories in the state have grown exponentially since 1990 as the number of Minnesota's family farms has continued to dwindle. In 1990, Minnesota issued 11 new permits to animal feeding operations with over 1,000 animal units. In 1996, the number of new permits issued to factory farms surged to 152.[2] Meanwhile, the percentage of livestock marketed from farms with less than 300 animal units has plummeted from 85 percent to 40 percent and is expected to drop to 25 percent within two to three years.[3]

Pollution Problems

Air Pollution

Air pollution emissions from feedlots are a tremendous problem in Minnesota. The state has had strict standards for over 20 years limiting the emissions of the toxic gas hydrogen sulfide.[4] But until 1997, feedlots were not tested for compliance with those standards. Following the construction of 17 new

large-scale hog feedlots in Renville County in 1993 and 1994, Renville County citizens began experiencing flu-like health problems, including headaches, nausea and vomiting—all symptoms associated with hydrogen sulfide gas. In a 1995 phone-in survey, 58 Renville County families who lived within a five-mile radius of factory hog farms reported health problems of this nature.[5]

Recently, the Minnesota Pollution Control Agency (MPCA) confirmed through a testing program that half of the CAFOs tested were exceeding state standards for hydrogen sulfide, some by up to 50 times.[6] Violations occur on a frequent basis, with one operation exceeding the half-hour standard 32 times over 19 days.[7]

The monitoring results for hydrogen sulfide are just the tip of the iceberg. The state has recently completed a model showing animal feedlots to be the largest source of nitrogen emissions to air in the state—exceeding emissions from electric utilities and mobile sources such as cars and trucks.[8] Despite this tremendous impact, only one factory feedlot has a permit that requires monitoring of ammonia. Ammonia, a product of manure, is a form of nitrogen that can volatilize from the manure pit into the atmosphere.

Water Pollution

In 1997 a lagoon pump malfunctioned and dumped 100,000 gallons of liquefied hog manure into Beaver Creek, killing 690,000 fish.[9] This spill was the worst experienced by the state thus far, but not the only one. Unfortunately, the MPCA does not keep a central record of spills and other feedlot-caused pollution incidents.

Groundwater Pollution

The MPCA requires only 12 among the hundreds of AFOs that use earthen basins for their manure storage to conduct groundwater monitoring. Several of these show mild to moderately elevated nitrate levels, but since little or no baseline monitoring was required, it is impossible to prove the source of the contamination.[10] Nitrates are a compound containing nitrogen found in manure and fertilizer. Very high concentrations of nitrates in drinking water can cause "blue-baby syndrome" in infants, an inability to carry oxygen in the blood. Nitrate-contaminated drinking water has also been associated with miscarriages. (See Indiana story.)

Regulatory Climate

An estimated 45,000 AFOs[11] (farms under 1,000 animal units) meet Minnesota's 20-year-old permitting thresholds of 50-plus animal units (or 10 animal units in shoreland).[12] Only 18,000 have applied for and received the required Certificate of Compliance.[13] This Certificate is really a one-time approval based on a desk review of application materials. Unlike a permit, it never needs renewing, and is described by an Assistant Attorney General as "completely unenforceable."[14]

All facilities with 1,000 or more animal units are required by 1998 legislation to obtain federal Clean Water Act permits. To date, only 24 of the 700 feedlots with 1,000-plus animal units in the state have

been issued the required federal Clean Water Act permit. The MPCA instead issued the rest a temporary construction permit, which later was converted into a Certificate.[15] This action has deprived rural citizens of the right to a 30-day public comment period, the right to request a contested case hearing on the permit, and the right to enforce the law themselves through a citizen's suit if water quality violations occur once the facility is operating.

Pending new rules will change the permitting system to fold the four types of permits into two, Clean Water Act permits for operations with more than 1,000 animal units and state permits for facilities with fewer than 1,000 animal units. Additionally, all the permits will include setbacks and manure management requirements.[16]

There are no routine inspections of facilities, apparently because the MPCA does not have the funds to maintain oversight of so many operations. Inspections are partially funded through fees collected for Clean Water Act permits, and 24 permits do not generate much revenue.[17]According to Kristin Sigford of the Minnesota Center for Environmental Advocacy, the MPCA is seriously understaffed with only one full-time enforcement caseworker and six part-time field inspectors. Violations at problem sites often take years to resolve or are never addressed at all. Others are simply unknown. Because the last statewide inventory of feedlots is 20 years old the MPCA doesn't even know where many feedlots are, much less whether the operations are creating environmental problems. The state does know this: the last study done on the subject disclosed that 95 percent of the thousands of AFOs on shorelands discharged animal waste into waterways during even minor storm events.[18]

Pig Factory's Gases Sicken Neighbors

At first it seemed like a bad flu had hit Julie Jansen's rural Minnesota day care center. In the spring of 1995, the 17 children at Jansen's home-based day care, ranging in age from newborns to 13, shared a long list of familiar symptoms—diarrhea, nausea, headaches, vomiting, teary eyes and stuffy noses.

"At first I thought it was only the worst case of flu known to man," says Jansen, a mother of six who has 11 years of experience as a day-care provider in rural Renville County. "Then I noticed it only happened when the wind came from the south."

Two factory-scale pig farms had recently located south of Jansen's house—one is a mile away and the other is three-quarters of a mile away. A nursery raising 16,000 baby pigs to market size was built in 1995. The other, a giant sow farm, was built at the same time and holds 2,500 sows.

Jansen says she first made the connection between the nearby animal factories and the flu symptoms when the farm machinery that is supposed to mask hog waste odors malfunctioned in July 1995, sending a foul sewer smell into her home. Sharing her experience with a neighbor, Jansen compiled a list of symptoms both households had suffered. Then she phoned the poison control center to see if one of the gases produced by decomposing pig manure, hydrogen sulfide, could be the cause. The poison control official confirmed that hers was an encyclopedic list of symptoms from unsafe hydrogen sulfide exposure.

"Ma'am, the only symptoms of hydrogen sulfide you're not experiencing are seizures and death. Leave the area immediately," the poison control official told Jansen. Panicked, Jansen gathered up her six children and two visiting friends and drove to a lake 45 minutes away. By the time they arrived, "all the kids were fine," Jansen remembers. They were no longer crying or vomiting.

"I got my family into clean air," Jansen says. "I was so mad I started crying. We were being poisoned. I could not believe what had been happening for months."

The experience turned Jansen into an activist. She went into debt over the next few years to document local feedlots' frequent violations of the state's safety standards for hydrogen sulfide gas—violations she says the state ignored.

Jansen, currently president of Environmental Friends of Minnesota, helped push for successful passage of a 1997 law requiring the state to enforce its air quality standards for hydrogen sulfide. Her most recent vindication came in a Sept. 4 press release from the Minnesota Pollution Control Agency. [Minnesota Pollution Control Agency, News Release: "MPCA Orders Strict Improvements at Renville Farm," Sept. 4, 1998.] It documented 46 violations of the state hydrogen sulfide standard over the previous five months at the pig nursery neighboring Jansen's home. The agency ordered the owner, ValAdCo, a member-owned cooperative, to make "strict improvements" in the way it stores manure.

Local Control

Minnesota allows local governments within the state to regulate feedlots within their jurisdictions, as long as regulations developed are not preempted by or in conflict with state statutes and rules. State law explicitly allows local ordinances to be more stringent than those of the state.[19] Many local governments have chosen to exercise this option, though many others have not.

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NOTES

1. Minnesota Pollution Control Agency, *Non-Point Source Survey of Local Water Resource Managers* (1993). Reported in Minnesota 305(b) Report to Congress (1994).

2. Minnesota Pollution Control Agency, *AgWaste Database* (January 1997).

3. Minnesota Pollution Control Agency, *Feedlot Programs Statistics*, Graph Number 8, "Feedlot Size: Where Are the Animals?" (Spring 1988).

4. Minnesota Rules, Chapter 7009.0080.

5. Julie Jansen, Friends of Minnesota, Environmental phone-in survey of Renville County citizens (August 1995).

6. Chris Ison, "State Air Tests Find High Levels of Toxic Gas Near 5 Feedlots," *Minneapolis Star-Tribune* (April 26, 1998).

7. Minnesota Pollution Control Agency Continuous Sulpher Monitor in Norfolk Township, ValAdCO Facility.

8. Gregory Pratt, *Nitrogen Emissions to the Air From Sources in Minnesota*, Minnesota Pollution Control Agency (April 1998).

9. Minnesota Pollution Control Agency, Press Release, Renville County, "State Agency Cooperates on Prosecution for Beaver Creek Contamination" (February 20, 1998).

10. Permit file search conducted jointly by Minnesota Center for Environmental Advocacy and Minnesota Pollution Control Agency, conducted Fall 1997.

11. Minnesota Pollution Control Agency, *Feedlot Rule Revision* (November 1995).

12. Minnesota Statutes, Chapter 115.

13. Personal communication between David Nelson, Supervisor, Minnesota Pollution Control Agency Feedlot Unit, and Kris Sigford, Minnesota Center for Environmental Advocacy (January 1997).

14. Personal communication between Richard Cool, Assistant Attorney General, Office of the Minnesota Attorney General, and Kris Sigford, Minnesota Center for Environmental Advocacy (May 6, 1998).

15. Minnesota Pollution Control Agency, *AgWaste* Database (November 1997).

16. Draft Administrative Rule, revising Minnesota Rules, Chapter 7020.

17. Minnesota Pollution Control Agency, *AgWaste Database* (October 19, 1997).

18. Minnesota Pollution Control Agency, Division of Water Quality, Planning Section, *Feedlots, Package I*

(May 1979), pp. 10, 17.

19. Minnesota Statutes (general police power, does not single out feedlots).

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Chapter 13

MISSISSIPPI

- Under pressure from citizens fighting factory hog farms, the state legislature has declared a moratorium on new factory-scale hog feedlots until January 2000.
- More than half of the state's counties passed restrictive ordinances against factory hog farms this year. But a major pork producer has won the first round in a court battle challenging the county ordinances.
- Factory farms, rarely fined by the state for pollution, have been able to negotiate reduced fines with state officials.

As the nation's second poorest state, Mississippi has made economic development a major mission. The state's political leaders have courted major out-of-state pork producers, including Prestage Farms, Inc., of North Carolina, to set up shop in the state.[1] Prestage opened a giant hog-feed mill in West Point, Mississippi, with the intention of supplying feed to its own nearby hog feedlots in northeastern Mississippi. The company has embarked on an ambitious plan to establish dozens of hog farms within a 75-mile radius of its feed mill to supply the largest slaughterhouse in the South, also in West Point. Already, Prestage has established 60 hog farms, either owned by the corporation or under contract to independent farmers, within easy trucking distance of its West Point feed mill. Based on permits in the pipeline, Prestage plans to have 96 farms in Mississippi, with some facilities holding as many as 20,000 pigs.[2]

The state is a natural draw for the feedlot industry. With its fourteen million acres of row crops, on land which was once a great living rain forest, Mississippi is a lush, predominantly rural state with abundant water, fertile ground, a long growing season and mild winters.

Two years ago, the state had mostly smaller farms with several hundred animals and only one or two swine factories with over 1,000 animal units. The entry of out-of-state corporations like Prestage has sent hog factories surging. As of October 1998 the state had ninety permit applications pending before the Department of Environmental Quality.[3]

The rapid growth in the industry prompted concerns in the legislature. In 1998, the state passed a moratorium on all new factory hog feedlots until January 2000 and gave counties authority to pass local ordinances regulating big swine operations.[4] Prestage has successfully challenged three country ordinances in court, testifying it could lose close to $1 million a year if the ordinances stand. The counties are appealing the case.[5]

Pollution Problems

The high profile of the factory farm issue in Mississippi began with a local battle over a pig farm in northeastern Mississippi. In 1996, the Mississippi Department of Environmental Quality (DEQ) granted permit approval to a 7,040-head hog operation on 300 acres adjacent to the Noxubee Wildlife Refuge, near the tiny community of Oktoc.[6] The owner of the farm, Bill Cook, is a contract grower for Prestage Farms.

A major battle mounted by citizens in the local community to block the permit failed, and the massive hog facility has been running at full operation since October 1997. Members of the community, a predominantly rural area where 70 percent of the residents are black, have taken their fight to the Mississippi State Supreme Court, where they are currently awaiting a ruling.[7]

The hogs at the Prestage contract farm are crammed into eight buildings, from which their waste is collected into a manure lagoon spanning some six acres. The community's opposition has focused on fear that polluted runoff from a manure lagoon spill or from fields sprayed with liquid hog manure will foul adjacent Browning Creek and ultimately the Noxubee River, which runs through the wildlife refuge.

At public hearings held on the water pollution control permit in November 1996, members of the community raised concerns that the runoff from the swine operation would heavily pollute the waters of the refuge and damage wildlife habitat. Established in the 1930s, most of the Noxubee Refuge is a bottomland hardwood forest of oaks and cypresses with trunks six feet in diameter and pines that have attracted at least 34 clusters of endangered Red-cockaded woodpeckers, waterfowl and other endangered species. Dr. Jerry Jackson, a Mississippi State University researcher, testified that two species of salamanders would be compromised by hog farm pollution and said lagoon odors would confuse local Turkey vultures at the Refuge. Refuge manager Jim Tisdale has expressed concern that the hog producer is not responsible for monitoring the pollution levels in the creek and worries that the manure lagoon is not sufficiently prepared to weather the predicted 25-year floods that the National Weather Service anticipates for the Noxubee. The Refuge is an important part of the local tourism economy, attracting 120,000 annual visitors, including fishermen, hunters and wildlife watchers.[8]

Members of the community also raised concern in public hearings that air pollution from the facility would aggravate the asthma of surrounding residents. Odor and contaminants from the factory farm have worsened the asthmatic condition of an Oktibbeha County teenager, the youth's father, Everett Kennard, recently claimed in a $10 million lawsuit against the pig grower and Prestage farms.[9]

Local residents' appeal of the permit approval to DEQ failed. But at the next level of appeal in November 1997, Chancery Court Judge Robert Lancaster ruled that because factory hog farms produce particulate air pollution, the DEQ should have issued an air quality permit to the Prestage contract farm.[10] The ruling

threw the agency and the state legislature into confusion, because Mississippi, like most states, has no air quality standards governing factory farms; DEQ's permit approval related strictly to water pollution control.[11] The court's ruling prompted the state legislature to exempt hog farms from air quality standards, but at the same time the legislature also gave county supervisors until June 1 to adopt local rules on factory farms, and adopted a moratorium on issuing new permits until January 2000.[12] In the meantime, the legislature directed DEQ to monitor air and water quality near factory feedlots and report back to the legislature with findings and recommendations by January 1, 1999.[13]

There is little documentation of existing pollution from factory feedlots in the state. One of the few documented cases occurred in April 1996, when a dam gave way and 400 gallons from a pig manure lagoon flowed into an unnamed tributary of Houlka Creek.[14]

Regulatory Climate

When the Mississippi state legislature passed a moratorium on new factory swine feedlots in April of 1998, the legislature gave counties the right to pass ordinances restricting new operations of this type as long as they were passed by June 1, 1998. The law inspired a flurry of new county ordinances, particularly in the northeastern counties targeted by Prestage for new factory farms. Many counties felt special urgency because the state law exempted any permit applications filed before February 28, 1998, from the moratorium unless a county passed an ordinance barring industrial swine farms.

By the June deadline, 45 of Mississippi's 82 counties had placed restrictions on where industrial size hog farms could locate. Most Mississippi counties adopted ordinances that forbid the large farms to locate within three miles of city limits and one mile from private homes.[15]

One of those counties was Chickasaw County, which has more factory farms than any other county in the state. Mayor Betty McDaniels of Houlka, a town located in the county, said when she was first approached by Prestage with the prospect of hog farms locating there, "We were told there would be no odor, but if the wind is right the stench is so bad it burns your eyes and nostrils." She added "No one wants to come into an area and build a home where there is this kind of odor and what is worse if any runoff should get into the water system, there would be a lot of very sick people."[16]

Prestage sued three counties in the state's northeastern area—Chickasaw, Noxubee and Monroe—arguing that their ordinances effectively barred the company from operating hog farms in those counties. Monroe and Chickasaw require a factory hog farm to be located no closer than one and a half miles from its nearest neighbor and Noxubee requires a three-quarter mile setback. Prestage argued that permit applications already in the system before February 28, 1998 when the moratorium took effect, should be issued. About 90 farms have permits pending with the DEQ, which has refused to issue the permits. Federal District Court Judge Glenn Davidson handed opponents of hog farms a major defeat October 7, 1998, in a ruling temporarily stopping counties from enforcing restrictions on the hog farms' locations. Davidson said the ordinances either overruled existing DEQ regulations or were inconsistent with existing state law.[17] The counties are appealing the ruling to the Fifth Circuit Court of Appeals.

The permit office of DEQ is responsible for issuing state permits to animal feeding operations with 10 or more sows or 50 or more swine animal units. Confined animal feeding operations are required to obtain

NPDES permits. The DEQ inspects operations with NPDES permits, particularly swine operations, annually. However, the DEQ does not have the resources to properly or regularly inspect the thousands of operations with state operating permits and instead inspects them in response to complaints.[18] The agency usually learns about violations through citizen complaints. According to Avery Rollins, a Mississippi citizen who watchdogs the DEQ, the department has the authority to issue fines against feedlots that pollute, although fines against violators seem to be rare. Also, in those rare cases in which a fine is imposed, the feedlot operator is often able to negotiate a smaller penalty. For example, the Department of Environmental Quality identified several discharges from Prestage Farms in Lowndes County into James Creek in November 1994 related to overapplication of manure onto the land.[19] While the original penalty determined by the state was $15,000,[20] the penalty was reduced to $6,375.[21]

Local Control

Citizens active in the fight to restrict polluting hog feedlots have been forced to operate in a climate of intimidation from local officials in some parts of the state. The most recent example occurred this spring, after a group of citizens in northeastern Mississippi signed a petition protesting the odors and other environmental nuisances produced by industrial-sized hog feedlots in Oktibbeha County and the opening of new operations. In May 1998, an Oktibbeha County hog operation under contract with Prestage Farms was vandalized.[22] To find the responsible party, the Oktibbeha County sheriff and Department of Agriculture officials engaged in questionable tactics that served to intimidate activists. The officials sent a questionnaire to county Sierra Club members and other citizens who had signed a protest petition over the hog feedlots. The questionnaire demanded that the Communities for Responsible Pork Production, the local grassroots group that organized the protest, list its sources of financial support, its membership and where it minutes could be obtained.[23] Adding to the Kafkaesque atmosphere, according to Rollins, was the intimidating manner in which law enforcement officials delivered the questionnaire in person to signers of the petition. Six Mississippi State University students eventually pled guilty to misdemeanors related to incidents of vandalism at the farm.[24]

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NOTES

1. Louise Tallent, "Attorneys Have Until Wednesday to File Hog Farm Briefs," *West Point Shopper News* (September 30, 1998).

2. According to Mississippi Department of Environmental Quality files, researched by Margaret Copeland, Oktibbeha County Chapter, Audubon Society (July 1998).

3. Joseph Ammerman, "Hog Farm Opponents Face Setback," *The Clarion-Ledger* (October 7, 1998).

4. Senate Bill 112895, passed April 1998; Joseph Ammerman, "Hog Farms, Counties Argue in Court Over Regulations," *The Clarion-Ledger* (September 26, 1998).

5. Joseph Ammerman, "Hot Farm Opponents Face Setback," *The Clarion-Ledger* (October 7, 1998).

6. The Mississippi Environmental Quality Permit Board approved the NPDES permit on December 17, 1996; Maureen Hinkle, "Summary of Oktoc Controversy," National Audubon Society, Washington, D.C. (undated).

7. Personal communication between Sarah Glazer and Margaret Copeland, Oktibbeha Audubon Society (October 1998); In the Supreme Court of Mississippi, No. 98-CC-000-64, In Re: Bill Cook Swine Facility: Mississippi Environmental Quality Permit Board and Willie Carroll Cook, A/K/A Bill Cook, appellants, v. David M. Kennard, appellee.

8. Maureen Hinkle, "Summary of Oktoc Controversy," National Audubon Society, Washington, D.C. (undated).

9. Joseph Ammerman, "Suit Links Hog Farm, Worsened Illness," *The Clarion-Ledger* (October 8, 1998).

10. Associated Press, "Mississippi Counties Sued Over Hog Farm Rules," *Memphis Commercial Appeal* (July 11, 1998).

11. Associated Press, "Mississippi Counties Sued Over Hog Farm Rules," *Memphis Commercial Appeal* (July 11, 1998).

12. Associated Press, "Mississippi Counties Sued Over Hog Farm Rules," *Memphis Commercial Appeal* (July 11, 1998).

13. Senate Bill 2895, passed April 1998.

14. Correspondence from Mike Hardy, Industrial Wastewater Control Branch, Mississippi Department of Environmental Quality, to complainant Jim Norman of Houlka, Mississippi (June 20, 1996).

15. Joseph Ammerman, "12 More Areas OK Hog Rules," *The Clarion-Ledger* (June 2, 1998), p. 1B.

16. Louise Tallent, "Attorneys Have Until Wednesday to File Hog Farm Briefs," *West Point Shopper News* (September 30, 1998).

17. Joseph Ammerman, "Hog Farm Opponents Face Setback," *The Clarion-Ledge* (October 7, 1998).

18. Personal communication between Rebecca Knuffke and Mike Hardy, Office of Compliance and Enforcement, Mississippi Department of Environmental Quality (November 23, 1998).

19. Memorandum from Earl Mahaffey, Office of Pollution Control, Department of Environmental Quality, State of Mississippi, re: Prestage Farms MS0047261 (November 17, 1994).

20. Memorandum from Earl Mahaffey, Office of Pollution Control, Department of Environmental Quality, State of Mississippi, re: Prestage Farms MS0047261 (November 17, 1994).

21. Check #343 from Prestage Farms, West Point, Mississippi to Mississippi Commission on Environmental Quality (February 6, 1995).

22. Joseph Ammerman, "Dozens of Hogs Dead After Vandals Hit Farm." *The Clarion-Ledger* (May 6, 1998).

23. Oktibbeha County Sheriffs Office, Questionnaire Concerning the Burglary of Bill Cooks Swine Farm (May 1998).

24. Joseph Ammerman, "5 from MSU Charged In Hog Farm Raid," *The Clarion-Ledger* (June 25, 1998), p. 1A.

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Chapter 14

MISSOURI

- Swine factory farms have been the biggest culprit in polluting 150 miles of Missouri's streams, killing hundreds of thousands of fish.
- Eighteen of Missouri's 19 largest factory farms have been charged with violating water quality standards or permit requirements.
- Over a four-year period, according to state regulators, 63 percent of mega-hog farms handling wet manure had illegally discharged animal waste.

In the early 1990s, Missouri legislators and regulators approved special incentives to encourage the growth of animal factories, such as Murphy Family Farms and Continental Grain Company (CGC), viewing them as a promising avenue to "economic development." In 1993, the state assembly passed exemptions to Missouri's corporate farm law which opened the door to multinational corporations such as Premium Standard Farms (PSF).[1] In recent years, the state has seen a tremendous growth in the number of contract operators for Tyson Foods Inc., Cargill, Farmland, MFA Inc. and other companies.[2] Meanwhile, more than 50 percent of the state's independent family hog producers have left the business in the last five years.[3]

Eighteen of the state's nineteen largest animal factories currently face enforcement action for ongoing permit and/or water quality violations. Six of the state's largest animal factories have no permits.[4] All three of the state's largest swine operators now face pending enforcement action by the state's attorney general, who has filed notices of intent to sue PSF and Murphy for continuing violations of the Clean Water Act and Clean Air Act.[5] Simmons Industries, one of the state's largest poultry processors, has had numerous water quality compliance violations for more than a decade.[6] A Clean Water Act and Clean Air Act citizen lawsuit filed against PSF by Citizens Legal Environmental Action Network (CLEAN), a coalition of Missouri families, is winding its way through federal court. Continental Grain faces odor nuisance litigation from an additional eighty families.[7] PSF was recently sued by migrant workers alleging mistreatment at its pork slaughterhouse.[8]

Pollution Problems

Between 1983 and 1997, animal waste pollution caused 94 fish kills in 199 miles of Missouri's streams. Large-scale swine feedlots have been the biggest culprit, with 61 fish kills totaling over 534,000 fish, affecting 150 miles of Missouri streams.[9] For example, in 1995, five swine waste spills in northern Missouri by PSF killed at least 180,000 fish in Blackbird, Mussel Fork and Spring Creeks.[10] One spill in 1995 by Continental Grain killed over 88,000 fish.[11] In 1996, animal waste killed 55,000 fish in 35 miles of streams.[12] Sixty-three percent of all CAFOs handling wet manure inspected between 1990 and 1994 by the Department of Natural Resources (DNR) had illegally discharged animal waste.[13]

Most major watersheds that southwestern Missouri's big poultry facilities drain into are classified by the state as "impaired" waters,[14] meaning their pollution level now interferes with fishing and other uses identified by the state. The Elk River, which is the region's principal watershed, is so polluted that it no longer supports historic levels of fishing, swimming, and boating.[15]

In August 1998, environmental groups posted warning signs after measuring high levels of disease-causing pathogens, including the bacteria *E. Coli* and *Salmonella*, at Cave Springs Branch. The small stream flows into Honey Creek, a tributary to Grand Lake of the Cherokees at Grove, Oklahoma. The Missouri Department of Health also found high levels, including fecal coliform levels more than twice the safety standard. These organisms can cause vomiting, diarrhea, swimmer's ear, gastroenteritis and infection of any open skin lesions. The state health department declined to issue a health advisory.[16]

Sierra Club program director Ken Midkiff said state health officials' decision not to issue a health warning "has nothing to do with protecting public health and everything to do with protecting a major industry in this area."[17] According to Midkiff, Simmons Industries' giant poultry processing plant on the banks of the stream releases millions of gallons of waste water into the Branch each week, accounting for 80 percent of the waters in this small stream.

In northern Missouri, Spring Creek has suffered three spills of swine waste in the last 29 months resulting in fish kills.[18]

Neighbors claim that PSF has been responsible for over 50 documented spills and accidents over five years, many into the same streams.[19] DNR investigators have documented dead pigs, pig fetuses, veterinary waste and trash floating in PSF lagoons. PSF employees have given information to state investigators about the company's policy of cleaning up spills and then reporting the incident to state regulators. PSF had at least 20 spills in 15 months between March 1997 and July 1998. The spills totaled over a quarter million gallons of liquefied feces and urine.[20]

Manure spills have only been one source of pollution from animal factories. Another problem occurs when manure is sprayed onto fields in excessive amounts. In 1997, Missouri Rural Crisis Center members uncovered an industry-wide pattern of over-applying manure on fields, which resulted in degraded water quality near hog factories. The University of Missouri-College of Agriculture had supplied the DNR with faulty recommended manure application rates for permits, allowing twice as much animal waste to be spread on fields as DNR intended.[21]

The Passing of Elk River's Fish

Hobart Bartley, 66, remembers when the biggest problem he had fishing on the Elk River in Missouri's Ozarks was deciding whether he would make it home with his heavy load of fish or would have to give some away to neighbors. At the age of five, Bartley remembers a river so crystal-clear that he and his father would drink from it when they wanted a break from catching the native bass and catfish that teemed in the river. "Now you might be drinking 9,800 parts per million of streptococci bacteria and be in the hospital tomorrow," he says ruefully.

Today the native bass and native catfish are gone, reports Bartley, who still lives walking distance from the river on the 160 acres his great grandfather homesteaded in 1880. The fish population has dwindled to about one-tenth its size in the 1950s. The bullfrogs and the soft-shelled turtles have disappeared. The only fish Bartley catches these days are non-native white bass and channel catfish stocked in an artificial lake downstream. Those varieties, he says, are less vulnerable to pollution. Yet even among these hardier varieties, Bartley's catches often have sores covering their bodies. Others he cuts open to find deformed, enlarged livers.

Bartley, a former U.S. Department of Agriculture poultry inspector, blames pollution from the massive Tyson Foods poultry plant near the banks of the Elk about 6 miles east of his home. The plant slaughters some 1.5 million chickens a week—about 15 times as many as were slaughtered at the plant that stood there in the 1950s. According to Bartley, who is active in an informal group of Elk River environmentalists, Tyson frequently discharges untreated sewage from its manure lagoons through an open pipe directly into the Elk. The phosphorus pollution from the plant's chicken manure and its cleaning agents wear away the protective coating on the fish, according to Bartley, producing the sores he finds on the fish.

"You look across the lagoons [where Tyson stores its chicken manure] and see 30 acres of nothing but pure poison," says Bartley. "It stinks to high heaven." Bartley has thought of moving. But his ties to his homestead go way back. Instead he devotes his time to monitoring the unsafe pollution levels from two local poultry plants and pushing for stricter government controls. "I've decided I'm not going to let these people run me off with all their filth. I'm going to give them as hard a time as I can," he says.

Regulatory Climate

In the early 1990s, the DNR accepted "Letters of Approval" instead of operating permits to set out conditions for water pollution prevention at swine CAFOs, a practice that kept public input to a minimum.[22] In 1993, the U.S. Environmental Protection Agency (EPA) asked the DNR to stop accepting "Letters of Approval" for the state's largest swine CAFOs.

The EPA's action followed a 1991 court ruling in a citizens' suit (Carr v. Alta Verda Industries) that found that Letters of Approval violated the Clean Water Act.[23] Under Letters of Approval, the public was neither notified of applications for new animal factories nor given a chance to comment on whether they should be approved.

"Folks didn't know they had a hog factory going in next door 'till they saw the bulldozers moving dirt," said Scott Dye, agriculture coordinator for the Missouri Sierra Club.

Starting in 1993, EPA required that individual Clean Water Act permits be issued to large CAFOs in place of Letters of Approval.[24] These federally designed permits require public notice, and they allow for public comment in the permitting process, allow citizens to see the specific conditions under each permit, and allow citizen enforcement actions. The Missouri DNR required only the very largest CAFOs—those with at least 17,500 hogs or 7,000 animal units—to apply for these individual federal NPDES permits.[25] (See Glossary.)

Public outrage over the huge fish kills of 1995, coupled with frustration over the lack of a formal avenue for citizens to influence any but the largest swine animal factories, provided the impetus for passage of state legislation to broaden permitting authority in 1996. The legislation provides citizens a few protections from newly proposed factory farms. In the case of new CAFOs (farms over 1,000 animal units), the legislation requires general permits, some modest buffer zones to protect residences from factory farms, an inadequate bonding indemnity fund to clean up manure lagoons, and manure management plans based on a nitrogen standard.[26]

Poultry operations are not required under the legislation to have permits if they use a dry litter system. Large-scale wet manure poultry operations are required to obtain general permits. Because the poultry permits are one-size-fits-all general permits, citizens cannot comment on individual problems associated with a particular operation.[27]

"The DNR is required to inspect large-scale CAFOs quarterly, but due to staffing and funding shortfalls inspections do not always occur that frequently," said Ken Midkiff, director of the Missouri Sierra Club. "Missouri does only limited water quality monitoring. Factory farms monitor their own operations," said Midkiff. The state only has ten full-time equivalent staff to conduct inspections.

More than 1,000 citizens have received state training to monitor water quality and have formed "Stream Teams" to do their own monitoring. These volunteers have compiled long-term water quality records through their efforts, collecting data on ammonia, nitrogen, and phosphorus in streams adjacent to CAFOs.[28]

Local Control

All agricultural activity has had a long-standing exemption from zoning controls.[29] "Though they generate industrial-sized pollution problems, CAFOs have been considered `agriculture'," says Sierra Club activist Ken Midkiff. Tiny Lincoln Township was sued by Premium Standard Farms for $7.9 million for trying to regulate the swine giant through zoning.[30] PSF charged the zoning regulations were an unconstitutional "takings" of private property. While PSF got no money, the State Supreme Court struck down the zoning ordinance.[31] Several Missouri counties have health ordinances regulating

CAFOs. One county was recently sued by a swine CAFO seeking to overturn the ordinance. The Missouri Pork Producers Association is helping to finance the lawsuit.[32]

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NOTES

1. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March/April 1998), p. 32.

2. Department of Natural Resources, Official Public Notices, Construction and Operating Permit Applications, reviewed by Scott Dye, Citizens Legal Environmental Action Network, on bimonthly basis between 1994 and 1998.

3. Personal communication between Scott Dye, Citizens Legal Environmental Action Network and Ron Plain, Agricultural Economist, University of Missouri, College of Agriculture (April 1998).

4. Rudi Keller, "Biggest Feedlots on Wrong Side of Law," *Columbia Daily Tribune* (July 11, 1998).

5. Fred Koenig, "Hog Operations Share Pollution Problems Too," *St. Joseph News-Press* (January 10, 1998); Missouri Attorney General Jeremiah W. Nixon, correspondence to Murphy Family Farms, Inc. (July 28, 1998).

6. Steve McReynolds, "Full Operations Planned at Southwest City Plant," *Joplin Globe* (March 31, 1998).

7. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March/April 1998), p. 26.

8. Mary Sanchez, "KC firm Accused of Abusing Workers at Plant," *Kansas City Star* (July 16, 1998).

9. Missouri Chapter of the American Fisheries Society, *Water Pollution in Missouri: A Fact Sheet Series, Animal Waste Pollution* (1998).

10. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March/April 1998), p. 28.

11. Missouri Department of Natural Resources, Division of Water Quality Press Release, "DNR Takes Action on Mega Farm Hog Waste Releases" (October 20, 1995).

12. Missouri Chapter of the American Fisheries Society, *Water Pollution in Missouri: A Fact Sheet Series, Animal Waste Pollution* (1998).

13. Missouri Department of Natural Resources, Press Release, *DNR Takes Action on Mega Farm Hog*

Waste Releases, Division of Environmental Quality (October 20, 1995).

14. State of Missouri, 1998 Section 303(d) Impaired Waters List.

15. State of Missouri, 1998 Section 303(d) Impaired Waters List.

16. "Groups Issue Health Warning," *Neosho Daily News* (August 21, 1998).

17. "Groups Post Signs Near Plant," *The Joplin Globe* (August 21, 1998).

18. "PSF Reports 2 Spills, One Killing Fish," *Kirksville Daily Express* (May 19, 1997); Michael Mansur, "Hog Farm Spill Worries Environmentalists," *Kansas City Star* (January 4, 1998).

19. "CLEAN Environmental Suit is Going to Trial," *High Plains Journal* (February 16, 1998).

20. Missouri Department of Natural Resources, Inspection Reports and Spill Investigation Reports of Premium Standard Farms (March 1997_July 1998).

21. Tom Walsh, "Hog Farms Spread Too Much Waste," *Columbia Daily Tribune* (February 9, 1997).

22. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March/April 1998), p. 32.

23. Carr v. Alta Verde Industries, Inc., 931 F2d 1055 (5th Cir. 1991).

24. Missouri Department of Natural Resources, internal memorandum, *Permit Requirements For Concentrated Animal Feeding Operations* (August 22, 1994).

25. Mo. Code Regs. tit. 10, sec. 20-6.

26. Missouri House Bill No. 1207 (1996).

27. Missouri House Bill No. 1207 (1996).

28. Personal communication between Sharon Clifford, Volunteer Water Quality Monitoring Program, Water Pollution Control Program, Department of Natural Resources, and Scott Dye, Citizens Legal Environmental Action Network (July 20, 1998).

29. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March/April 1998), p. 32.

30. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March/April 1998), p. 32.

31. Ted Williams, "Assembly Line Swine," *Audubon Magazine* (March/April 1998), p. 32.

32. Jane Schooler, "Missouri Pork Producers Financially Supporting Winigan Farmers' Lawsuit," *Brookfield Daily News-Bulletin* (March 11, 1998).

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Chapter 15

MONTANA

- Large-scale animal factories are beginning to move into the state.
- A study by the Northern Plains Resource Council and the Montana chapter of Public Employees for Environmental Responsibility documents that the state Department of Environmental Quality's program to regulate animal factories is woefully inadequate.
- In a move that will allow pollution from factory farms and other sources, the Montana DEQ is now proposing to eliminate any limit on nitrate pollution in 30 percent of Montana groundwater.
- Montana Department of Environmental Quality has less than one full-time employee devoted to dealing with permitting, monitoring and compliance of CAFOs in the entire state.

Between 1990 and 1995, Montana had a 40 percent drop in the number of hog farms but only a 2.7 percent drop in the total inventory of hogs and pigs.[1]

Animal factories are moving into the state. In Big Horn County, four CAFOs are being proposed. In October of 1997, Agri-Systems, Inc. of Billings announced the restart and major expansion of its pork factory on the Crow Indian Reservation just outside the town of Hardin. Agri-System's new 3,000,000-gallon waste lagoon for the 2,700 sows is located less than 2,000 feet from the banks of the Bighorn River, a world renowned trout fishery.[2] The expansion also involves arrangements to breed 60,000 baby pigs a year. The company told local residents it was contracting with DeKalb Swine Breeders, the ninth largest hog company in the nation to farrow its sows. (Farrowing operations impregnate sows to breed baby pigs.) DeKalb's farrowing facilities include a factory farm just a few miles north of the Little Bighorn Battlefield.[3]

In addition, GTA/Cenex Feeds told residents that the company wants to contract with beginning farmers to build three 6,000-head hog finishing units in the Bighorn Valley as satellites of Agri-Systems.[4] Finishing units grow young pigs to market size for slaughter.

Other companies, like Murphy Family Farms, have contacted tribal leaders on the Fort Peck Indian Reservation in northeast Montana about siting large-scale hog operations on the reservation, but nothing has been finalized yet.[5]

Pork producers in northern Montana are also reportedly working on a deal to site a gigantic hog packing plant and farrowing operation which would promote the growth of large-scale finishing operations along the Montana high-line (counties which border Canada).[6]

Pollution Problems

The Bighorn River, Montana's most fished trout stream, is the most concrete example of a surface water threat from CAFOs.[7] The Agri-Systems Pork Facility built its new three million gallon waste lagoon on its property less than one-quarter mile from the Bighorn River.[8] As a result of agricultural pollution and the damming of the river, the state has classified the river as "impaired" under Section 303(d) of the Clean Water Act.[9] According to the state, it is no longer safe to drink water from the river at all times and the water is no longer pristine enough to support the level of trout and aquatic life that it once did.[10]

In 1997, Montana Department of Environmental Quality (DEQ) inspected Agri-Systems, after 22 complaints from citizens living within 1.5 miles of the facility were logged.[11] The inspection revealed that hog waste was exiting the new lagoon through a series of animal burrows, and contaminating groundwater. Later measurements at the lagoon monitoring wells showed nitrate levels in groundwater surrounding the lagoon were at 179 milligrams per liter (mg/L) and 59 mg/L, 18 times the amount allowed by law. Levels of ammonia nitrogen over 4.5 mg/L were also detected.[12] Residents use local groundwater for drinking, stock watering and irrigation.

Rather than assessing a penalty, Montana DEQ responded to the discharge by issuing the company a "notice of violation" for failing to maintain its lagoons in good working order.[13] In a lackluster DEQ enforcement response, the agency required additional monitoring and installation of a compacted earthen liner as corrective action. The company disputed that the discharge was a violation of its general permit. But, in an interesting turn of events, Agri-Systems installed a plastic liner in three of its six lagoon partitions after DEQ contemplated an administrative order compelling corrective action.[14]

Regulatory Climate

Montana gained national recognition in 1972 with the passage of a new Constitution that guaranteed every citizen an inalienable right to "a clean and healthful environment"—the only state constitution to include such a provision.[15] In the 1970s the Montana Legislature passed a series of strong environmental laws, including the Montana Water Quality Act, which prevented new sources of pollution from degrading existing water quality.[16]

In 1995 and again in 1997, the Legislature weakened Montana's strong clean water protections.[17] Despite the changes, Montana's Water Quality Act still provides significant leverage over factory farms. Rules promulgated under the Act allow any AFO that is causing, or may cause, pollution, to be regulated under the Act.[18] While the Act allowed for the issuance of general permits for most CAFOs, individual permits

were required for special circumstances. Montana issues Montana Pollution Discharge Elimination System (MPDES) permits in lieu of the federal permit. Like the national CAFO regulations, surface water discharges from CAFOs are limited to the 25-year, 24-hour precipitation event under Montana rules. Discharges to groundwater are limited to those which "result in a non-significant degradation, as determined by the [DEQ]."[19] Prior to 1995, no new source could degrade existing water quality. Now only high-quality groundwater (specific conductance of less than 2,500 microSiemens/cm at 25 degrees C) is afforded this protection.[20] For most Montana groundwater, discharges are now only limited to 10 mg/L nitrate as nitrogen. The changes to the Water Quality Act also eliminated certain siting requirements for large scale animal feeding operations.[21]

Montana's efforts to protect groundwater have been weakened under a proposal adopted by Montana DEQ in November 1998 to increase the allowable level of nitrate pollution in about 30 percent of Montana groundwater, found mostly in the eastern two-thirds of the state. Such a change allowed industries such as factory farms, to increase their discharges to groundwater fivefold, from 10 parts per million (ppm) to 50 ppm.[22] The director of DEQ, Mark Simonich, has indicated his support for weakening standards. On August 25, 1998, he stated on Yellowstone Public Radio that, "We're just lowering water quality standards for water that is already so dirty that it isn't usable."

Montana's general permits include requirements for land application of manure. Producers may use any means of land application so long as it provides for plant nutrient uptake during the growing season following application. Wastes must be so applied as to prevent any pollutant from entering state waters (surface/ground) in excess of the effluent limitation (zero discharge surface, 10 mg/L Nitrate-nitrogen ground).[23] Though these requirements appear to be stringent, there are two major flaws: 1) agronomic rates are based upon nitrogen, rather than more limiting pollutants such as longer-lived phosphorus; and 2) there is no opportunity to confirm whether landowners are adhering to the requirements since there is no public input on land application plans; they need not even be submitted to the state.

As with any general permit system, public input concerning the permitting of a specific facility is limited and encouraged mostly during the time that the general permit is renewed. If a new facility is proposed prior to the renewal cycle of the general permit, a nominal environmental assessment is conducted, a notice is published in a newspaper and the public can request a hearing. But the state is not obligated to hold such a hearing. The public has input into the limited number of individual permits, and full environmental assessments are conducted for those.[24]

Even without weakening changes, the laws on the books are not being adequately enforced. DEQ has less than one full-time employee devoted to dealing with permitting, monitoring and compliance of CAFOs in the entire state.[25] The state has permitted 70 facilities, 46 "Large Feedlot Facilities" and 24 "Small Feedlot Facilities."[26] The number of facilities without permits is unknown, but could include hundreds of CAFOs and hundreds of thousands of AFOs in the state. In total, Montana raises approximately 2,500,000 cattle and 200,000 swine, which produce a total of 28,014,000 tons of manure annually. In 1995, Montana had 350 farms with 1,000 or more cattle, some of which qualify as CAFOs. Hog farms are not tracked by size.[27]

With one part-time employee devoted to the task of administering the feedlot program, inspections do occur, but are complaint driven. Many CAFOs get inspected only once every couple of years.[28]

In 1997, the Northern Plains Resource Council (NPRC) and the Montana chapter of Public Employees for Environmental Responsibility (PEER) commissioned a joint study on compliance with the state's

water quality laws. The study was authored by the former chief of enforcement for the Montana Water Quality Bureau, a division of the now defunct Department of Health and Environmental Sciences, which was replaced by DEQ in 1995.

The report found that the agricultural program had little, if any, information about CAFO compliance with the Montana Water Quality Act. The report found that CAFOs "never report anything and DEQ has no knowledge as to whether discharges occur." It also found that there is absolutely no state strategy with regard to preventing or controlling pollution from large-scale factory farms.[29]

Regarding air quality, though Montana has established ambient air quality standards for hydrogen sulfide, a major air contaminant and odor-causing agent emitted by animal factories, these standards have not been applied to concentrated livestock operations.[30]

Local Control

Montana counties and municipalities have limited authority to address the impacts of animal factories, but no county has chosen to exercise this authority. Montana law mandates development of county comprehensive plans, and allows counties to adopt zoning ordinances, based on those plans. Counties can also adopt performance standards for industries in lieu of a comprehensive plan or impose siting requirements.[31]

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NOTES

1. Montana Agricultural Statistics Service, Montana Agricultural Statistics (October 1996), pp. 13, 14, 85 and 91.

2. Timothy Byron, Montana DEQ, Mixing Zone Determination, Agri-Systems, Inc. (April 21, 1998); Letter from Federick Shewman, P.E., Montana DEQ, to Bob Hamlin, Agri-Systems, Inc. (May 20, 1998), re: "1) Authorization MT-G010152 to Discharge under the "Concentrated Animal Feeding Operation General Discharge Permit," NW 1/4 Section 17, Township 1 South, Range 34 East; Drainage - Little Bighorn River; 2) Mixing zone determination; 3) Significance determination; 4) Irrigation water application; 5) Monitoring

requirements; 6) Waste management plan; 7) General permit termination."

3. Statement by Cenex/GTA Feeds representative to Bruce Hammond and Burton Farley, Northern Plains Resource Council board members, Hardin, Montana (December 5, 1997).

4. Statement by Cenex/GTA Feeds representative to Bruce Hammond and Burton Farley, Northern Plains Resource Council board members, Hardin, Montana (December 5, 1997).

5. Personal communication with Tom Breitbach, Past-Chair, Northern Plains Resource Council (February 19, 1998).

6. Alan Sorenson, "Pork Operation Awaiting Air Force Decision," *Havre Daily News* (July 2, 1998); "Air Force Base to Be a Pig Farm," *Helena Independent Record* (July 3, 1998); Jim Gransberry, "State Might Profit from Being Bullish on Pork," *Billings Gazette* (November 2, 1997).

7. Hale Harris, *Bighorn Trout Shop Newsletter*, Hardin, Montana (1997), p. 3.

8. Timothy Byron, Montana DEQ, Mixing Zone Determination, Agri-Systems, Inc. (April 21, 1998); Letter from Federick Shewman, P.E., Montana DEQ, to Bob Hamlin, Agri-Systems, Inc. (May 20, 1998), re: "1) Authorization MT-G010152 to Discharge under the "Concentrated Animal Feeding Operation General Discharge Permit," NW 1/4 Section 17, Township 1 South, Range 34 East; Drainage - Little Bighorn River; 2) Mixing zone determination; 3) Significance determination; 4) Irrigation water application; 5) Monitoring requirements; 6) Waste management plan; 7) General permit termination."

9. Montana Department of Environmental Quality, 1998 Waterbodies in Need of Total Maximum Daily Load (TMDL) Development (January 23, 1998), p. 107.

10. Personal communication between Bruce Hammond, Chair, Bighorn Resource Council, and Ed Thampke, Montana Department of Environmental Quality (October 22, 1997).

11. Personal communication between Bruce Hammond, Chair, Bighorn Resource Council, and Ed Thampke, Montana Department of Environmental Quality (October 22, 1997).

12. Letter from Timothy Byron, Montana DEQ, to Bob Hamlin, Agri-Systems, Inc. (December 5, 1997); Letter from Hanlin to Bryon re: monitoring well reports (December 1, 1997).

13. Letter from Timothy Byron, Montana Department of Environmental Quality to Bob Hamlin, Agri-Systems, Inc. (November 14, 1997) re: "Notice of Violation and corrective action requirement...."

14. Letter from Timothy Byron, Montana Department of Environmental Quality to Bob Hamlin, Agri-Systems, Inc. (November 21, 1997), which states, in relevant part, "The department does not consider your response an adequate commitment to achieving compliance.... Should you fail to meet this second deadline, I will request that the department's Enforcement Division prepare an administrative order containing the appropriate stipulations."

15. Art. II, Sec. 3, Mont. Const. (1972).

16. Section 75-5-101, Montana Code Annotated, et seq. (1993); Petition for Cert., Northern Plains Resource Council and Cottonwood Resource Council v. State of Montana ex rel. Board of Health and Environmental Sciences et al., Cause No. ADV, 92-1148 (1st Dist. Mont.), p. 11.

17. Chapters 495, 497, 501, 539, 546 and 582, Laws of 1995 (Mont.); Chap. 541, L. 1997 (Mont.); Dan Frasier, former Chief, Water Quality Bureau, Montana Department of Health and Environmental Sciences, "1995 Changes to the Montana Water Quality Act," Public Education for Water Quality Project (September 1996).

18. Montana Department of Environmental Quality, "Regulations for Concentrated Animal Feeding Operations," (undated), p. 2.

19. Fred Shewman, Concentrated Animal Feeding Operation—General Discharge Permit, Montana Department of Environmental Quality (1996), pp. 4-5.

20. Administrative Rules of Montana (ARM) 17.30.1001-1011; § 75-5-303, MCA (1997).

21. Chapters 495, 497, 501, 539, 546 and 582, Laws of 1995 (Mont.); Chap. 541, L. 1997 (Mont.); Dan Frasier, former Chief, Water Quality Bureau, Montana Department of Health and Environmental Sciences, "1995 Changes to the Montana Water Quality Act," *Public Education for Water Quality Project* (September 1996).

22. Aaron Browning, "Enough is Enough: Tell DEQ Not to Allow More Pollution of Our Water" (July 1998), pp. 1-4; Montana Administrative Register Public Notice No. 37-78 (July 16, 1998).

23. Montana Department of Environmental Quality, "Regulations for Concentrated Animal Feeding Operations," (undated), p. 2; Fred Shewman, Concentrated Animal Feeding Operation—General Discharge Permit (Montana Department of Environmental Quality (1996), pp. 4-5.

24. Montana Environmental Policy Act (MAPA), §75-1-101 et seq; John Mundinger and Todd Everts, Legislative Environmental Policy Office, Montana Environmental Quality Council, "Appendix B: Model MEPA Rules," A Guide to the Montana Environmental Policy Act (June 1998).

25. Kevin D. Keenan, "Part 4: The Agricultural Permit Program." Phase 1 Report, *Joint Water Quality Compliance Study*, Northern Plains Resource Council and Public Employees for Environmental Responsibility (September 17, 1997), p. 1.

26. Montana Department of Environmental Quality, "Large Feedlot Facilities" and "Small Feedlot Facilities," MPDES permit database print-outs (undated but received by Northern Plains Resource Council in 1997).

27. Montana Agricultural Statistics Service, "Montana Agricultural Statistics" (October 1996), pp. 13, 14, 85 and 91.

28. Kevin D. Keenan, "Part 4: The Agricultural Permit Program." Phase 1 Report, *Joint Water Quality Compliance Study*, Northern Plains Resource Council and Public Employees for Environmental Responsibility (September 17, 1997), p. 1.

29. Kevin D. Keenan, "Part 4: The Agricultural Permit Program." Phase 1 Report, *Joint Water Quality Compliance Study*, Northern Plains Resource Council and Public Employees for Environmental Responsibility (September 17, 1997), p. 1.

30. Letter from Edward Thampke, Montana Department of Environmental Quality, to Patricia Vandersloot (December 4, 1997), p. 3.

31. Personal communication between Aaron Browning, North Plains Resources Council, and Gavin Anderson, Local Government Assistance Division, Montana Dept. of Commerce (June 22, 1998); §§75-2-304(4), 75-5-311(6), MCA.

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Chapter 16

NEBRASKA

- Nebraska's anti-corporate farming law has kept factory farms to a handful for years, but recently major pork producers have managed to open large new feeding operations.

- The state's loose interpretation of the Clean Water Act and lax enforcement of water quality allows factory farms to be built in areas where they could pose a pollution threat to groundwater.

While large-scale feedlot operations are a newly emerging problem in Nebraska, the state is already suffering from typical feedlot pollution problems such as odor, heavy land application of nutrients and polluted runoff.[1]

Nebraska's anti-corporate farming law, passed in 1982, has managed to discourage many corporations from establishing large-scale farms in the state. The law prohibits a corporation that is not a family farm from engaging in agriculture in Nebraska. To qualify as a family farm under the law, a majority of the stock must be held by a family member and a member of the family must live on the farm or provide day-to-day labor and management. Nevertheless, in the last two years, the state has seen large operations enter pork production either under general partnerships or by defining themselves as family farm corporations. In 1994, only three of the nation's largest pork producers had farm operations in Nebraska. By 1998, the number had risen to seven.[2]

Pollution Problems

In 1990, the Nebraska Department of Environmental Quality (DEQ) asserted that over half of the 15 fish kills attributed to human practices were the result of livestock waste runoff.[3] Additionally, many of the state's waterways have registered such high levels of fecal coliform bacteria that swimming and recreational contact has been prohibited.[4]

In some areas where the state's few CAFOs are in operation, residents are suffering the effects of odor

problems. For example, neighbors of a hog operation owned by National Farms, one of the largest port producers in the nation, have sued four times for nuisance and have won each time.[5] Nuisance suits are expensive, however, and are rarely filed.

Regulatory Climate

The Nebraska DEQ issues state construction and operating permits to all animal producers, regardless of size, if the operation has a waste control facility such as a lagoon, holding pond or other similar structure.[6] These permits require storage capacity for lagoons to be sufficient to contain all rainfall that occurs during a 25-year, 24-hour rain storm event, manure management and the implementation of best management practices.[7]

While the state permits have required that manure be applied to crops at agronomic rates, the state has been interested primarily in nitrogen application rates.[8] Fertilization practices based on the rate at which crops take up nitrogen largely ignore the rate at which crops take up phosphorus, another nutrient in manure that accumulates in the soil and is a potential water pollutant when applied in excess.

The state also issues National Pollutant Discharge Elimination System (NPDES) permits under the Clean Water Act permits.[9] However, the state has emphasized the use of these permits for open lot livestock operations, rather than confinement operations, on the grounds that these types of operations' waste may end up in waterways.[10] This interpretation of the Clean Water Act ignores the fact that enclosed confinement operations can also cause pollution through manure lagoon leaks or over-application of manure on land. As a result of the state's interpretation, many of the concentrated livestock operations with more than 1,000 animal units have not obtained a Clean Water Act permit.

Because of a lack of staff, the agency has been unable to do much monitoring of the permits or conduct many inspections. DEQ is required to inspect sites both pre- and post-construction and is supposed to conduct annual unannounced inspections as well, but has been unable to complete some of these tasks in the past.[11] However, the Nebraska legislature approved funding beginning in summer 1998 to hire up to 12 new staff members to help enforce state requirements.[12]

DEQ can require operators in high-risk areas to perform groundwater monitoring.[13] In addition, the state is divided into Natural Resource Districts, which have the authority to regulate groundwater and perform some groundwater tests. However, the state rarely requires that feeding operations monitor groundwater and does not require farm owners to keep records, so it is difficult to know if farm operators are properly applying manure to the land.[14]

Citizen Involvement

Historically, there has been no formal process for citizens to comment on permit applications. Citizens could submit comments but would have to search through DEQ's files of pending applications to find out about proposed facilities.[15] A new law now requires DEQ to notify the local Natural Resources District and the County Board of Commissioners when an animal feeding operation of any size applies for a

permit.[16] When an operation composed of 5,000 animal units or more applies for a permit, the DEQ must notify the county board, the local newspaper and the local Natural Resources District.[17] However, there is still no formal hearing process for soliciting comments from the public.[18]

Local Control

Counties in Nebraska have authority to regulate the siting of livestock operations and to require other management practices, such as handling of manure, odor control and controlling flies.[19] Only about one-third of Nebraska's counties have exercised their zoning authority.[20]

Unfortunately, during the two years it takes for a county to develop final zoning rules, activists say an owner can construct a factory farm before a county has a chance to restrict or block it. An effort (Legislative Bill 1152) to give counties short of final zoning ordinances an opportunity to enact interim measures was defeated in the 1998 legislative session.

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NOTES

1. Randolph Wood, Director, Nebraska Department of Environmental Quality, Report to Governor Ben Nelson, *Report on Livestock Work Group Discussions* (January 12, 1998).

2. "Pork Powerhouses," *Successful Farming Magazine* (October 1998 and October 1994).

3. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), p. 1.

4. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), p. 1.

5. Center for Rural Affairs, Special Report, *Spotlight on Pork II*, Corporate Farming Update, Walthill, Nebraska (June 1995), pp. 3-4.

6. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), pp. 2-3.

7. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), pp. 2-3.

8. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), p. 4, Section F.

9. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), p. 4.

10. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), p. 4.

11. Personal communication between Rebecca Knuffke and Renee Hancock, Program Specialist, Permits and Compliance Section of Nebraska Department of Environmental Quality (September 17, 1998).

12. Julie Anderson, "Pollution Permits Stack Up," *Omaha World-Herald* (October 1998).

13. Personal communication between Rebecca Knuffke and Renee Hancock, Program Specialist, Permits and Compliance Section of Nebraska Department of Environmental Quality (September 17, 1998).

14. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), pp. 6-8.

15. Personal communication between Rebecca Knuffke and Gary Buttermore, Environmental Engineer, Groundwater Section, Nebraska Department of Environmental Quality (September 21, 1998).

16. L.B. 1209, "Livestock Waste Management Act."

17. Personal communication between Rebecca Knuffke, Clean Water Network and Renee Hancock, Program Specialist, Permits and Compliance Section of Nebraska Department of Environmental Quality (September 17, 1998).

18. J. David Aiken, et al., *A Farmer's Handbook on Livestock Regulation in Nebraska*, written for the Nebraska Pork Producers Association and the Center for Rural Affairs (March 1994), pp. 6-8.

19. Personal communication between Rebecca Knuffke, Clean Water Network and Renee Hancock, Program Specialist, Permits and Compliance Section of Nebraska Department of Environmental Quality (September 17, 1998).

20. J. David Aikens, UNL Water and Ag Law Specialist, Paper: "Rural Zoning & Livestock Operations" (October 1, 1997), p. 1.

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Chapter 17

NORTH CAROLINA

- Groundwater contamination near animal factories is increasing, posing a potentially serious drinking water problem for residents living near hog and poultry factory farms.
- Eighty-eight percent of hog farms had at least one water quality violation, but the state has been unwilling to take enforcement action against the majority of them.
- Dissatisfaction with North Carolina's ineffective permitting system for factory farms led to a two-year moratorium on new and expanding hog factories, but hog production continues to grow because of loopholes in the law.

In 1991, Smithfield Foods, doing business as Carolina Food Processors, Inc., opened the world's largest hog slaughterhouse in Bladen County, slaughtering 24,000 hogs per day, 365 days a year.[1] Since that time, North Carolina has been the fastest growing swine-producing state in the country.[2] The number of hogs on North Carolina farms has soared from 3.7 million at the end of 1991 to more than 10 million today, catapulting the state from sixth to second in the nation in hog production.[3] Most of this growth is concentrated in five counties surrounding the slaughterhouse.[4]

This growth caught North Carolina by surprise. The state Department of Environment, Health and Natural Resources (DEHNR) lacked a regulatory program for factory farms. Counties could not direct the growth, because the legislature amended the state zoning law in 1991 to prohibit counties from exercising their zoning authority over factory farms. With no regulatory structure and no mechanism for avoiding local land use conflicts, the industry's unfettered and explosive expansion has ruined residential property values and home-based businesses and undermined the confidence of many citizens in their government.[5]

Feedlot growth has also harmed an already impaired environment. Eastern North Carolina is experiencing major water pollution problems: excessive nutrients in coastal rivers and estuaries; algal blooms; eutrophication; massive fish kills and outbreaks of the toxic algae *Pfiesteria piscicida* (first discovered in North Carolina's estuaries).[6] In 1997, *Pfiesteria* killed an estimated 450,000 fish in the

state.[7] While exact conditions that cause toxic *Pfiesteria* outbreaks are not fully understood, some of the factors that may contribute include warm, brackish, poorly flushed waters and high levels of nutrients such as nitrogen and phosphorus.[8]

The significant gains made by reducing municipal and industrial pollution have been offset by agricultural pollution, including runoff from hog production facilities. For example, in two of the state's largest coastal river basins—the Tar-Pamlico River and the Neuse River—land use models identify agriculture as the leading source of nitrogen and phosphorus, accounting for 76 percent and 56 percent, respectively, of these inputs.[9]

Pollution Problems

Surface Water Pollution

North Carolina's coastal plain is a labyrinth of rivers, streams, upland flats and wetlands. All waters wind slowly east, the majority emptying into the Albemarle and Pamlico Sounds, the nation's second largest estuary. The Outer Banks block this water from quickly reaching the ocean, creating shallow lagoons that serve as habitat for waterfowl and shellfish, and spawning and nursery grounds for many fish along the Atlantic seaboard.

Unhealthy levels of nitrogen and phosphorus have accumulated in the estuaries and sounds. Eutrophication, the process by which these substances over-enrich water and cause it to choke with algae, is accelerating in the estuaries.[10] Algal blooms and fish kills have become more commonplace on the Tar-Pamlico and Neuse Rivers.[11] The pollution has been implicated in contributing to the occurrence of *Pfiesteria*, a microbe lethal to fish and toxic in humans.[12] (See glossary.) Symptoms reported by people who have been exposed to water or water vapor contaminated by *Pfiesteria* include skin irritation and lesions, gastrointestinal problems and memory loss.

A variety of sources contribute to the nitrogen and phosphorus pollution: municipal wastewater treatment plants, manufacturing discharges, urban runoff, golf courses, residential lawns, and agricultural land. Land use models show agriculture is the leading source, accounting for 56 percent of the pollution loads into the Neuse River estuary,[13] and 76 percent into the Tar-Pamlico River.[14]

These models do not quantify the respective contributions of crop and animal agriculture. However, prevailing nutrient management practices implicate the swine production facilities as a primary source. Swine production in North Carolina is concentrated in the coastal plain. The industry's practice of centralizing swine production to maximize corporate profits results in the concentration of waste pollution in sensitive ecological areas. In several coastal counties, more animal manure is being produced than can be assimilated by the available land.[15]

The swine industry's practice of applying nitrogen- and phosphorus-rich manure to land as fertilizer increases the potential for polluted runoff into nearby streams. Under the recommended practices that the state has incorporated into its permitting program, farmers base the quantities of manure they spread according to the amount of nitrogen that can be taken up by crops. But by focusing on the nitrogen needs of cover crops, these recommended practices virtually ignore the fact that another longer-lived nutrient, phosphorus, is allowed to accumulate in the soil. Recent analyses demonstrate that most soils in North Carolina already contain excess phosphorus relative to plant needs, even with no phosphorus added.[16] In

eastern North Carolina, livestock raised in confinement produce significantly more manure than can be used. In short, the land's carrying capacity has been exceeded.

Also, most of the animal waste is applied to land during the spring and summer growing seasons. This is also the time when seasonal rains are frequent, heavy and unpredictable. When it rains, the drainage ditches serve as conduits for discharges from the pollution-laden soil into nearby wetlands and streams. No buffer zones are required between these ditches and fields that are sprayed with liquid manure, known as sprayfields.

An estimated 19 percent of nitrogen in animal manure is available to plants.[17] However, this estimate can be misleading in a state like North Carolina, where the crop is consumed by cattle and excreted, rather than harvested. Commonly in North Carolina, Bermuda grass is the crop grown on the sprayfield, and cows are also grazed on the sprayfield. Under this system, approximately 90 percent of the nitrogen taken up by the plants and consumed by the cow is actually redeposited as cow feces and urine on the same sprayfield.[18] Thus, the remaining nitrogen is simply cycled through the system, and is not actually removed.[19]

The practice of converting waterside, or riparian, vegetation to cropland may also exacerbate nutrient pollution. In North Carolina, sprayfields must be set back a mere 75 feet from rivers, streams and other bodies of water. But there is no requirement that the setback area be vegetated.[20] North Carolina's recommended agricultural best management practices suggest, but do not require, the use of vegetated buffers to minimize surface runoff into receiving waters. Yet several studies have shown that riparian buffers effectively remove nitrogen, if the buffer is wide and dense.[21]

Together with sprayfields, the construction of manure lagoons to store swine waste in floodplains and wetlands also threatens water quality. Until recently, no state or federal law prohibited the siting of animal waste lagoons and sprayfields within a 100-year floodplain—a designation that estimates how high floodwaters will rise within a 100-year period for a specific floodplain. (State legislation enacted August 27, 1997, prohibits the new construction of lagoons within a 100-year floodplain; this legislation does not require that existing lagoons be removed from floodplains, however.[22]) The problem of siting lagoons within the 100-year floodplain was vividly illustrated during the two hurricanes that crossed eastern North Carolina during the summer of 1996: aerial photographs documented scores of lagoons that had been washed over by floodwaters and innumerable sprayfields that had been scoured by the rising waters. When the floodwaters retreated into their streambeds, they took with them untold volumes of animal waste.[23]

The practice of constructing confined livestock operations in wetlands is equally problematic. Many producers can avoid the permitting requirements and restrictions on construction in wetlands by taking advantage of a loophole in the Clean Water Act § 404 program. This loophole exempts agricultural land from compliance with the wetlands program if the wetland was drained and converted to agriculture prior to 1985.[24] Eastern North Carolina is riddled with wetlands known as pocosins and Carolina Bays. Many of these wetlands were converted to crop production long ago. Although the land was drained and crop production was successful, the land retains high water tables and general wetland characteristics.

Groundwater Contamination

Nitrogen and phosphorus from hog waste management systems enter the groundwater through two primary pathways: (1) seepage from animal waste lagoons and (2) leaching of contaminants through the soil after manure has been applied to the land. A study by scientists at North Carolina State University found severe seepage losses of nitrogen from more than 50 percent of the lagoons tested in the state.[25] Such losses pose a substantial threat to groundwater. Seepage can be reduced by using clay liners, but even clay-lined lagoons may leak "from several hundred to several thousand gallons per acre per day."[26]

Nitrogen and phosphorus also percolate through sprayfield soils and contaminate the underlying aquifers. Scientists have documented high nitrate-nitrogen contamination in shallow aquifers underlying agricultural sprayfields in North Carolina.[27] Nitrogen, which is water soluble, is difficult to control, especially in humid, wet environments. While application of waste at agronomic rates at precise times during the cover crop's growing cycle reduces contamination, it cannot eliminate it. Furthermore, strict application at agronomic rates requires knowing the nitrogen and phosphorus composition of the waste. A survey of hog producers revealed that only 40 percent had tested the content of their waste before applying it to the land.[28]

Concern about groundwater contamination led the North Carolina Department of Environment, Health and Natural Resources to investigate 1,595 drinking water wells located on property adjacent to hog and poultry production facilities. An August 1998 report documenting the well testing program shows that 10.2 percent of the wells tested were contaminated with nitrate above the current drinking water standard of 10 parts per million (ppm), and 34.2 percent of the wells tested exhibited nitrate levels in excess of 2 ppm or greater. Nitrate levels ranged as high as 110 ppm.[29] Nitrates in drinking water have been linked to "blue baby-syndrome," which deprives infants of oxygen, and to miscarriages in women.

The state's ongoing investigation during the past six months reveals that groundwater contamination is increasing. Wells previously tested and identified as "clean" now reveal high levels of nitrate. According to state inspectors, heavy winter rains have flushed the nitrogen out of the sprayfield soils and carried it into the shallow aquifer. The investigation concluded that a potentially serious drinking water problem exists for people utilizing private wells near animal production facilities. Based on the results of this investigation, the report's authors recommended mandatory groundwater monitoring as a condition of obtaining coverage under the state's general permit.[30]

Air Pollution and Water Pollution via Atmospheric Deposition

The current regulatory structure also fails to address the atmospheric nitrogen impacts of agricultural activities in eastern North Carolina. Based on U.S. Environmental Protection Agency (EPA) estimates, in 1995 agriculture in eastern North Carolina was responsible for airborne emissions of 179 million pounds of nitrogen per year, as ammonia. Ammonia, a potent form of nitrogen, can trigger algal blooms and fish kills in coastal waters. Hog operations alone were responsible for 73 percent of these emissions (130 million pounds of nitrogen/year, as ammonia).[31]

To illustrate the impact of such emissions, the North Carolina Environmental Defense Fund estimated atmospheric deposition in the Neuse River basin. Assuming what goes up in the basin comes down in the

basin, hog farms were estimated to deposit more than 2 million pounds of nitrogen per year to the Neuse Estuary. These deposits are almost equal to the nitrogen delivered into the Neuse estuary from wastewater treatment plants in 1995 (estimated at 2.1 million pounds of nitrogen per year).[32] This additional loading is significant because the over-enrichment of nitrogen in the Neuse Estuary, and other coastal waters, has repeatedly resulted in algal blooms and fish kills.

The current hog waste lagoon/sprayfield treatment technique, which results in both volatilization of ammonia and polluted runoff, is incompatible with the nitrogen-sensitive coastal environment of eastern North Carolina. According to current scientific studies, at least 67 percent and perhaps as much as 95 percent of the total nitrogen produced by swine is actually volatilized as ammonia nitrogen.[33] Waste management techniques which optimize ammonia volatilization are simply not compatible with a healthy coastal environment.[34]

Regulatory Climate

During the past several years, North Carolina's laws and regulations governing intensive livestock operations have been strengthened incrementally, culminating in the enactment of a two-year moratorium on new and expanded swine operations that have 250 or more hogs in the state.[35] This process has frustrated and angered all involved. The regulated community is frustrated by the lack of certainty and consistency in the laws. The public is concerned that the laws and regulations remain woefully inadequate to protect water quality and public health. Moreover, loopholes in the moratorium allowed approximately one million additional hogs to be permitted in the state.[36]

North Carolina, like most other states, chooses to treat intensive livestock operations (and smaller feedlots with the exception of poultry facilities that generate dry litter) as "non-discharging" facilities for purposes of water pollution. If a facility is "certified" initially as complying with technical guidelines (e.g., lagoon size, sprayfield size), it is authorized to operate under a one-size-fits-all general "non-discharge" permit.[37]

This regulatory structure is problematic for several reasons. First, by governing factory farms under general "non-discharge" permits, the state operates on the legal fiction that factory farms do not discharge pollutants. Consequently, the state does not monitor water pollution near factory farms and does not require farm operators to monitor it either. In contrast, facilities operating under discharge permits, such as municipal wastewater treatment plants and industrial dischargers, must actually monitor water quality and file regular discharge monitoring reports with the state to ensure that water quality standards are met. These reports are available to the public and allow citizens to assess compliance and initiate appropriate actions for non-compliance. Violations at these industrial facilities can be detected quickly, enabling prompt response, and promoting agency enforcement action as necessary.

Second, a general permit cannot, by definition, be tailored to address site-specific conditions. It is logical to assume that in an area with a high water table, manure application would need to be limited and groundwater monitored, or that a facility with a history of non-compliance would warrant more specific record-keeping requirements and more frequent inspections than a facility that was law-abiding. Such conditions could be written into an individual permit, but cannot be used to amend a general permit.

Third, the general permitting system allows the swine industry to avoid important public notice and hearing requirements, thereby excluding the public from participating in decisions that will affect their communities, their health, and their environment. As a result, low income and minority communities have been disproportionately affected by the swine industry's growth.[38] This regulatory structure, combined with the industry's exemption from traditional legal mechanisms[39] that protect the public—such as common-law suits based on nuisance—allows the swine industry to sully the state's environment.

The general permit requirements include waste management plans. While the plans are filed with permits and available for public review, the public has no say in the content of those plans. Moreover, the soil tests and other records that demonstrate compliance with the plans are kept by the grower[40] and unavailable to the public.[41] Existing facilities are to be permitted on a schedule.[42]

Until recently, regular inspections were not required, but in 1997 a program was established to inspect facilities twice a year, once by the Division of Water Quality for compliance and once by the Division of Soil and Water Conservation for technical assistance.[43]

While intentional violations of the law are not commonplace, water quality violations are found on the best-managed facilities. The Southern Environmental Law Center reviewed the results of North Carolina's first-ever inspection of hog production facilities. The records indicated that 88 percent of the facilities had at least one violation of water quality laws and regulations noted on the inspection form. And, 9.6 percent of the facilities inspected had at least one serious water quality violation noted.[44] At the end of 1997, the state Division of Water Quality (DWQ) recorded 1,403 deficiencies and violations during inspections, yet initiated a mere 132 enforcement actions.[45] In the first half of 1998, the DWQ documented 1,087 permit deficiencies and violations at the 883 swine, cattle, and poultry operations it inspected. DWQ has not yet identified any enforcement actions for these violations.[46]

In the past, the DWQ has suffered from inadequate staffing but the situation is beginning to improve. Prior to 1995, no staff were assigned to the permitting and inspection program, but as of 1996, there were 23 full-time equivalents, eight permitting and 15 inspection staff.[47]

Local Control

After a prohibition on zoning controls over factory farms, in 1997 local zoning powers were partially restored.[48] Three counties have enacted zoning restrictions—Chatham, Moore and Randolph. According to Michelle Nowlin of the Southern Environmental Law Center, other counties may be reluctant to impose local controls because sometimes industrial factory farm corporations threaten to sue counties that are considering such restrictions. For example, Craven County utilized its police power authority to impose a moratorium on factory farms. The county was sued by a factory farm corporation.[49] Although the moratorium was upheld by the courts, the battle was costly.

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NOTES

1. NPDES permit for Smithfield Packing, Inc., d/b/a/ Carolina Food Processors (draft) (1998).

2. U.S. Department of Agriculture, Agricultural Statistics (1997).

3. North Carolina Agricultural Statistics Service (1991-1997); Raleigh, North Carolina; website: http://www.agr.state.nc.us/stats/

4. North Carolina Agricultural Statistics Service (1991-1997); Raleigh, North Carolina; website: http://www.agr.state.nc.us/stats/

5. Comments of Rep. Cindy Watts, North Carolina General Assembly, House Environment Committee Meeting (September 16, 1998); Palmist, et al., "Hog Operations, Environmental Effects, and Residential Property Values," 73 Land Economics (Feb. 1997); "People, Pigs and Politics: Cleaning up North Carolina's Swine Industry," (Southern Environmental Law Center, 1998).

6. JoAnn M. Burkholder, et al., "The Role of a Newly Discovered Toxic Dinoflagellate in Finfish and Shellfish in the Neuse River and Pamlico Estuaries," Project No. 50179, APES Report No. 93-08 (August 1993).

7. John Lang, U.S. Floating in Stinky Problem: Manure Pollution," *Deseret News* (April 19, 1998).

8. U.S. EPA, Office of Water Fact Sheet: "What You Should Know About *Pfisteria Piscicida,"* Document No. EPA-842-F-98-011.

9. Neuse River Nutrient Sensitive Waters (NSW) Management Strategy (1997); Tar-Pamlico River Nutrient Management Plan for Nonpoint Sources of Pollution (1995).

10. M.A. Mallin, L.B. Cahoon et al., "Effect of Swine Waste Nutrients on Blackwater Systems: Field and

Experimental Data," Project No. 70156, Water Resources Research Institute of the University of North Carolina (1997); H.W. Paerl, M.A. Mallin, et al., "Nitrogen Loading Sources and Eutrophication of the Neuse River Estuary, NC: Direct and Indirect Roles of Atmospheric Deposition," Report No. 291, Water Resources Research Institute of the University of North Carolina (1995); T.C. Jacobs and J.W. Gilliam, "Riparian Losses of Nitrate from Agricultural Drainage Waters," 14 J. Environ. Qual. 42 (1985).

11. Neuse River Nutrient Sensitive Waters (NSW) Management Strategy (1997); Tar-Pamlico River Nutrient Management Plan for Nonpoint Sources of Pollution (1995).

12. JoAnn M. Burkholder, et al., "The Role of a Newly Discovered Toxic Dinoflagellate in Finfish and Shellfish in the Neuse River and Pamlico Estuaries," Project No. 50179, APES Report No. 93-08 (August 1993).

13. Neuse River Nutrient Sensitive Waters (NSW) Management Strategy (1997).

14. Tar-Pamlico River Nutrient Management Plan for Nonpoint Sources of Pollution (1995).

15. J.C. Barker and J.P. Zublena, "Livestock Manure Nutrient Assessment in North Carolina," Proceedings of the International Symposium on Agricultural Food Processing Waste (1995).

16. Charles H. Lander, et al., U.S. Department of Agriculture, "Nutrients Available from Livestock Manure Relative to Crop Growth Requirements," Resource Assessment and Strategic Planning Working Paper 98-1, Map 6 (1998).

17. J.C. Barker and J.P. Zublena, "Livestock Manure Nutrient Assessment in North Carolina," Proceedings of the International Symposium on Agricultural Food Processing Waste, Chicago, Illinois (1995).

18. Remarks of Joe Rudek, Ph.D. Senior Scientists, North Carolina Environmental Defense Fund, in *Hog Waste and Environmental Quality in North Carolina*, A Report on the Save Our State Forum, Raleigh, North Carolina (June 11, 1998), pp. 46-47.

19. Presentation of Dr. Jerry Lemunyon, NRCS, at the NRCS Animal By-Product Utilization Workshop (September 1, 1998).

20. North Carolina General Statutes, § 106-803(a).

21. D.A. Hammer, et al., "Treating Livestock Wastewater with Constructed Wetlands," Constructed Wetlands for Water Quality Improvement, ed. G.A. Moshiri (1993); T.C. Jacobs and J.W. Gilliam, "Riparian Losses of Nitrate from Agricultural Drainage Waters," *Journal of Environmental Quality* (1985), Vol. 14, p. 472.

22. North Carolina State Law 1997-458.

23. Stuart Leavenworth, "Untreated Sewage Flows Through North Carolina Waterways," *The News and Observer* (September 13, 1996).

24. 33 C.F.R. § 328.3(a)(8).

25. R.L. Huffman and P.W. Westerman, "Estimated Seepage Losses from Established Swine Waste Lagoons in the Lower Coastal Plain of North Carolina," Transaction of the ASAE 38(2):449-453 (1995).

26. Correspondence from Dennis Ramsey, Department of Environment, Health and Natural Resources, to Karen Priest (May 19, 1997).

27. J.W. Gilliam, et al., "Contamination of Surficial Aquifers with Nitrogen Applied to Agricultural Land." Report No. 306, Water Resources Research Institute of the University of North Carolina (Nov. 1996).

28. Dr. John Winne, "Options for Managing Odor: A Report from the Swine Odor Task Force," North Carolina Agricultural Research Service, North Carolina State University (March 1, 1995).

29. Memorandum from Dr. Kenneth Rudo, Toxicologist to Dr. Dennis McBride, State Health Director, North Carolina Department of Environment, Health and Natural Resources (August 1998).

30. Memorandum from Dr. Kenneth Rudo, Toxicologist to Dr. Dennis McBride, State Health Director, North Carolina Department of Environment, Health and Natural Resources (August 1998).

31. North Carolina Department of Environment, Health and Natural Resources, Division of Air Quality, "Assessment Plan for Atmospheric Nitrogen Compounds: Emission, Transport, Transformation, and Deposition," Raleigh, North Carolina (1997).

32. Joseph Rudek, "Atmospheric Nitrogen Deposition and Ecosystem Health in North Carolina: A Public Perspective. Proceedings from Atmospheric, Nitrogen Compounds: Emission, Transport, Transformation and Deposition," Raleigh, North Carolina (1997).

33. North Carolina Department of Environment, Health and Natural Resources, Division of Air Quality, "Assessment Plan for Atmospheric Nitrogen Compounds: Emission, Transport, Transformation, and Deposition," Raleigh, North Carolina (1997).

34. Joseph Rudek, "Atmostpheric Nitrogen Deposition and Ecosystem Health in North Carolina: A Public Perspective. Proceedings from Atmospheric, Nitrogen Compounds: Emission, Transport, Transformation and Deposition," Raleigh, North Carolina (1997).

35. H.B. 515 and H.B. 1480.

36. Bob Williams, "Swine Numbers Swell Despite Moratorium," *The News and Observer* (September 30, 1998).

37. North Carolina General Statutes Section 143-215.10B.

38. Jonathan Raine, "Environmental Justice Issues of the North Carolina Swine Industry," Nicholas School of the Environment, Duke University, Masters Project (May 1998).

39. North Carolina General Statutes Section 106-701(A).

40. The Swine Waste Operation General Permit, Part III, Para. 5, North Carolina Environment Management Commission and the Department of Environment, Health and Natural Resources.

41. Because plans are not required to be given to the state agencies, the public has no way to request that the agencies make the plans available to them.

42. Conversation between Robbin Marks, NRDC and Ernie Seneca, Public Information Officer, North Carolina Division of Water Quality (October 23, 1998).

43. North Carolina General Statutes Section 143-215.10F.

44. Southern Environmental Law Center, Report on the North Carolina Division of Water Quality's Hog Farm Inspection Program (August 1, 1997).

45. Memorandum from Wayne McDevitt, Secretary, Department of Natural Resources, to Rep. Rick Eddins and Sen. Fountain Odom, Co-Chairmen, Environmental Review Commission, Re: Quarterly Status Report on Permitting and Inspecting Animal Waste Management Systems for Period Beginning October 1, 1997, and Ending December 31, 1997 (January 23, 1998) (Report also includes year-to-date totals for 1997.)

46. North Carolina Division of Water Quality, Status Report on Permitting and Inspecting Animal Waste Management Systems (July 1998).

47. Personal communication between Robbin Marks, and Ernie Seneca, Public Information Officer, North Carolina Division of Water Quality (October 23, 1998).

48. North Carolina General Statutes Section 153A-340.

49. Craven County Livestock Association et al., filed in U.S. District Court for Eastern District of North Carolina, No. 4-97-CV-57-H(1) (July 1997).

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Chapter 18

NORTH DAKOTA

- Large-scale corporate animal factories are moving into the state, setting up ownership arrangements that escape the state's prohibitions against corporate farming.
- North Dakota has unusually strong regulations to control odor from factory farms.
- North Dakota has not implemented its solid waste law for factory farms even though the law covers farms as well as industry. Neighbors of a controversial factory pig farm have gone to court to force the state to enforce the law against factory farms.

Today, most of the largest livestock operations in North Dakota are cattle feedlots.[1] The most controversial operation in North Dakota, however, involves an industrial pig farm close to urban Grand Forks. Cattle farming, a familiar part of the North Dakota landscape, tends to be located in more rural parts of the state and is widely accepted by state residents.

In recent years, public opposition has focused on a kind of farming that is relatively new to the state—giant pig feedlots owned by out-of-state corporations. EnviroPork, a 5,000-sow operation that produces 110,000 piglets each year[2] has become a high-profile test case for the interpretation and enforcement of the state's environmental and agricultural laws. EnviroPork is not the largest factory farm in the state. Eleven factory farms, including two devoted to hogs, are larger.[3] But EnviroPork's corporate connections and its proximity to Grand Forks have put it in the public eye. Permitted in December of 1997, EnviroPork is owned by North Dakota Pigs Cooperative (NDPC), a group of about 25 Minnesota hog producers.[4] NDPC members have signed a contract with Swine Management Services (SMS), a division of Purina Mills, Inc., to run the day-to-day operations. Purina Mills promises to buy the pigs from NDPC members if the price falls below $32 each. Purina has the right to inspect the facility and the stock and to demand changes in operation. The chairman of the NDPC's interim board of directors is Amon Baer, who owns a Lake Park, Minnesota, Purina Feeds dealership.[5]

Pollution Problems

Just four months after receiving its first shipment of hogs in mid-January 1998, and before EnviroPork had reached its full capacity, neighbors complained of odors to the state Health Department, prompting tests for compliance with the state's odor standards. On May 12, 1998, the state recorded readings of 15 and 31 "odor concentration units," exceeding the state's standard by over 15 times. The site manager, Todd Erickson, said that because waste had been collecting for just two months, the lagoon hadn't built up enough liquid to cover the solids that pile up at the discharge point. Erickson also said the bacteria that break down the waste had not taken hold yet, and that he would add enzymes to kick-start the bacteria.[6] Health Department environmental engineer Gary Haberstroh did not recommend disciplinary action, but said that he would continue to test odor levels for compliance.[7]

In July of 1998, EnviroPork's neighbors, Jim Griffin and Keith Peterson, went to court for an injunction forbidding the hog factory to operate until it obeys environmental laws.[8] Northeast District Judge Bruce Bohlman declined to shut down the facility, but ordered the Health Department to draft a compliance schedule to ensure that the odor violations are cleared up quickly.[9]

EnviroPork worked with the University of North Dakota's Environmental Education Research Center to control the odor problem by placing straw on the lagoon and other methods. EnviroPork passed numerous odor tests in August and September 1998, but has been in regular non-compliance again since October 1998.[10]

EnviroPork has not had any water pollution problems, but neighbors Griffin and Peterson are suing the state over improper construction of the lagoon.[11] They say that this region of eastern North Dakota is an especially dangerous setting for a hog factory due to porous soil[12] and EnviroPork's proximity to the Turtle River.[13] The Health Department is monitoring the groundwater around the lagoon with underground wells.[14]

Regulatory Climate

North Dakota's law and regulations require all animal feeding operations—including swine, cattle and poultry—that exceed one or more of the following criteria to apply for a state water quality permit:

- 200 or more animal units at any one time;
- 100 or more animal units at any one time and located in a flood plain;
- Distance to surface water of less than two feet per animal unit;
- Distance of less than 500 feet to a public well; or
- Distance of less than 50 feet to a private well.[15]

Although North Dakota's permitting threshold is stiffer that that in many states, the Health Department has not required most small-sized CAFOs that meet this threshold to apply for permits.[16] Twenty-two livestock operations with more than 1,000 animal units have permits to operate in North Dakota.[17] (Burkel Turkey Farms in southeastern North Dakota was the state's largest livestock operation, with 28,305 animal units,[18] or about 1.6 million turkeys, but it went out of business in 1998.[19])

Most of North Dakota's design, operating and pollution rules that are specific to CAFOs are fairly similar to those in other states. Several of the state's standards, however, are unusually strong, namely those regulating odor and corporate farming. Its solid waste standards, also unusually strong for agricultural operation, were originally written to address industrial pollution problems other than CAFOs.

Odor

North Dakota's air quality law and regulations include an odor standard of two "odor concentration units" and a hydrogen sulfide standard of 0.05 parts per million. The state rules define an "odor concentration unit" as the maximum number of standard units of odor-free air diluting a standard unit of odorous air so a certified inspector or review panel can still detect that objectionable odor in the diluted mixture. Tests are taken using a Barnebey-Cheney Scentometer for odor, and an ambient air analyzer for hydrogen sulfide. By law, enforcement of the odor and hydrogen sulfide rules is complaint-driven. While the odor law provides a mechanism for property owners or renters to prompt air quality tests, the law does not mandate that inspectors take enforcement action when they find violations.[20] In EnviroPork's case, for example, Health Department environmental engineer Gary Haberstroh chose to monitor the facility rather than take disciplinary action.[21]

Solid Waste

North Dakota's solid waste law includes agricultural waste in its definition of solid waste. But the regulations issued by the Health Department under this law exempt agricultural waste.[22]

Griffin and Peterson's lawsuit asked Judge Bohlman to direct the Health Department to regulate EnviroPork under the solid waste law. Bohlman agreed, saying "[t]he classification of EnviroPork as a `farming operation' is erroneous… As a matter of law, EnviroPork is not a "farming operation' … but a pig factory. There is no family farm here, no cultivation of land, nor any other indicia of a farm. It is an industrial enterprise. It produces waste of a magnitude that clearly requires regulation under [the solid waste law]."[23]

Immediately after Bohlman's decision, the Health Department issued an emergency interim rule, acting under its authority to issue emergency rules in the case of "immediate peril to public health, safety or welfare."[24] Under the emergency rule, which took effect October 9, 1998 and lasts for six months, agricultural operations will continue to be exempt from the solid waste rules as long as they "recycle" their waste by using it as fertilizer and do not cause water pollution.[25] Although the Health Department has said that the emergency rule would not apply to EnviroPork and other facilities that are already permitted, citizen activists say that they see no reason why existing facilities would not apply for

amended permits under the new weaker rule. This rule is so weak it would exempt most factory farms unless there is a proven water pollution problem. Before becoming final, the rule must undergo public hearings and review by the state legislature.[26] Griffin and Peterson have filed a motion to expand their lawsuit to appeal the emergency rule.[27]

If the solid waste law survives judicial and legislative review, the Health Department will likely have to initiate a rulemaking defining which type of agricultural operations have to comply with criteria established by the solid waste regulations and whether the solid waste law applies to future facilities, existing facilities or both. The criteria include:

- Disclosure of all civil, administrative and criminal complaints for the violation of any state or federal environmental laws and any felony convictions for fraud or misrepresentations;
- Provide county commissioners with the opportunity to call a special election for voters to approve or disapprove the facility based on public interest and impact on the environment. If a majority of the qualified electors voting in the election disapprove of the facility, the Health Department may not issue the permit and the facility may not be located in that county;
- Require the owner to post a bond insuring that the state has sufficient funds to clean up after a waste spill or if the company goes bankrupt, and
- Submit soil and hydrological studies by the state geologist.[28]

Corporate Farming

North Dakota's corporate farming law prohibits ownership of agricultural land and operation of farms and ranches by corporations other than family farm corporations and cooperatives whose participants are actively involved in day-to-day operations.[29] In other states, major corporations have managed to get around anti-corporate farming laws of this type by contracting with farms to raise the corporation's animals. Other corporations have operated farms through farm cooperatives. EnviroPork has done both. Its factory hog farm is one of the first to employ these methods in North Dakota. The first EnviroPork proposal in 1997, under which North Dakota hog producer Bob Berquist would own the facility and Purina's SMS division would operate it, came under criticism from North Dakota Attorney General Heidi Heitkamp and Agriculture Commissioner Roger Johnson as violating the corporate farming law.[30] In an attempt to comply with the corporate farming law, EnviroPork floated a new proposal under which Bob Berquist would own the land, Dakota Facilities LLC (a company owned by Berquist and his brother-in-law, John Haugo) would own the buildings and SMS would operate the facility.[31] Heitkamp gave the proposal her initial approval after SMS and North Dakota Pigs Cooperative (NDPC) changed all of the sections of their contract that read SMS "shall do" to read "in consultation with SMS, NDPC shall do."[32] The Attorney General's office is now monitoring EnviroPork to see "who is running the show," according to Assistant Attorney General Carmen Miller.[33]

There is talk of amending the corporate farming law in the 1999 legislative session to make it more lenient.[34] Public interest groups fear that the Farm Bureau and the North Dakota Pork Producers will

revive an earlier proposal to exempt all livestock facilities or propose other ways to weaken the law.[35]

Restrictions on Environmental Laws

North Dakota also has a law, passed by the 1989 legislature, which restricts the state's use of regulations that are stricter than federal regulations.[36] The coal industry used this law in 1997 to successfully weaken the state's ambient air quality standards for sulfur dioxide, and the law could be used to challenge the state's CAFO regulations if federal standards are weaker.[37] Specifically, the law could be used to challenge the state's odor standards since there are no federal odor standards. Under the law the Health Department can adopt rules more stringent than the corresponding federal regulations only if it makes a written finding that the corresponding federal regulations are not adequate to protect public health and the environment of the state. Any person affected by an existing rule that is either more stringent than federal regulations or where there is not corresponding federal regulation can petition the Health Department to review and revise those rules to make them equivalent with the federal regulations.[38] The review is conducted by the Health Department's rulemaking authority, the State Health Council, which is comprised of 11 members, all appointed by the Governor and includes two representatives of regulated industries.[39]

Local Control

North Dakota counties and townships have the authority to regulate CAFOs, but few do. At least three counties—Burleigh, Oliver and Grand Forks—have initiated the process of writing regulations, but none has completed the process.[40] In April 1998, Burleigh County declared a six-month moratorium on feedlots of 200 animal units or more to allow time to write an ordinance regulating them. At that time, the county had two requests for cattle feedlots pending.[41]

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NOTES

1. Mark Hanson, "Feedlots Focus on Meeting," *Bismarck Tribune* (June 2, 1998).

2. Erin Campbell, "Feedlot Debate Surfaces in N.D.," *AGWEEK* (February 9, 1998).

3. Mark Manson, "Feedlots Focus on Meeting," *Bismarck Tribune* (June 2, 1998).

4. "Hog Farm Violates State Health Standards," *Grand Forks Herald* (May 14, 1998).

5. Dale Wetzel, "Farm Permit Stalled," *Bismarck Tribune* (October 25, 1997).

6. Jaime Delage, "Hog Farm Violates State Health Standards," *Grand Forks Herald* (May 14, 1998).

7. Dale Wetzel, "Judge Says Hog Farm Must Clear Up Odor Problem," *Bismarck Tribune* (July 29, 1998).

8. State of North Dakota, ex. rel. Jim Griffin, et al., vs. Dakota Facilities, LLC, et al., Civil No. 98-C-00724.

9. Dale Wetzel, "Judge Says Hog Farm Must Clear Up Odor Problem," *Bismarck Tribune* (July 29, 1998).

10. Personal communication between Mark Trechock, Dakota Resource Council, and Lyle Witham, Counsel, North Dakota State Department of Health (November 9, 1998).

11. State of North Dakota, ex. rel. Jim Griffin, et al., vs. Dakota Facilities, LLC, et al., Civil No. 98-C-00724.

12. Associated Press, "New Hog Co-Op to be Scrutinized," *Bismarck Tribune* (February 11, 1998).

13. Dale Wetzel, "Judge Says Hog Farm Must Clear Up Odor Problem," *Bismarck Tribune* (July 29, 1998).

14. Jaime Delage, "Hog Farm Violates State Health Standards," *Grand Forks Herald* (May 14, 1998).

15. "Managing Livestock Waste," North Dakota Health Department (undated).

16. Erin Campbell, "Feedlot Debate Surfaces in N.D.," *AGWEEK* (February 9, 1998).

17. Erin Campbell, "Feedlot Debate Surfaces in N.D.," *AGWEEK* (February 9, 1998).

18. Mark Manson, "Feedlots Focus on Meeting," *Bismarck Tribune* (June 2, 1998).

19. Personal communication between Mark Trechock, Dakota Resource Council, and Lyle Witham, Counsel, North Dakota State Department of Health (November 9, 1998).

20. North Dakota Administrative Code Article 35-15-16.

21. Dale Wetzel, "Judge Says Hog Farm Must Clear Up Odor Problem," *Bismarck Tribune* (July 29, 1998).

22. North Dakota Century Code Section 23-29-03 and North Dakota Administrative Code Article 33-20-01.1-02.

23. State of North Dakota, ex. rel. Jim Griffin et al., vs. Dakota Facilities, LLC, et al., Civil No. 98-C-00724.

24. Associated Press, "Emergency Interim Rule on Farm Waste Issued by State Agency," *Minot Daily News* (October 10, 1998).

25. Dale Wetzel, "Making a Big Stink, Emergency Rules on Livestock Waste Challenged," *Minot Daily News* (October 15, 1998).

26. Associated Press, "Emergency Interim Rule on Farm Waste Issued by State Agency," *Minot Daily News* (October 10, 1998).

27. State of North Dakota, ex. rel. Jim Griffin et al., vs. Dakota Facilities, LLC, et al., Civil No. 98-C-00724.

28. North Dakota Century Code Sections 23-20.3 and 23-29.

29. North Dakota Century Code 10-06.1.

30. Letter to the Editor by Roger Johnson, North Dakota, Commissioner of Agriculture, and Craig Scott, Chair of Dakota Resource Council, "Corporate Farming Endanders Family Farms," *Grand Forks Herald* (November 6, 1997); "New Hog Co-Op to be Scrutinized," *Bismarck Tribune* (February 11, 1998).

31. Letter to the Editor by Roger Johnson, North Dakota, Commissioner of Agriculture, and Craig Scott, Chair of Dakota Resource Council, "Corporate Farming Endangers Family Farms," *Grand Forks Herald* (November 6, 1997); "New Hog Co-Op to be Scrutinized," *Bismarck Tribune* (February 11, 1998).

32. Personal communication between Mark Trechock, Dakota Resource Council, and Sarah Vogel, attorney for plaintiffs Griffin and Peterson (September 1998).

33. Associated Press, "New Hog Co-Op to be Scrutinized," *Bismarck Tribune* (February 11, 1998).

34. Erin Campbell, "Feedlot Debate Surfaces in N.D.," *AGWEEK* (February 9, 1998).

35. Senate Bill 2339 passed the North Dakota Senate 28-20 in 1995, but failed in the House of Representatives, 18-77.

36. North Dakota Century Code Sections 23-20:3 and 23-29.

37. North Dakota Department of Health, "Summary of Findings: North Dakota Sulfer Dioxide Standards," prepared for the State Health Council (January 1997).

38. North Dakota Century Code Section 23

39. North Dakota Department of Health, list of State Health Council members (June 14, 1996).

40. "County Panel Rethinks Proposed Livestock Rules," *Grand Forks Herald* (August 12, 1998); John McDonald, "Feedlot Ordinance Draws Fire," *Bismarck Tribune* (August 13, 1998).

41. Jeffery G. Olson, "Feedlots will Get Scrutiny," *Bismarck Tribune* (April 7, 1998).

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America's Animal Factories

How States Fail to Prevent Pollution from Livestock Waste

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Chapter 19

OHIO

- Ohio does not issue Clean Water Act permits that are specific to concentrated livestock operations.
- Ohio has no local control over factory farm operations.
- Ohio's trade secrecy act permits factory farms to dump manure offsite without revealing the location.

Ohio is the number one egg-producing state in the country largely because the Buckeye Egg Farm, headquartered in Croton, Ohio, is one of the world's largest egg-laying producers.[1] Buckeye Egg, called Agri-General until last year, came to the state in the 1980s as Ohio's first large-scale poultry operation. In 1997 Buckeye had 4.6 million chickens in Croton. Buckeye has another 2.2 million chickens in northwestern Ohio near the town of LaRue and is proposing to expand to 3.3 million.[2]

Buckeye is owned by Anton Pohlmann, notorious in Europe for animal and worker abuse.[3] Pohlmann was convicted for worker endangerment in Germany and is no longer allowed to operate in that country. Some of Pohlmann's workers in Germany were exposed to an illegal nicotine-based substance that is sprayed on to control chickens mites. A German court imposed a two million dollar fine on Pohlmann and held Pohlmann responsible for feeding chickens an illegal disinfectant, thereby allowing millions of contaminated eggs to reach consumers.[4]

In 1997 Ohio fined Buckeye Egg more than $113,000 for various permit violations: bringing chickens onto a factory farm site before the company had fully complied with the conditions of their permits, having an egg-breaking facility without a permit, constructing facilities according to different size specifications than the company's permits authorized and exceeding the number of chickens allowed by the permit.[5] Considering the extent and nature of the offenses, the fine amounted to a slap on the wrist.

The violations have not hindered the company's expansion plans. Buckeye now has plans to raise a total of 30 million chickens at a time in Ohio.[6]

Pollution Problems

In the past thirty years Lake Erie has suffered environmental degradation from high phosphorus levels. In excess quantities, phosphorus, a nutrient found in manure and fertilizer, spurs algae and depletes oxygen in water, smothering fish. The state has managed to clean up the watershed mostly by building municipal wastewater plants to treat human sewage and by controlling phosphorus discharged by industrial polluters. However, the improvements in water quality and the considerable investment by taxpayers in municipal wastewater plants are threatened by the improperly regulated dumping of chicken manure and its over-application to fields.

"Chicken manure is good, but Buckeye proposed 14.1 tons of land-applied manure to the acre. No more than six tons is recommended. You couldn't even plow under 14 tons," said Janice Rish of S.A.V.E, an Ohio citizens' group.

The Sandusky River, which drains into Lake Erie and supplies 60 percent of the drinking water in Tiffin, Ohio, is threatened by pollution problems from animal feeding operations.[7]

Flies from Buckeye Egg have become a major nuisance, sparking citizen complaints. In September 1997, Rebecca Schnitzler, her husband Charles and two other neighbors filed a $25 million class action lawsuit against Buckeye Egg Farm of Mt. Victory. The lawsuit claimed Buckeye had used beetles to control the fly population at their egg farm.[8] Residents near the northwestern Ohio farm had complained earlier of flies emanating from the farm, and the company responded by putting beetles into the manure to control the flies. The beetles did their job of reducing the fly larvae but have since infested outlying communities.[9] Beetles can carry a host of diseases including salmonella and botulism. Now the company is saturating the manure with pesticides to kill the beetles.[10] Increased fly activity around Buckeye's egg-laying facilities in northwestern Ohio remains a concern. The number of flies caught by the Ohio Department of Health's fly traps surged more than fivefold this spring at the health department's nearby Mount Victory-LaRue monitoring site—to 29 flies per trap over a six week period compared with five flies per trap over the same period in 1997.[11]

Regulatory Climate

If an animal factory with more than 1,000 animal units applies manure to the land—as they all do—the operation must file a livestock waste management plan with the Ohio Environmental Protection Agency (OEPA). However, the agency has few regulations governing these plans.[12] Unlike most other states, Ohio does not issue National Pollution Discharge Elimination System (NPDES) permits that are specific to concentrated livestock operations. Instead, the state issues discharge permits for facilities that discharge pollutants into waterways.[13] For example, some poultry facilities obtain Clean Water Act NPDES permits, but the permits are for specific industrial discharges such as discharging egg wash water into waterways from the egg washing process. In 1997, eleven out of the 103 concentrated animal feeding operations in Ohio (those with 1,000 animal units) had NPDES permits.[14] The state also issues installation permits for livestock facilities of 1,000 animal units or more.[15]

The Ohio Department of Natural Resources (ODNR) has "oversight" over facilities of less than 1,000 animal units, but this is a completely voluntary program where facilities are encouraged to have voluntary livestock waste management plans.[16]

However, the state's program for ensuring proper livestock waste management is severely compromised by the state's trade secrecy act which certain factory farms have utilized.[17] For example, Buckeye Egg Farm requested that the state keep confidential the identity of area farmers to whom it has sold manure. Buckeye claimed that this information constitutes a "trade secret" under the state's trade secrecy law. The Ohio EPA granted Buckeye's request for confidentiality on the grounds that farmers purchasing manure are "customers" and customer lists are trade secrets.[18]

The effect of this law is to keep secret the circumstances surrounding a factory farm owner's dumping of manure as long as the dumping occurs offsite. Once the state grants such confidentiality, citizens cannot learn the names or locations of farms where manure is being sold for disposal. Citizens do not know if companies that receive manure have adequate acreage to dispose of the manure without causing pollution, such as contaminating well-water and nearby streams. They do not know if the land is acceptable for manure disposal due to slope, proximity to waterways or soil conditions. Most importantly, citizens cannot track what—if anything—the companies that dump manure are doing to prevent water pollution. This cuts citizens out of the enforcement process completely.

OEPA also has the authority to require air pollution control permits for factory farms,[19] but has never required them.[20] If the state required air pollution permits, odors, hydrogen sulfide, ammonia, and particulates could be regulated without changing existing law.

OEPA's responses to violations are slow. In one case, it took the state a year to impose a $113,000 fine on a factory farm for a violation.[21]

Citizen Involvement

OEPA is not required to hold public hearings on permit applications for factory farms but it has the discretion to do so "if there is substantial public interest" as determined by the director. OEPA held public hearings this spring on Buckeye's permit applications to open several new egg-laying and chicken-raising facilities northwest of Columbus and to expand its LaRue facility from some two million chickens to 3.3 million chickens. The hearings gave local officials, citizens and health agencies the opportunity to raise serious concerns that the facilities would lead to water pollution, air pollution, odors and flies. But in April, the Agency approved an expansion to 6.3 million chickens at Buckeye's Croton egg-laying facility *northeast* of Columbus with no public hearing. The approval surprised the public and the local political subdivision because it was not adequately disclosed to residents.[22]

Local Control

Counties have no authority to regulate feedlots. Factory farms are considered agricultural entities, and agriculture has a broad exemption from local, county and township zoning in Ohio.[23]

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NOTES

1. 1997 Guinness Book of World Records.

2. Denis Grant, "Hearing set for Tuesday on egg farm application," *The Courier* (April 13, 1998); Donna Glen, "Critics Oppose Egg Farm Growth," *The Columbus Dispatch* (February 17, 1998); Paul Souhrada, "Families in Middle of Larger Agricultural Issues," *Urbana Daily Citizen* (August 2, 1998).

3. "Owner of Egg Farms Being Held in Germany," *The Star* (February 3, 1996).

5. "OEPA Fines Agri-General $113,000 for Infraction," *Daily Chief-Union* (September 15, 1997).

6. Paul Souhrada, "Families in Middle of Larger Agricultural issues," *Urbana Daily Citizen* (August 2, 1998).

7. Denise Grant, "Hearing Set for Tuesday on Egg Farm Application," *The Courier* (April 13, 1998).

8. Frank Hinchey, "Proposed Deal Could End Beetle Mania," *Columbus Dispatch* (September 17, 1998).

9. Stephan Huba, "Mount Pleasant Church Members Battle Infestation, Lord, oh, the Flies," *The Lima News* (June 23, 1996); Dan Robinson, "Farm Animals Suffer from Flies, Health Department Blames LaRue Egg Farms," *Kenton Times* (June 21, 1996); Frank Hinchey, "Bugged Residents Sue Over Beetles," *The Columbus Dispatch* (October 2, 1997).

10. Stephan Huba, "Mount Pleasant Church Members Battle Infestation, Lord, oh, the Flies," *The Lima News* (June 23, 1996); Dan Robinson, "Farm Animals Suffer from Flies, Health Department Blames LaRue Egg Farms," *Kenton Times* (June 21, 1996); Frank Hinchey, "Bugged Residents Sue Over Beetles," *The Columbus Dispatch* (October 2, 1997).

11. Associated Press, "Health Officials: Fly Problem Getting Worse Near Egg Farm," *Columbus Dispatch* (August 8, 1998).

12. Ohio Administrative Code Chapter 3745.

13. Personal communication between Robbin Marks and Gene Chaiken, Branch Chief, NPDES program, EPA Region 5 (November 5, 1998).

14. Larry M. Antosh, Ohio Environmental Protection Agency, Division of Surface Water, Nonpoint Source/Clean Lakes Unit, "Animal Waste P71_Environmental Protection Study Report (September 18, 1997).

15. Personal communication between Robbin Marks and Gene Chaiken, Branch Chief, NPDES program, EPA Region 5 (November 5, 1998).

16. Ohio Revised Code Section 1511.02 et seq.

17. Ohio Revised Code Section 1333.61 (D).

18. Ohio Environmental Protection Agency, "Public Comment Responsiveness Summary for Buckeye Egg #2—Marseilles, Ohio Facility." The comment period closed on September 8, 1998.

19. Ohio Revised Code Section 3704.01(B).

20. Brian Williams, "Egg Farm's Permit Scrambled," *The Columbus Dispatch* (November 14, 1998).

21. Donna Glenn, "Critics Oppose Egg Farm Growth," The Columbus Dispatch (February 17, 1998); "Agri-General, EPA Reach Settlement," *Daily Chief Union* (September, 5 1997).

22. Mike Lafferty and Brian Williams, "Expansion Plans Jolt Neighbors," "Egg Farm, EPA Didn't Notify Residents," *Columbus Dispatch*, April, 17, 1998. Legal notice ran in Newark Advocate, which is not read in the area.

23. Ohio Revised Code, Sections 303.21 and 519.21.

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Chapter 20

OKLAHOMA

- Oklahoma is experiencing an influx of massive swine factory farms that threaten to foul the state's scarce water supplies.

- Poultry contract growers are supposed to follow best management practices and create waste management plans, but it is the large corporations not the state agencies who do the inspections.

In 1991 there were only 200,000 hogs in the state of Oklahoma, but in the past decade their numbers have grown exponentially.[1] Oklahoma amended its anti-corporate farming law seven years ago, allowing foreign and corporate ownership of agricultural land.[2]

In 1993 Oklahoma passed a so-called "Right to Farm" law. This protects licensed concentrated animal feeding operations against nuisance suits from residents who live three miles or more outside an incorporated city limit and have fewer than ten occupied homes per square mile.[3] These and other regulatory changes demonstrated the willingness of the state to weaken controls on factory farms. Additionally, these changes helped facilitate growth in industrial-sized hog operations. The state's hog population now stands at approximately two million head.[4] And although the state now appears to many to be saturated with factory farms, hog populations in some of the counties may increase by 50 to 100 percent. For example, Tyson Foods has announced 40 new "projects" for Hughes, Okfuskee and Seminole counties.[5]

Most of the water-hungry hog facilities are in the dry western half of the state where surface water is sparse. The Oklahoma Department of Agriculture's database of licensed concentrated animal feeding operations (CAFOs) shows that approximately 90 percent of the state's hogs in licensed feeding operations are raised in western Oklahoma. In the Oklahoma Panhandle, site of the most dense hog concentration, the Ogallala aquifer is a sole source water supply.[6] While some parts of the aquifer still contain many years worth of water supply, other areas are running dry.[7]

The cattle industry has historically been part of the foundation of Oklahoma's economy and remains so to this day. Although cattle feedlots are not required to get state licenses, the state Department of Agriculture reports that virtually all have voluntarily obtained licenses. According to the department, the

state has 71 licensed cattle feedlots.[8] Feedlot owners usually seek state licenses to protect themselves from nuisance suits. Under state law, holding a state license is considered evidence in itself that an agricultural operation is not a nuisance.[9] Up to now, only a handful of poultry operations—15 according to the Agriculture Department—have obtained licenses.[10]

Pollution Problems

Forty percent of Oklahoma's streams are classified "impaired" by the state due to polluted runoff. The state reports that agriculture is the primary source of the runoff.[11]

Several studies have documented that lakes in the eastern part of the state, including some important sources of drinking water, have been polluted by nutrient-rich runoff from poultry litter.[12] Poultry litter is particularly rich in the nutrient phosphorus. Phosphorus pollution has been measured in Beaty Creek, a creek that feeds into Lake Eucha, an important source of drinking water for the for the city of Tulsa. The city of Tulsa will be required to invest millions of dollars to upgrade its water treatment system as a result of pollution upstream. The cost of poultry pollution to the city of Tulsa helped put political pressure on the state legislature in the 1998 session to pass new legislation regulating poultry operations. (See "Regulatory Climate" below.) At Lake Spavinaw and Lake Wister, polluted runoff from poultry operations has led to eutrophication—the proliferation of algae from a nutrient glut that can be extremely harmful to aquatic life. Poultry operations have contaminated many of the tributaries on the north and northeastern side of the Grand Lake O' the Cherokees.[13]

In the western part of the state, runoff from one swine operation's waste sprayfield threatens a nearby delicate wetland near Canton Lake, which is supplied by the North Canadian River system.[14]

Despite the harmful impact on the environment attributed to factory farms in Oklahoma, the state is considering allowing Seaboard Farms Corporation, one of the nation's largest pork producers, to expand its facilities on a massive scale. Seaboard Farms Corporation has requested that it be allowed to establish a 27,000-sow farm in Beaver County, known as the Dorman sow site. Originally the State Board of Agriculture held that the facility was unopposed, though concerns were raised by the Oklahoma Department of Wildlife Conservation, which is responsible for the Beaver River Wildlife Management Area, and by an adjacent neighbor.[15] However, after neighbors petitioned the State Board of Agriculture, a hearing on the Dorman sow operation was granted.[16] At a nearly identical Seaboard facility further west in Beaver County, engineer Jay Clapp, an adjacent landowner, discovered mathematical errors that led to faulty lagoon design by Seaboard's consultants. The same errors had been repeated in the design for the Dorman site.[17] Seaboard counters that the site is nearly completed and that the company already has contracts for sows to fill the three barns.[18]

According to Suzette Hatfield of the Oklahoma Family Farm Alliance, an organization representing family farmers and rural residents, neighbors of the facility are concerned about the effect on their local water quality should the facility be allowed to operate. Together with Seaboard's other equally big hog farm in the Earl Hatley county, Seaboard's new operation could pave the way for the production of as many as one million hogs yearly in Beaver County, counting the piglets produced each year. The proposed site for the Dorman hog farm is adjacent to the Beaver River in a region of sandy, alluvial soil, increasing the possibility that polluted runoff from the hog farm will foul the Beaver River. An

inspection of the site by the Oklahoma Department of Agriculture warned of grave environmental risks, stating "the potential for runoff down gulleys to Beaver River is too great. Topography is all sloped towards gulleys to run to [the] River."[19] The Oklahoma Department of Wildlife Conservation's (ODWC) evaluation concludes, "due to close proximity of the primary [manure] lagoons and land application site to deep ravines, plus the undersized lagoons system, ODWC suggests that there exists a significant potential for surface and ground water contamination."[20]

Oklahoma has to contend with more than its own factory feedlot pollution. It is downstream from other feedlot-polluted states including Missouri and Arkansas. Pollutants from Simmons Foods' processing plant, across the border in Missouri eventually find their way into Honey Creek, a tributary to Grand Lake O' the Cherokees at Grove, Oklahoma. (See Missouri story.)[21]

Regulatory Climate

Oklahoma's Department of Agriculture issues licenses, not permits, to CAFOs. Because of the recent explosion of the swine industry in Oklahoma, the State Board of Agriculture has passed a series of rules defining the timing for construction and licensing of swine facilities.[22]

A one-year moratorium on swine factory farms that commenced March 9, 1998, was removed August 1, 1998, in connection with the passage of a new law (SB1175) aimed at toughening regulation of such operations. Under SB 1175, CAFOs must obtain licenses, which include a requirement for waste management plans, if the animals are housed primarily in a covered barn, utilize a liquid waste management system and confine 1,000 animal units or more—the equivalent of 2,500 adult pigs or 10,000 weaned swine under 55 pounds.[23] The law is aimed at large hog farms that typically keep hogs tightly confined indoors and that spray liquid manure onto fields. It is intentionally written so as not to cover family farms, in which pigs are typically pastured outdoors and make only occasional use of a covered barn.

The bill ensured that water quality will be monitored through requirements for installation of wells to test water quality that will be installed next to manure lagoons. However, there is still no water monitoring required to check pollution caused by spraying liquid manure onto fields. The legislation does require soil testing, but it is pegged to nitrogen, not phosphorus, which is more likely to accumulate in soil and result in polluted runoff. Another weakness of best management practices required by the Oklahoma law is that farmers can base their application of manure on the maximum uptake of the crop rather than the average uptake of the crop.[24]

Under present law, a new confined swine operation must have a pre-site inspection from a Department of Agriculture official, lagoon inspections during construction and annual inspections of the licensed facility. If the application is protested, an administrative hearing process must be completed before construction may commence.[25]

The state has only eight inspectors for licensed CAFOs.[26]

Cattle feedlots and dry litter poultry operations do not fall under this new law. Another new law passed this session (SB 1170) requires dry litter poultry operations to register with the state. Registration is nothing more than a statement with the farmer's address and information about the size of the poultry

operation and the name of the corporation to which the farmer is under contract.

Under SB 1170, poultry contract growers are supposed to follow best management practices and create waste management plans for handling dry litter. However, the farmer's practices are policed not by the state but by the corporations—frequently poultry processing corporations—with whom the farmer has contracted to grow the chickens. Most of the state's poultry farmers are under contract to large poultry processing corporations. The corporation or vertical integrator (so-called because it usually owns a slaughterhouse as well as the chickens) is responsible for arranging inspections for the poultry operation annually to insure that the farmer is following recommended practices for handling animal waste and for reporting any environmental violations to the state.

The Oklahoma Department of Agriculture's interpretation of the Clean Water Act is that the U.S. Environmental Protection Agency does not require livestock operations to have Clean Water Act permits unless they discharge wastewater directly into waterways. Thus, it does not require confined livestock operations that dispose of waste through land irrigation systems rather than waterway discharges to apply for Clean Water Act permits. Even with the operations that are covered by the Clean Water Act, Region Six general permits only have to file "a finding of no significant impact on water pollution" to obtain a permit.[27]

The resolve of the state to fully implement the new swine factory farm law is already being tested. In July 1998, Tyson Foods announced its intention to vastly expand its operations in three counties by adding 40 new swine production facilities.[28] Though the company has kept the location of these new facilities secret, residents have identified some of the new operations and, so far, most of the facilities appear to be designed to hold fewer than 1,000 animal units, the threshold for a license. One facility is a 10,000-head swine nursery with 11 barns holding nearly 1,000 pigs each. The nursery is sited on land about a mile from the South Canadian River, a major source of drinking and recreational water. On both sides of the river are parcels of land on which manure may be applied, posing serious risk of polluted runoff into the river. Tyson recently declared its intent to apply for a license for this one facility.[29] Another factory farm planned by Tyson, including two double sow barns and a nursery, is within a mile of the Oklahoma Department of Wildlife Conservation's Deep Fork Wildlife Management Area in Okfuskee County near Welty.[30]

The state's new swine law prohibits animal waste handling or management that is likely to contaminate public or private drinking water supplies or to create an environmental hazard. Also, the State Board of Agriculture is authorized to designate an animal feeding operation as a CAFO, which must abide by buffer zones to protect the environment and neighbors, if it is determined to be a significant contributor of pollution to the waters of the state.[31] New siting restrictions established that as of March 9, 1998, no new licensed swine CAFO may be built within three miles of a nonprofit recreational site.[32] Activists believe that Deep Fork Wildlife area qualifies as a recreational site because it allows hunting, among other recreational activities. The Oklahoma Family Farm Alliance and other organizations may petition the Board of Agriculture to designate some of the 40 Tyson facilities as CAFOs if they do not apply for licenses. This would force the facilities to come under licensure and be subject to setbacks, monitoring, inspection and other regulations.

Local Control

An "affected property owner" who wishes to protest an application for a new swine facility in his neighborhood may file a letter of protest with the state Department of Agriculture and request a hearing. For the most part, landowners adjacent to a proposed facility and within one mile of the operation are considered affected property owners. For larger facilities, affected landowners can include those up to two miles from a hog operation.[33] The state's definition of affected landowners is so narrow that property owners downstream from a proposed hog factory farm who are concerned about resulting pollution may have no opportunity to present their views on the proposed facility if they live more than one or two miles away.

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NOTES

1. U.S. Department of Agriculture Livestock Reports, statistics available on the Internet.

2. SB 518, passed in April, 1991.

3. SB 147, passed 1993.

4. Quarterly numbers, published in June by the U.S. Department of Agriculture put the number of Oklahoma hogs at 1.7 million. As noted by Dan Parrish (Director of the Water Quality, Oklahoma Department of Agriculture) to the Joint Legislative Task Force on Animal Waste and Water Quality (February 1998), that count is largely from licensed facilities. When you add unlicensed facilities, the number of swine jumps to about 2 million head.

5. "The Pork Group to Expand Operations in Local Area," *Holdenville Daily News* (July 12, 1998), vol. 91, no. 89, p. 1.

6. U.S. Geological Survey Hydrologic Investigations Atlas, HA-450.

7. Erla Zwingle, "Ogallala Aquifer: Wellspring of the High Plains," *National Geographic Magazine* (March 1993), Vol. 183, No. 3, pp. 83-109.

8. Licensed Concentrated Animal Feeding Operations, Oklahoma Department of Agriculture, Water Quality database.

9. SB 147, passed 1993.

10. Licensed Concentrated Animal Feeding Operations, Oklahoma Department of Agriculture, Water Quality database.

11. Report commissioned by the City of Tulsa and requoted by J.D.Strong, assistant to the Secretary of the Environment (Oklahoma) (September 3, 1998), TulsaWorld (online version _ http://www.tulsaworld.com).

12. Kevin Wagner and Scott Woodruff, Oklahoma Conservation Commission, Water Quality Division, "Phase I, Clean Lake Project: The Diagnostic and Feasibility Study of Lake Eucha, Okla.," Final Report (February 1997).

13. Report commissioned by the City of Tulsa and requoted by J.D.Strong, assistant to the Secretary of the Environment (Oklahoma) (September 3, 1998), TulsaWorld (online version _ http://www.tulsaworld.com).

14. Oklahoma Department of Wildlife Conservation, ongoing study and monitoring of wells at the Canton Lake Wildlife Management Area. Reports from 1997 and 1998.

15. Agenda of State Board of Agriculture, August 26, 1998, Hinton, Oklahoma listed Seaboard's application for the Dorman Sow Site as unopposed. The neighbor who had filed a protest, Jake Slatten, had provided a correct legal description, but had erroneously named the facility. His letter ended up archived in the basement of the Oklahoma Department of Agriculture. The letter by the Oklahoma Department of Wildlife Conservation was not considered by the Oklahoma Department of Agriculture to be either a protest letter or a hearing request.

16. Meeting of State Board of Agriculture (August 26, 1998).

17. Facsimile from Jay Clapp to Dennis Howard, Commissioner of Agriculture (August 24, 1998).

18. Statement by Thomas Lay, Attorney for Seaboard Farms Corporation at prehearing meeting before the Oklahoma Department of Agriculture's administrative law judge as recorded in the Oklahoma Department of Agriculture's Proceedings (September 4, 1998).

19. Dan Parrish and David Jett, Water Quality Division, Oklahoma Department of Agriculture, Presite Inspection Checklist of Dorman Sow Site, Seaboard Farms Corporation (September 9, 1997).

20. Letter from Greg Duffy, Director, Oklahoma Department of Wildlife Conservation to the State Board of Agriculture (August 21, 1998).

21. "Groups Issue Health Warning," *Neosho Daily News* (August 21, 1998).

22. HB 1522, SB 1175 and Oklahoma Department of Agriculture permanent rules.

23. SB 1175, passed by Oklahoma Legislature, May 29, 1998.

24. SB 1175, passed by Oklahoma Legislature, May 29, 1998.

25. SB 1175 and Oklahoma Department of Agriculture permanent rules.

26. Dan Parrish, Director, Oklahoma Department of Agriclture, Water Quality Division, multiple public statements (1998).

27. U.S. Environmental Protection Agency Information Sheet, "EPA Region 6 General Permit for Concentrated Animal Feeding Operations (CAFOs) (February 1993).

28. "The Pork Group to Expand Operations in Local Area," *Holdenville Daily News* (July 12, 1998), p. 1.

29. Testimony from adjacent neighbors, "Save Our State" meeting, Wetumka, Oklahoma (September 5, 1998).

30. Testimony from adjacent neighbors, "Save Our State" meeting, Wetumka, Oklahoma (September 5, 1998).

31. 2 O.S. Supp. 1997, Sections 9-205.3 and 9-204.1.

32. 2 O.S. Supp 1997, Section 9-210.2.

33. The status of affected property owners was changed by SB 1175. Most affected property owners are adjacent landowners who have occupied residences within one mile of swine CAFOs. However, if an applicant for a license intends to confine more than 2,000 animal units (swine), affected property owners are those who have occupied residences within two miles.

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Chapter 21

PENNSYLVANIA

- The state's existing program to control manure pollution is voluntary for most operations in the state and allows practices that contribute to water pollution.

- Agriculture, the second leading source of pollution to Pennsylvania's rivers and streams, is also contributing to the degradation of the Chesapeake Bay's famed shellfish and fish stocks through Pennsylvania's tributaries.

Poultry, pork and dairy production have been a part of Pennsylvania's economy for many years. Recently, the governor has laid out the welcome mat for very large hog facilities and the number of hogs in the state is growing.[1]

Pennsylvania has agreed with other states in the Chesapeake Bay watershed to reduce the levels of nitrogen and phosphorus entering the Susquehanna River (which is the largest tributary to the Chesapeake Bay) by 40 percent by the year 2000.[2] Efforts to meet this goal could be impeded by the nutrient pollution from new factory farms locating in the watershed.

Agriculture is the second leading source of impairment to Pennsylvania's rivers and streams. Siltation and nutrient pollution are the primary agricultural pollutants.[3] Pennsylvania is only now developing a permitting process for factory farms in compliance with the Clean Water Act. The existing nutrient management program designed to control manure pollution (itself less than one year old) is voluntary for most operations in the state.[4]

Pollution Problems

In some parts of Pennsylvania, citizens are worried about pollution from nitrates and the contamination of their drinking water supply.[5] High levels of nitrates in drinking water have been associated with "blue-baby" syndrome in infants, which impairs the baby's bloodstream's ability to carry oxygen. (Nitrate

contaminated well water has also been associated with a recent cluster of miscarriages among women in Indiana. See Indiana chapter.)

Pennsylvania's Lancaster County—known for its dairy, pork and poultry production[6]—has problems with water contamination from nitrates due, in part, to pollution from large and small farms.[7] Lancaster's Conestoga River has the highest concentration of nitrogen and phosphorus of any Susquehanna tributary monitored by the Susquehanna River Basin Commission.[8]

Many of Pennsylvania's surface waters, including Chesapeake Bay tributaries, are also contaminated with nitrates and other animal-related pollutants.[9] The lower Susquehanna watershed, for example, suffers from high levels of nitrogen enrichment.[10]

A glut of the nutrients nitrogen and phosphorus is the leading cause of environmental degradation in the Chesapeake Bay, primarily because it fuels the runaway growth of algae. When algae decomposes, it consumes oxygen, depleting the bay water's oxygen supply, a crucial element for survival of the Chesapeake's famed shellfish and fish stocks.

According to Lamonte Garber of the Chesapeake Bay Foundation, runoff from mismanagement of manure-spreading equipment and manure storage on existing farms has also resulted in a number of fish kills in Pennsylvania streams.[11] One such incident in Cumberland County, near the state capitol of Harrisburg, was reported this spring in the Carlisle, PA newspaper, *The Sentinel:*

> *About 5,000 gallons of liquid pig manure released into the ground at a South Middleton Township farm nearly put a dent in the opening of trout fishing season. Farmer Jonathan Rudolph ... released the manure after a heavy manure spreader twice bogged down in soft ground. Much of the manure found its way into an unnamed tributary of Yellow Breeches Creek, designated a Pennsylvania Scenic River [and a nationally known trout stream]. "The water was tar black—it looked like oil you drain out of your car," South Middleton Township road crew employee Ron Uhler says.... Department of Environmental Protection officials say just about all the minnows, suckers and catfish living in the tributary were killed, but Yellow Breeches appears to have been spared [thanks to the quick response of township officials].... A strong smell of pig manure left little doubt about what was in the creek.*[12]

Regulatory Climate

At the present time, Pennsylvania's main regulatory program for livestock operations is the state's Nutrient Management Act. The act was passed in 1993, but implementing regulations did not become effective until October 1997.[13] Unfortunately, the program is largely voluntary and only operators with high densities of animals (pounds of livestock per acre of land) are actually required to participate. Operators who are required or who elect to participate in the program must prepare and implement nutrient management plans.[14]

However, under state regulations, these plans allow questionable management practices including the winter spreading of manure. Winter manure spreading can lead to pollution of rivers when snow melts,

causing runoff. In addition, when manure is spread on frozen ground, nutrients cannot be absorbed into the soil and are more likely to leach into bodies of water. Another weakness of the regulations is that they limit the spreading of manure based on its nitrogen content, rather than its content of longer-lived phosphorus or harmful heavy metals. Soil tests to evaluate compliance are required only once every six years. Additionally, if an owner sends the manure off-site to another parcel of land, that parcel is not required to be covered by a nutrient management plan.[15]

Until recently, under state water quality laws, Pennsylvania had consistently exempted manure storage facilities and land application of manure from any permitting requirements so long as the operations were in accordance with the antiquated and inadequate state manure management manual.[16]

The state is now in the process of developing a permit program for feedlots under the Clean Water Act and the state's Clean Streams Law. In June 1998, the draft permit program was published for public comment. It proposed that new or expanding CAFOs would be required to obtain so-called water quality management permits (for waste management facilities) as well as state-issued Clean Water Act permits (National Pollutant Discharge Elimination System or NPDES permits). Nutrient management plans would also be required. Details regarding the final program, including relevant permit conditions, remain to be seen.[17] This permitting program will not address air quality problems, since it is limited to water quality protection.[18]

Since CAFOs have received no permits and the state's Clean Streams Law has not been applied to CAFOs, up until now, there has been little programmatic effort in Pennsylvania to monitor or enforce state or federal clean water laws with respect to concentrated animal operations. Any enforcement efforts in the past have been purely complaint driven.[19]

Citizen Involvement

Although permitting requirements are rapidly evolving, opportunities for citizen involvement with respect to the siting, design, construction and operation of factory farms have been extremely limited in Pennsylvania. Up until January 1998, facilities and manure-spreading activities had not been subject to permitting requirements, thus limiting opportunities for citizen comment on such operations. In addition, nutrient management plans prepared under the Nutrient Management Act have generally not been subject to public comment prior to approval.

Typically, citizens could only comment on the construction aspect of a facility, not whether a facility should be allowed to operate. However in certain cases such as when construction/stormwater activities were proposed in high-quality watersheds (those designated as environmentally sensitive), limited citizen input has been allowed.[20] The Pennsylvania Department of Environmental Protection's new permitting strategy will likely include a much broader public participation process.[21]

Local Control

Recently many townships have taken an active interest in directly regulating CAFOs to protect their citizens and communities. So far, Codorus Township in York County has ordinances in place, and Wayne Township in Mifflin County and Swatara Township in Lebanon County are in the process of drawing up their ordinances. A township's ordinances, however, cannot be more stringent than state nutrient management regulations. Agriculture is often additionally protected from nuisance ordinances, such as those limiting odors, by state "right to farm" laws.[22] Townships may retain some zoning authority over agriculture operations, including CAFOs, but many rural townships have not enacted zoning ordinances of any kind.[23]

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NOTES

1. "Japanese are Big on Pigs from Pennsylvania," *The Philadelphia Inquirer* (December 5, 1997), p. C.1.

2. Pennsylvania Department of Environmental Protection, "Pennsylvania's Chesapeake Bay Nutrient Reduction Strategy, Bureau of Land and Water Conservation and Bureau of Water Quality Management" (1996), p. 1.

3. Pennsylvania Department of Environmental Protection, "1998 Water Quality Assessment 305(b) Report," Bureau of Watershed Conservation (1998), p. 30.

4. Pennsylvania State University, "Pennsylvania's Nutrient Management Act: Who Will Be Affected?" *Agronomy Facts* 54 (1997).

5. "Experts Warn of High Nitrate Levels in Private Wells Here," *Intelligencer Journal* (April 1989), p. B-1.

6. Pennsylvania Department of Agriculture, "Statistical Summary" (1997), pp. 18-26.

7. Susquehanna River Basin Commission, *Loads and Yields of Nutrients and Suspended Sediment Transported in the Susquehanna River Basin*, 1985-1989" (1991), p. 142-143.

8. Susquehanna River Basin Commission, *Loads and Yields of Nutrients and Suspended Sediment Transported in the Susquehanna River Basin*, 1985-1989 (1991), p. 142-143.

9. U.S. Geological Survey, "Synthesis of Nutrient and Sediment Data for Watersheds Within the Chesapeake Bay Drainage Basin" (1995), p. 19-24.

10 U.S. Geological Survey, "Synthesis of Nutrient and Sediment Data for Watersheds Within the Chesapeake Bay Drainage Basin" (1995), pp. 19-24.

11. Lamonte Garber, Chesapeake Bay Foundation, personal correspondence (August 31, 1998).

12. Dave Blymire, "Manure Pollutes Creek, Playground," *The Sentinel*, Carlisle, Pennsylvania (April 15, 1998).

13. Pennsylvania State University, "Nutrient Management Legislation in Pennsylvania: A Summary of the Final Regulations" (1997).

14. Pennsylvania State University, "Nutrient Management Legislation in Pennsylvania: A Summary of the Final Regulations" (1997).

15. Pennsylvania State University, "Nutrient Management Legislation in Pennsylvania: A Summary of the Final Regulations" (1997).

16. Chesapeake Bay Foundation, "Improving Water Quality Through Effective Implementation of Pennsylvania's Manure Management Regulations" (1989), p. 7.

17. Pennsylvania Department of Environmental Protection, "Proposed Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations" (July 1998).

18. Pennsylvania Department of Environmental Protection, "Proposed Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations" (July 1998).

19. Chesapeake Bay Foundation, "Improving Water Quality Through Effective Implementation of Pennsylvania's Manure Management Regulations" (1989), p. 7.

20. Personal communication between Rebecca Knuffke and Lamonte Garber, Chesapeake Bay Foundation (August 31, 1998).

21. Pennsylvania Department of Environmental Protection, Proposed Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations (July 1998).

22. Pennsylvania State University, "Nutrient Management Legislation in Pennsylvania: A Summary of the Final Regulations" (1997).

23. Earl Mummaw, Address to the Pennsylvania Planners Association (January 16, 1998).

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Chapter 22

SOUTH DAKOTA

- The state has failed to respond promptly to manure spills and to enforce permit measures that could have prevented environmental pollution.
- South Dakota's permit system allows virtually no public say in the siting or operation of individual animal factories.
- Recently voters passed a referendum to limit non-family corporations from owning livestock.

South Dakota is a state dependent upon agriculture. Throughout the state's history, family farms have formed the basis of South Dakota's economy and rural communities. Family farmers, however, are becoming increasingly vulnerable to economic failure as they are battered by weather disasters, low grain prices and dwindling federal assistance. Over the last few years, South Dakota farmers have experienced floods, drought and record cold and snow, which in many cases killed livestock and kept farmers from harvesting and planting their crops.

It is becoming evident that a combination of hardships will force South Dakota farmers off the farm in droves, paving the way for large corporate-owned factory farms to take their place in the farm economy, predicts John Bixler of Dakota Rural Action.

In the summer of 1996, South Dakota suddenly became a target for factory hog farms. Two large food corporations, Tyson Foods Inc. and Murphy Family Farms, announced plans to site facilities throughout South Dakota.

Up until recently, South Dakota was relatively free of factory farms. In March of 1997, South Dakota's Department of Environment and Natural Resources (DENR) only had 35 large-scale livestock operations on their weekly permit list. By March 1998, that number had escalated to 94.[1]

On November 3, 1998, the South Dakota voters amended the state's Constitution by passing Constitutional Amendment E by a vote of 59-41 percent. Amendment E will limit non-family farm corporations from owning livestock and will significantly slow the proliferation of factory farms in South

Dakota.

Pollution Problems

South Dakota's DENR has gotten off to a poor start with its oversight of CAFOs. At a time when the DENR had only a handful of facilities to oversee, substantial manure spills and overflows occurred. Now that there has been a dramatic growth in applications for permits from animal factories, future oversight by the state agency is a concern.

Two recent cases described in detail below illustrate major deficits in South Dakota's permitting, inspection and response to CAFO manure spills. In one case, involving the Pires Dairy, the DENR placed permit conditions on the facility aimed at protecting the environment but failed to properly to verify that the conditions were being met, ending in the spilling of some 300,000 gallons of animal waste. In another case, involving the Schneck Farm Dairies, the DENR delayed a full week before visiting a site where a manure spill had been reported.

When the South Dakota DENR approved a manure management system for the Pires Dairy in 1996, it placed numerous conditions aimed at protecting water quality on the permit. The 1,550-head dairy cattle feeding operation owned and managed by Joe L. Pires in Brookings County had to provide regular water quality samples to the department and keep its manure lagoon regularly lowered, among other conditions, in order for its approval to remain valid.[2]

On March 11, 1997, the DENR observed wastewater from the animal waste lagoon at Pires Dairy flowing over the top of the pond dike. The following evening, Pires Dairy began pumping wastes from the pond and spraying the wastes on snow-covered and frozen ground—in violation of its state-approved plan for managing waste. Sometime during the night, the irrigation pipe broke, allowing the wastes to flow into a tributary of Medary Creek. Larry Pires, dairy manager, estimated that the leak from the irrigation system went unnoticed for six to eight hours. Using conservative figures, the irrigation system leaked a total of between 252,000-336,000 gallons of waste while it was out of control.[3]

After the spill occurred, the DENR concluded that Pires Dairy had failed to meet every single condition of its permit and cited Pires Dairy for violation of the state Water Pollution Control Act. After a year of operation, Pires Dairy had failed to empty a lagoon that had a capacity of only 180 days and had failed to submit water samples from monitoring wells that were supposed to be constructed around the dairy's manure lagoon to check pollution levels.[4] The owner's failure to submit the required water samples, along with other required testing results and plans,[5] should have triggered action on the part of DENR. The spill could have been completely avoided if the DENR had monitored the situation to confirm that the conditions of the permit were met.

While the Pires Dairy spill is an example of poor preventive measures by state officials, the Schneck Dairy spill illustrates major lapses in the state's reaction to reported dairy spills.

On March 10, 1997, the lagoons used to store wastes from the 1,700-head Schneck Dairy began to overflow. The overflow was first reported to DENR officials on March 11 by a member of Dakota Rural Action. The DENR told the individual who reported the matter that the department did not act on "complaints" unless they were in writing, signed and submitted to the DENR.[6] The individual told the

DENR that the lagoons were overflowing as they spoke and that by the time he could get the paperwork done and mailed into the DENR, the damage would be done. The DENR insisted on a written complaint.

The individual went ahead and filed the complaint but wanted quicker action, so he decided to call the Minnesota Pollution Control Agency. He thought Minnesota would be interested because the spill was flowing onto the Yellow Bank River, which flows into the Minnesota River.

Minnesota Pollution Control responded quickly, sending an inspector to the site on March 15. The agency determined that the spill was significant enough to justify a return trip for a more thorough inspection. Meanwhile, South Dakota inspectors did not make it to the site until March 17, two days after the Minnesota inspectors' visit and one full week after the spill occurred.[7] Once at the site, DENR made little more than a token inspection. Despite evidence from Minnesota environmental officials to the contrary, DENR continues to insist that there had been no environmental damage. South Dakota's inspectors concluded that the manure had not reached the Yellow Bank River.[8]

Minnesota Pollution Control inspectors Craig Schafer and Kevin Malloy came to a different conclusion when they returned for a second inspection on March 18, bringing along a video camera to document their findings. At first glance, the manure was not immediately visible because there had been a heavy snowfall between the spill and the inspection. Upon closer inspection, the Minnesota inspectors concluded that a significant amount of manure had flowed across the adjacent field and spread over a stretch of the mostly frozen river. Minnesota inspectors brought shovels with them and easily traced the path of the manure flow. The videotape shows the Minnesota inspectors uncovering thick deposits of manure on the river.[9]

As late as May 1997, South Dakota's environmental officials continued to insist that there was no evidence that the river was affected by the manure. But Minnesota's environmental officials maintained the liquid manure had flowed into the north fork of the Yellow Bank River, even after Schneck Dairy's workers tried to clean up the spill. "There's no way they could get all the manure off the ice. So where did it go?" said Minnesota Pollution Control's Kevin Malloy. "It was liquid enough to flow. How can anybody say it didn't melt through the ice?"[10]

Regulatory Climate

South Dakota has instituted a process for granting general water pollution control permits to swine CAFOs with the exception of dry litter poultry facilities. The permit process for swine became effective on February 1, 1997.[11] Other CAFOs were covered as of January 1998.

The permit process falls short of protecting the state's environment on numerous counts, according to Dakota Rural Action, which contested the permit in a hearing before the DENR in 1996.[12]

Nowhere in the general permit process is there room for public input on an individual facility. There are no hearings and there is no process for public review or comment.[13] The permit does require a 30-day public notice in the local newspaper, but the state provides no formal forum for any member of the public to comment during this period.[14] Lack of public input is a problem across the board—but even more of a problem in counties without zoning. In these instances, major facilities can go from proposal to construction to operation without a single hearing.

The process used to draft the general permit was exclusionary, citizens' groups contend. The state DENR did hold a public hearing to accept testimony on its draft general permit. But the agency wrote the bulk of its proposal in early drafting sessions attended by major farm organizations, including the South Dakota Pork Producers Council,[15] according to John Bixler of Dakota Rural Action. Citizens' groups and environmental groups were not invited to participate in these drafting sessions, according to Bixler.

At a 1997 legislative briefing called by the department to release its draft permit approach, agency officials also released model regulations for local governments to consult in zoning CAFOs. In this document, the department specifically thanked the South Dakota Pork Producers Council and its Environmental Committee for its input in drafting the model zoning regulations.[16] Citizens' groups were not invited to participate in the drafting of these model regulations either, according to Dakota Rural Action's Bixler. Though purely voluntary, these model zoning regulations have been influential in localities where local governments are writing new zoning ordinances to control feedlots, according to Bixler.

The general permit has many shortcomings. Like other "zero discharge" permits, the facilities are allowed to discharge manure into South Dakota waterways in the case of "chronic or catastrophic" rainfalls. These are defined as "a single or series of rainfall events in a short period of time, exceeding the volume of a 25-year, 24-hour storm event" (a storm so severe it is only expected to occur once every 25 years).[17]

The general permit does not require bonding or insurance to assure for appropriate clean-up in the case of intentional discharge or unintentional spills/overflows. The general permit does not mention air quality standards or controls. Its restrictions on siting of animal confinement facilities over South Dakota's shallow aquifers are weak, leaving the determination up to counties that have been reluctant to impose controls.[18] The general permit acknowledges both surface and groundwater pollution concerns in advising best management practices for handling manure, for example, but the prescription for preventing contamination from spills consists of "recommendations" on avoiding problems rather than clear mandates. Groundwater monitoring is limited to those cases at the agency's discretion.[19]

The general permit program does, however, increase inspections to one during construction of the animal factory and then annually for factory farms with more than 2,000 animal units and every three years for all other CAFOs.[20] According to John Bixler of Dakota Rural Action, however it is not clear whether this schedule is being met.

Local Control

Many counties have zoning, but the ordinances were drafted at a time when the state had very few factory farms. Approximately one-third of the counties have no zoning at all, while many other counties have no reference to CAFOs in their zoning ordinances.[21]

According to John Bixler of Dakota Rural Action, when proposals for new factory farms crop up in local communities today, counties scramble to figure out how to react. Rather than taking the time to put together a carefully considered zoning ordinance, county commissioners feel the pressure to move quickly and make do with an inadequate ordinance or adopt a hastily drafted proposal. Local zoning

ordinances relating to feedlots vary widely from one county to another. The confusion is so great in some cases that it is hard for citizens to know the rules.

One county may require a simple majority for approval of a zoning-related decision while another county may require a super-majority for an identical decision. One county may have the zoning board make zoning related decisions, while in other counties the zoning board simply makes recommendations to the county commission. In some counties, the zoning board is also the county commission. Sometimes the same group of five or seven people is asked to make a decision as the zoning board and then has to adjourn and reconvene as the county commission to make the final decisions. This in turn causes much confusion over public notice for hearings.

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NOTES

1. South Dakota Department of Environment and Natural Resources, "Weekly Report—Plans and Specifications (March 26, 1997) and "Manure Management System Plans and Specifications" (March 11, 1998).

2. South Dakota Secretary of the Department of Environment and Natural Resources, "Amended Notice of Violation and Order in the Matter of Joe L. Pires & Company Dairy's Discharge into the Environment" (April 26, 1997; final date).

3. South Dakota Secretary of the Department of Environment and Natural Resources, "Amended Notice of Violation and Order in the Matter of Joe L. Pires & Company Dairy's Discharge into the Environment" (April 26, 1997; final date).

4. South Dakota Secretary of the Department of Environment and Natural Resources, "Amended Notice of Violation and Order in the Matter of Joe L. Pires & Company Dairy's Discharge into the Environment" (April 26, 1997; final date).

5. South Dakota Secretary of the Department of Environment and Natural Resources, "Amended Notice of Violation and Order in the Matter of Joe L. Pires & Company Dairy's Discharge into the Environment" (April 26, 1997; final date).

6. State of South Dakota Department of Environmental and Natural Resources Complaint Form.

7. South Dakota Department of Environment and Natural Resources, Schneck Discharge Chronology (date

unknown).

8. Kevin Woster, "Minnesota, South Dakota Split," *Argus Leader* (May 4, 1997).

9. Minnesota Pollution Control Agency, videotape recorded March 18, 1997, narrated by Craig Schafer and Kevin Malloy.

10. Kevin Woster, "Minnesota, South Dakota Split," *Argus Leader* (May 4, 1997).

11. South Dakota Department of Environment and Natural Resources, "General Water Pollution Control Permit for Concentrated Swine Feeding Operations," Permit No. SDG-0440000 (January 21, 1997; effective date February 1, 1997).

12. State of South Dakota Department of Environment and Natural Resources, "Petition for Contested Hearing in the Matter of General Water Pollution Control Permit for Swine Feeding Operations, Dakota Rural Action, Petitioner" (November 27, 1996).

13. State of South Dakota Department of Environment and Natural Resources, "Petition for Contested Hearing in the Matter of General Water Pollution Control Permit for Swine Feeding Operations, Dakota Rural Action, Petitioner" (November 27, 1996).

14. South Dakota Department of Environment and Natural Resources, Chart-Process to Obtain State Approval for New or Expanding Swine Units under the General Permit.

15. Nettie H. Myers, Secretary, South Dakota Department of Environment and Natural Resources, "Legislative Briefing on the Water Pollution Control General Permit for Swine Feeding Operations in South Dakota" (January 22, 1997). This briefing document on the draft general permit lists the South Dakota Pork Producers Council as an organization that cooperated in developing model regulations. The draft general permit and model zoning regulations for CAFOs were released together at the legislative briefing.

16. "Model County Zoning Regulations for Concentrated Animal Feeding Operations" (September 1996). The cover page notes "These model regulations were prepared at the request of the South Dakota Pork Producers Environmental Committee."

17. State of South Dakota Department of Environment and Natural Resources, "Petition for Contested Hearing in the Matter of General Water Pollution Control Permit for Swine Feeding Operations, Dakota Rural Action, Petitioner" (November 27, 1996).

18. State of South Dakota Department of Environment and Natural Resources, "Petition for Contested Hearing in the Matter of General Water Pollution Control Permit for Swine Feeding Operations, Dakota Rural Action, Petitioner" (November 27, 1996).

19. South Dakota Department of Environment and Natural Resources, "General Water Pollution Control Permit for Concentrated Swine Feeding Operations," Permit No. SDG-0440000 (January 21, 1997; effective date February 1, 1997).

20. S.D. C.L. 1-40-38.

21. "South Dakota County Zoning," property of Planning and Development District III (November 10, 1996). Information was obtained by a telephone survey.

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Chapter 23

TENNESSEE

- Tennessee has never exercised its Clean Water Act permitting authority over factory farms.
- Because of the lack of water pollution control permits, the public has had no opportunity to comment on individual operations before an animal factory begins operating.
- Land application of animal manure is essentially unregulated.

The state is beginning to see the influx of factory farms. According to the Tennessee Department of Agriculture (TDA), Tennessee is estimated to have a combined total of 23 hog, dairy, and beef CAFOs.[1] For operations between 301 and 1,000 animal units there are five slaughter cattle operations, 104 swine feedlots, and 99 dairy cattle farms.[2]

Pollution Problems

Much of Tennessee relies on surface water and groundwater found in limestone formations for its public and private water supplies.[3] Some animal operations (primarily small or large dairies) are located on or near limestone formations, especially in middle and eastern Tennessee. The limestone is permeable and subject to cracks, seepage, and collapse. These connections between surface and groundwater can carry pollution underground very quickly. This results in several dangers:

- Lagoons built on karst—a type of geology characterized by limestone openings to groundwater—are likely to leak.
- Manure applied to the ground's surface or leaking from a lagoon may end up in the groundwater.

- In karst areas, wells near feedlots are at particular risk of bacterial contamination from the lagoons.

Generally, the state continues to suffer from overall water quality degradation. Approximately 25 percent of the state's stream miles are classified by the state as "impaired," meaning they are so polluted that they no longer support such designated uses as fishing, swimming and aquatic life. Animal operations are identified as one of the contributors to this water pollution.[4] Pollution problems include excess bacteria and organic enrichment in many of the state's rivers and streams. The most recent assessment by the state identifies several streams and lakes as specifically polluted by feedlots and animal operations.[5] These include Cypress Creek in Shelby County, Swan Creek in Lincoln County and Lick Creek in Hickman County.

Regulatory Climate

Tennessee is one of 42 states to which the U. S. Environmental Protection Agency (EPA) has delegated authority to issue Clean Water Act permits to all pollution sources. The Tennessee Department of Environment and Conservation (TDEC), the state's environmental regulatory agency, is supposed to issue the permits, including permits to CAFOs. However, none of Tennessee's existing large-scale animal facilities have ever been permitted.[6]

Tennessee is currently in the process of drafting a Clean Water Act administrative strategy designed to create a permitting system for CAFOs. Two categories of permits have been proposed:

- Individual Clean Water Act permits (National Pollutant Discharge Elimination System or NPDES), which would apply to large CAFOs—those with 1,000 animal units or more. As with all individual Clean Water Act permits, citizens would be given public notice and the opportunity to comment before a permit is issued.[7]

- A general permit for smaller facilities and dry litter poultry operations. As with other Clean Water Act general permits, the permit would set no site-specific conditions for individual facilities. Coverage under the permit would be granted without notification to the surrounding community.[8]

The draft strategy would require feedlot operators to prepare a Nutrient Management Plan, which would be approved by the TDA, a non-regulatory agency.[9] It is not clear whether these plans will be part of the permits and open to public review or kept on-site by the operators and separate from the regulatory program. Presently, land application of animal waste is essentially unregulated, but problems can be forwarded to the agencies for them to evaluate and try to correct.

The state is apparently reluctant to authorize a program perceived as so burdensome that it would be in conflict with its pro-farm Right to Farm legislation.[10]

Following public protests over the lack of citizen participation in the drafting of the strategy, the TDEC recently announced a series of public hearings to explain the strategy and to take comments on the proposed general permit for smaller operations.

In Tennessee, regulatory inspections of operations are nearly always complaint-driven. Under an

interagency agreement, complaints are generally referred to the TDA which attempts to fix problems through assistance, such as technical help with designing manure handling, rather than regulation.[11] TDA has the option of returning the complaint to the TDEC for further action if pollution problems are not corrected. TDEC has no inspectors routinely assigned solely to feedlots, while TDA has eight people statewide to handle feedlot complaints along with other duties.[12]

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NOTES

1. Memorandum from Mike Countess, Assistant Commissioner, Tennessee Department of Agriculture to Barry Sulkin, Tennessee Environmental Council, (April 17, 1998) with attached 2 page (draft) table of animal operations by size and county.

2. Memorandum from Mike Countess, Assistant Commissioner, Tennessee Department of Agriculture to Barry Sulkin, Tennessee Environmental Council, (April 17, 1998) with attached 2 page (draft) table of animal operations by size and county.

3. Tennessee Division of Water Pollution Control, "The Status of Water Quality in Tennessee—1996 305(b) Report," pp. 91-97.

4. Tennessee Division of Water Pollution Control, "The Status of Water Quality in Tennessee_1996 305(b) Report," pp. 54-59.

5. Tennessee Division of Water Pollution Control, "Draft 1998 303(d) List."

6. Personal communication between John McClurkan, Tennessee Department of Environment and Conservation and Barry Sulkin, Tennessee Environmental Council (August 17, 1998).

7. Tennessee Department of Environment and Conservation/Tennessee Department of Agriculture, "State of Tennessee Strategy for Animal Feeding Operations" (July 29, 1998).

8. Tennessee Department of Environment and Conservation/Tennessee Department of Agriculture, "State of Tennessee Strategy for Animal Feeding Operations" (July 29, 1998).

9. Tennessee Department of Environment and Conservation/Tennessee Department of Agriculture, "State of Tennessee Strategy for Animal Feeding Operations" (July 29, 1998).

10. Tennessee Department of Environment and Conservation/Tennessee Department of Agriculture, "State

of Tennessee Strategy for Animal Feeding Operations" (July 29, 1998).

11. "A Memorandum of Agreement Between the Tennessee Department of Agriculture and the Tennessee Department of Environment and Conservation, Division of Water Pollution Control" (July 1995).

12. Personal communication between Jim Nance, Tennessee Department of Agriculture, and Barry Sulkin, Tennessee Environmental Council (September 4, 1998).

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Chapter 24

TEXAS

- Texas suffers significant river pollution from dairy factory farm operations.
- Residents in the Texas Panhandle fear that rapidly expanding swine factory farms will degrade the groundwater and the air in their region.
- The state has severely restricted citizens' rights to block new factory farms or to prevent huge expansions in their localities.

For more than 30 years, large cattle feedlots have operated in West Texas, but since the 1980s the number of dairy, poultry and swine factory farms have increased substantially.

In 1988 there were 116 dairies in Erath County (the state's largest milk-producing county); by August 1994 there were 250 dairies in the area.[1] At that time, the Texas Water Commission estimated that new dairies were opening at a rate of about one a month, and most of them were large.[2]

Along the northern and western borders of the Texas Panhandle, the state permitted massive new swine operations in the mid-1990s. The largest of these facilities are still under construction. By 1999 Texas Farms, Inc. will have a quarter million pigs in confinement, while Premium Standard will hold over a million, according to their permit.[3]

Even in the state's traditionally large cattle sector, fewer, larger feedlots are producing more of the state's beef than ever before. In 1965, there were 178,000 cattle operations in Texas.[4] By 1996, the number had dropped to 149,000.[5] But the cattle inventory increased over this same period from 10 million to 14 million—nearly 4 million more animals in 30,000 fewer operations.[6] The largest cattle feedlots, primarily located in West Texas and the Panhandle, now confine as many as 80,000-100,000 head.[7]

Pollution Problems

Texas suffers significant water pollution from confined animal feeding operations. Waste from Erath County dairies has significantly degraded the Bosque River and the creeks of the Upper Bosque. The Texas Institute for Applied Environmental Research (TIAER) at Tarleton State University began to test sites in the North Bosque River watershed above Hico, Texas, for fecal coliform in 1995. TIAER found that substantially elevated fecal coliform levels were correlated with the application of dairy manure to the fields.[8] Over several years, TIAER conducted in-depth studies of in-stream water quality during storm events, and found "the dairy industry emerges as the major contributor to nutrient loading."[9] In particular, TIAER scientists found elevated phosphorus levels specifically associated with fields where animal manure had been applied.[10] Texas regulations restrict application of manure and lagoon effluent to the nitrogen requirements of the crops, which typically leads to substantial over-application of phosphorus.[11]

The Bosque is the major tributary to Lake Waco, source of the city of Waco's drinking water. The City of Waco regularly tests for *Cryptosporidium*, a parasite from animal waste harmful to human health, and has regularly found it in test samples.[12]

Swine factory farm operations and cattle feed yards also represent a threat to the state's waters and wildlife. In Randall County, one of the counties with the greatest concentration of beef feedlots in the state, 44 cattle CAFOs are located in a watershed that is also home to Buffalo Lake National Wildlife Refuge. The Tierra Blanca Creek, a waterway in the Panhandle that is dried up during parts of the year, flows into Buffalo Lake National Wildlife Refuge. During the 1960s and 1970s several fish kills occurred at Buffalo Lake, within the Refuge. These kills were attributed to surface water runoff from cattle feedlots upstream. According to the U.S. Fish and Wildlife Service, poor water quality and reduction in flow in Tierra Blanca Creek resulted in the eventual disappearance of the lake. But the former lakebed still receives drainage from surrounding creeks intermittently and is in a 1,700-square mile watershed that supports endangered species, such as the Bald eagle. "If a storm occurs in this watershed that exceeds current wastewater retention system designs, it would be expected that the stream would receive inflow of untreated wastewater from multiple CAFOs. In turn, based on the language of the proposed general permit, the National Wildlife Refuge could possibly receive up to 22,000,000 gallons of raw, untreated wastewater in a given 24-hour period," the U.S. Fish and Wildlife Service has stated.[13]

Cattle feedlots and pig farms are frequently located near the numerous "playa" lakes that dot the High Plains. Playa lakes are large, circular, natural depressions where water collects and seeps slowly down into the Ogallala Aquifer, the major source of both drinking and irrigation waters for the region.[14] The land throughout the Panhandle is also perforated with incompletely plugged wells, test holes, oil and gas wells, and other borings. During rainstorms or when playa lakes or lagoons overflow, water will drain directly through these holes into the Ogallala aquifer, carrying any polluted animal waste along with it. Residents throughout the Panhandle believe a significant threat to the aquifer is posed by these man-made holes in combination with seepage from the playa lakes, which can act like giant puddles to receive polluted wastewater from overflowing manure lagoons and feedlots. For years, farmers in the region used playa lakes as retention ponds for wastewater runoff. The state still allows farmers to use the playa lakes for this purpose if they started doing this prior to September 1, 1993.[15] Of particular concern to local residents are the state's design standards for CAFO lagoons allowing clay liners, which can crack

after long droughts, and the lack of leak detection and ground water monitoring.[16]

People living near expanding swine- and cattle-feeding operations face significant air pollution as well. Cattle in feedlots stand on piles of manure. In the hot, dry West Texas summer evenings, as the cattle rise and move in their pens, plumes of manure dust lift from under their hooves and travel miles in the wind.[17] Studies have found particulate levels significantly above both state and federal Environmental Protection Agency (EPA) standards around cattle feedlots.[18] A number of people who live near feed yards have reported health problems related to the dust, including excessive allergic reactions and asthma. In at least one case, a family moved from its homestead of more than 100 years after a two-year old developed severe respiratory problems, which led to hospitalization.[19]

In addition to feedlot dust, the odors from cattle, poultry and swine operations can sometimes be overwhelming. Animal manure odor is composed, among other things, of ammonia and sulfides (including hydrogen sulfide)[20]—and swine manure odor is a combination of at least 121 different compounds.[21] Swine odors emanate from barns, anaerobic waste lagoons, and wastewater during field applications.[22] It stinks; even those in the industry agree with that.[23] Although high levels of manure dust or organic compounds from manure gasses may affect people's health and well being,[24] the Texas Natural Resource Conservation Commission (TNRCC) has no specific regulations related to odor control, except that no CAFO can create a nuisance.[25] Nor do TNRCC rules address the concern expressed by many adjacent landowners that the smell and flies significantly devalue their property.

Regulatory Climate

Prior to 1987, CAFOs in Texas did not have to get a permit from the Texas Water Commission or the Air Control Board (now combined into the Texas Natural Resource Conservation Commission). In 1987, due to the developing pollution problems on the Bosque River, the Water Commission drafted CAFO rules that required all CAFOs (above 1,000 head of cattle, 250 dairy cows, or 2,500 pigs) to get a permit.[26] Adjacent and downstream landowners were given the opportunity to contest the permit or require additional environmental protections before it was awarded.

Because the state allowed downstream and adjacent neighbors an opportunity for a formal contested case hearing, many new permits in Erath County were denied or significantly modified to protect the environment, according to Stuart Henry, an Austin attorney representing many of the citizens contesting permits. After complaints from CAFO operators and others about the burdensome hearing process, however, the legislature passed a bill to limit access to the contested case process at TNRCC.[27] Today, TNRCC staff must determine in advance if a person's petition has "technical merit." In practice, this means citizens must present all the evidence they need to prove they can win their case, including a demonstration of the harm that might result from the permit, just to gain standing as a party for a hearing.[28] Although many people filed protests against granting Texas Farms, Inc. a swine permit and against granting Koch Beef a feed lot expansion permit, for example, none of the petitions were deemed to have "technical merit."[29] Permits renewals, as opposed to new permits or permits for expanded operations, may be approved without opportunity for public hearing or comment unless there has been a "formal, major enforcement action."[30]

Currently, both TNRCC and the EPA Region Six have a general permit,[31] which imposes few significant

controls on facilities that do not discharge into surface waters.[32] General permits tend to be one-size-fits-all permits no matter what special environmental problems a particular factory farm might pose. For example, the Texas state performance criteria for CAFOs do not address the cumulative environmental impact of new or expanded CAFOs in areas that already contain a large number of confined animal operations.[33] The new state rule requires no water quality monitoring to ensure that polluted water is not entering the aquifer through man-made holes, playa lakes or manure lagoons.[34] The rules establish a quarter-mile buffer zone around new facilities of all types and sizes to protect homes and surrounding landowners from odors, but existing CAFOs may substitute an odor control plan.[35] While the Region Six general permit has been operating in Texas for many years, EPA has recently delegated authority to Texas to operate its own NPDES program for most CAFOs.[36]

Local Control

Texans have few legal rights with respect to existing CAFOs. The Texas Right to Farm Act prevents neighbors from filing a nuisance suit against a CAFO once it has been established for one year or more.[37] Counties and cities do have the right to enforce air and water standards and the right to sue for violations within their jurisdictions. But they do not have the right to prevent a CAFO from being established within their jurisdiction. TNRCC has exclusive permitting jurisdiction over the whole state.[38]

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NOTES

1. Texas Institute for Applied Environmental Research, *Dairy Map of Erath County Area* (August 1994).

2. Texas Water Commission, *Non-Point Source Water Pollution Management Report for the State of Texas* (August 1988), p. 226.

3. TNRCC Air and Water Quality Permit-by-rule to Operate Concentrated Animal Feeding Operation, No. 03876, Texas Farms, Inc. (February 12, 1996). Permit for a swine feeding facility to confine a maximum of *249,600* head with 26 lagoon systems. TNRCC Air and Water Quality Permit-by-Rule to Operate Concentrated Animal Feeding Operation, No. 03444, Premium Standard Farms Inc. (July 11, 1997). Permit for a swine facility to confine a maximum of *220,000* head using three above ground metal effluent holding tanks. TNRCC Permit to Dispose of Waste, No. 03755, Premium Standard Farms Inc. (December 12, 1994). Permit for swine operation which will have a maximum of *925,000* total head of sows, boars, baby pigs, nursery, finish and replacement stock using 25 anaerobic digesters and 25 lagoons.

4. Texas Agricultural Statistics Service, "1867-1990 Texas Historic Livestock Statistics," p. 3.

5. Texas Agricultural Statistics Service, "Texas Agricultural Statistics, 1996" (September 1997), p. 29.

6. Texas Agriculture Statistics Service, "Texas Agricultural Statistics, 1996" (September 1997), p. 30; "1867-1990 Texas Historic Livestock Statistics," p. 7.

7. Texas Natural Resource Conservation Commission (TNRCC) Permit to Dispose of Waste No. 01378, Cactus Feeders, Inc. (September 29, 1995), Permit for 88,710 head feedlot; TNRCC Permit to Dispose of Waste No. 01551, Koch Beef Co., June 20, 1997, Permit for 80,000 head feedlot; TNRCC Permit to Dispose of Waste No. 01673, XIT Feeders (June 26, 1991), Permit for 80,000 head feedlot; TNRCC Amendment to Permit to Dispose of Waste No. 01400, Livestock Investors, Inc. (September 29, 1995), Permit expanded from 70,000 to 100,000 head; TNRCC Permit to Dispose of Waste No. 01770, Coronodo Feeders (March 31, 1997), Permit for 80,000 head.

8. Bosque River Advisory Committee, Briefing Papers, *Fecal Coliform, Their Presence and Meaning*, Stephenville, Texas (January 23, 1996), p. D-3-5.

9. Anne McFarland and Larry Hauck, *Livestock and the Environment: Scientific Underpinnings for Policy Analysis*, Report No. 1, Texas Institute for Applied Environmental Research, Tarleton State University (September 1995).

10. Anne McFarland and Larry Hauck, *Livestock and the Environment: A National Pilot Project*, Texas Institute for Applied Environmental Research, Tarleton State University (June 1997), pp. 68-69.

11. Anne McFarland and Larry Hauck, *Livestock and the Environment: A National Pilot Project*, Texas Institute for Applied Environmental Research, Tarleton State University (June 1997), p. 70.

12. Provided by City of Waco, Texas; produced by Analytical Services, Inc., ICR Girdia and Cryptosporidium Analytical Report for the Reporting Period: August 11, 1997 through October 15, 1998.

13. Letter from Robert Short, U.S. Fish and Wildlife Service to Texas Natural Resource Conservation Commission (April 10, 1998).

14. J.M. Sweeten, "Groundwater Quality Near Two Cattle Feedlots in Texas High Plain: A Case Study," *ASAE*, Vol. 11, No. 6 (November 1995), p. 845.

15. CAFOs that drained wastewater into playa lakes before September 1, 1993, may continue to discharge their wastewater into the playa lakes under state law. New CAFOs, which were not discharging before September 1, 1993 may not discharge wastewater directly into playa lakes without a special permit. Texas Water Code, Sec. 26.048.

16. David Hale, Mayor, City of Perryton, "Comments Regarding Texas Natural Resource Conservation Commission's (TNRCC) Proposed General Permit, and Comments to The Environmental Regulations Committee" (April 10, 1998); Letter from John J. Vay, representing landowners in Ochiltree and Johnson Counties, to TNRCC, related to CAFO Rules/General Permit (April 13, 1998).

17. Texas Natural Resource Conservation Commission (TNRCC), Complaints filed by residents living 3 miles from Palo Duro Feedyards in Hansford County. Also, TNRCC Permit No. 01551, letters of protest (related to dust as well as flies and odor) to TNRCC against expansion of Koch Beef Company (February and March 1997).

18. John M. Sweeten, et al., "Dust Emissions in Cattle Feedlots," *Veterinary Clinics of North America: Food Animal Practice* (November 1998), Vol. 4, No. 3, p. 577; J.W. Algeo, et al., "Feedlot Air, Water and Soil Analysis. Bulletin D: How to Control Feedlot Pollution," California Feeders Association, Bakersville, California (July 1972).

19. Letter from Simon and Elizabeth Jimenez to Texas Natural Resource Conservation Commission related to Koch Beef (March 10, 1997); Correspondence to Rick Costa, Air Program Manager, TNRCC, from S. Shawn Stephens on behalf of Mr. David Bergin (May 11, 1995).

20. J.M. Sweeten, "Odor Control from Poultry Manure Composting Plant using a Soil Filter," American Society of Agricultural Engineers (July 1991), Vol. 7(4) , p. 439.

21. John M. Sweeten, "Odor Abatement: Progress and Concerns," Paper for the National Poultry Waste Management Symposium, Harrisburg, PA (1996).

22. Ronald Miner, "A Review of the Literature on the Nature and Control of Odors from Pork Production Facilities," for the Odor Subcommitee of the Environmental Committee of the National Pork Producers Council (September 1, 1995).

23. Kay Ledbetter, "Swine Raisers Employ Numerous Odor Eaters, With Varying Degrees of Success," *Amarillo Globe News* (May 28, 1998).

24. Ronald Miner, "A Review of the Literature on the Nature and Control of Odors from Pork Production Facilities," for the Odor Subcommitee of the Environmental Committee of the National Pork Producers Council (September 1, 1995), p. 11; S.S. Schiffman, et al., "The Effect of Environmental Odors Emanating from Commercial Swine Operations on the Mood of Nearby Residents (Review)," *Brain Research Bulletin* (1995), vol. 37(4), pp. 369-375.

25. 30 Texas Administrative Code (TAC), Sub K, section 321.181(c); 30 TAC, Sub B, section 321.33(e).

26. 30 Texas Administrative Code, Sub B, section 321.

27. SB 1546, 74th Texas Legislature, effective September 1, 1995.

28. Consumers Union, *Right to Know/Right to Act: An Analysis of TNRCC Rules and Practice*, Austin, Texas (February 1997), p. 10.

29. Texas Natural Resource Conservation Commission (TNRCC) Air and Water Quality Permit by Rule No. 03876, Executive Technical Summary (February 12, 1996); TNRCC Permit No. 01551, TNRCC letter to protestants (June 20, 1997).

30. Texas Natural Resource Conservation Commission, Chapter 321, Control of Certain Activities by Rule, Rule Log No. 97152-321-WT, Analysis of Testimony and Comments, Sec. 321.35.

31. Texas Natural Resource Conservation Commission (TNRCC), Chapter 321, Control of Certain Activities by Rule, Rule Log No. 97152-321-WT. "The commission believes its resources would be better spent conducting full individual permitting procedures mostly for those facilities that regularly discharge waste into surface waters, and thereby have a greater potential for pollution, while regulating by uniform rule or general permit most facilities that are not allowed to discharge into a stream or water body unless there is a rainfall greater than a 25-year, 24-hour event." TNRCC issues permits "by rule," which are substantially similar to a general permit.

32. CAFOs that drained wastewater into playa lakes before September 1, 1993, may continue to discharge

their wastewater into the playa lakes under state law. New CAFOs, which were not discharging before September 1, 1993 may not discharge wastewater directly into playa lakes without a special permit. Texas Water Code, Sec. 26.048.

33. Texas Natural Resource Conservation Commission, Chapter 321, Control of Certain Activities by Rule, Rule Log No. 97152-321-WT, Analysis of Testimony and Comments, Sec. 321.31, Response to U.S. Fish and Wildlife Service. The Commission notes that the Dairy Outreach Program was created to respond to the cumulative effects of dairies in the Bosque and Lake Fork watersheds, even though the regulation does not address cumulative effects.

34. Texas Natural Resource Conservation Commission, Chapter 321, Control of Certain Activities by Rule, Rule Log No. 97152-321-WT, Analysis of Testimony and Comments, Sec. 321.35.

35. Texas Natural Resource Conservation Commission, Chapter 321, Control of Certain Activities by Rule, Rule Log No. 97152-321-WT, Analysis of Testimony and Comments, Sec. 321.46.

36. EPA will retain authority for those CAFOs that discharge into Playa Lakes and were not grandfathered out of the program by state law. Texas Water Code, Sec. 26.048.

37. Texas Agriculture Code, Title 8, Chapter 251, Effect of Nuisance Actions and Governmental Requirements on Preexisting Agricultural Operations.

38. Texas Water Code, sec. 26.121.

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Chapter 25

UTAH

- A gargantuan hog farm in Utah with ambitions to become the nation's largest—producing 2.5 million hogs a year—has raised fears of hog farm pollution on an unprecedented scale.

- Circle Four, rated the nation's eighteenth largest hog company, is owned by four leading pork producers—Virginia-based Smithfield Foods Inc., Carroll's Foods, Prestage Farms, and Murphy Family Farms.

Eager to reduce the region's high unemployment, Beaver County and Utah State officials worked hard to draw the factory farm companies to the sparsely populated region of southwestern Utah desert, about 40 miles north of Zion National Park.[1] Circle Four, a venture between Smithfield Farms, Carroll's Foods, Murphy Farms and Prestage Farms,[2] began operations in 1995, attracted by the area's easy rail access to the West and Pacific Coast markets.[3] While in 1997, the company was ranked 18th among the nation's largest companies,[4] Circle Four's announced plan to someday become the world's largest hog farm, producing 2.5 million slaughter hogs a year, has been widely publicized.[5]

According to published reports, Circle Four currently has about 260,000 pigs on site, generating about 600,000 market hogs a year.[6] It plans to build facilities breeding piglets and raising them to market size over a 50-mile swath running through Beaver and Iron Counties.[7] According to activists, this giant livestock factory would produce more waste than the city of Los Angeles.[8]

Circle Four has changed the lives of Utah's pig producers, who historically were located in Cache Valley, Utah County, the Delta area and the Uinta Basin. Prior to the arrival of Circle 4, the primary slaughterhouse for small buyers was the Clougherty Packing slaughterhouse near Los Angeles. But Circle Four has begun working with the slaughterhouse, sending them 10,000 pigs a week, and smaller pig farmers have had to search elsewhere for buyers.[9]

Since Circle Four began operating in 1995, the number of small hog farmers in the state has dwindled, but the number of hogs produced has surged. The number of Utah hog farms dropped from 800 in 1994 to 500 in 1997. But hog production increased almost seven-fold—from 44,000 hogs in 1994 to 295,000 in 1997.[10]

Pollution Problems

Unfortunately, Circle Four is having problems managing the waste its quarter of a million hogs are already producing, at last count stored in 92 vast manure lagoons.[11]

In August 1996, 80,000 gallons of hog waste entered into the area's groundwater when wastewater from a lagoon was accidentally siphoned into one of the farm's water supply wells. The company failed to notify the Utah Division of Water Quality (DWQ) for almost six weeks. DWQ fined Circle Four just $6,800.[12]

In July, a 4,000 gallon spill resulted from a break in a pipe that carries waste from Circle Four's barns to the lagoons.[13]

This past spring, four Circle Four employees were hospitalized. It appears that they might have suffered from inhaling hog manure fumes while on the job. The victims' symptoms included nausea, chest pains and difficulty breathing.[14]

In September, two of Circle Four's manure lagoons showed signs of failure. Sections of the plastic liners at the bottom of the lagoons—which are intended to keep waste from seeping into the ground—had grown air bubbles, and the liners were floating to the surface of the open lagoon. Company officials discounted the possibility of groundwater contamination because of the presence of a clay layer beneath the plastic liner.[15] Local citizens say the incident just proves they are right to be skeptical of Circle Four's claims that its "state of the art" waste technology will protect groundwater from pollution.[16]

"Underneath the lagoons is gravel and sand,[17] said A. True Ott, president of Citizens for Responsible and Sustainable Agriculture (CRSA), a group of local citizens who are appealing the permit for Circle Four's first facility. "Circle Four told us specifically that the lagoons were either lined with clay or plastic, not both."[18]At a DWQ meeting in December, an expert for the citizens' group suggested that the lagoons could fail and listed numerous problems with the farm's waste disposal technology.[19] The citizens' group is urging the state to look into other methods of disposing of hog waste.

In addition to concerns about odor, citizens are worried about air pollution from ammonia, a form of nitrogen that results when nitrogen from manure lagoons volatilizes. Ammonia can travel long distances, then fall back to the ground when it rains. In large quantities, ammonia can produce algae detrimental to fish.[20] Some experts speculate that in dry climates, such as Utah's, more of the nitrogen from manure lagoons may be converted to ammonia than in wetter locations.[21]

Regulatory Climate

Utah's primary regulatory system for CAFOs involves groundwater permits. Circle Four's permit also includes requirements for groundwater testing and reporting for lagoons that exceed a certain size.[22] However, Circle 4 failed to meet the groundwater reporting requirements when the company contaminated groundwater in August 1996.[23]

Because of their belief that water and air quality are threatened by Circle Four's open air lagoons, CRSA has appealed the company's permit that was granted by the Division of Water Quality in the Fall of 1997.[24] The citizens' group is still in the midst of the appeal process. But Circle Four has continued to expand while the determination on CRSA's original appeal is pending.[25]

CRSA's appeal has prompted the state to consider which waste-treatment technologies should be available for hog facilities. The first of a series of meetings was held in October 1998 to give DWQ staff, Circle Four and CRSA an opportunity to present their ideas. A second meeting is set for November 1998. The meetings are being held at the behest of the Utah Water Quality Board.[26]

Local Control

Utah has a law on the books that prevents citizens from bringing nuisance suits against agricultural businesses, making it difficult for citizens to block new factory farms from locating in their neighborhoods.[27]

Ott, a mortgage broker who lives in Cedar City north of Circle Four, says he first got involved in the Circle Four controversy while trying to help a rancher friend next door to Circle Four's proposed expansion into Iron County. The rancher was concerned that pollution from the hog farm could reduce the value of his property. Ott proposed that the county impose a bond on Circle Four to pay for future pollution cleanup, but the proposal was never adopted. Since that first effort, Ott's fight has gained more attention, but he expresses frustration about facing off against a multinational corporation with his small coalition of some 50 neighbors. "It's like David going up against Goliath and we have no stones," he says.

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NOTES

1. Heather May, "Predictions of Disaster Prompt State to Rethink Vast Pits of Hog Waste," *The Salt Lake Tribune* (August 31, 1998), p. D1.

2. Gregory Kratz, "S. Utah Operation Will Soon Have 250,000 Hogs," *Deseret News Service* (September 13, 1998).

3. Heather May, "Predictions of Disaster Prompt State to Rethink Vast Pits of Hog Waste," *The Salt Lake Tribune* (August 31, 1998), p. D1.

4. Gregory Kratz, "S. Utah Operation Will Soon Have 250,000 Hogs," *Deseret News Service* (September 13, 1998).

5. Gregory Kratz, "S. Utah Operation Will Soon Have 250,000 Hogs," *Deseret News Service* (September 13, 1998).

6. Mike Carter, "Fumes Overcome Four Workers At Hog Far, Company Says," *The Salt Lake Tribune* (April 24, 1998), p. D13.

7. Gregory Kratz, "S. Utah Operation Will Soon Have 250,000 Hogs," *Deseret News Service* (September 13, 1998).

8. Heather May, "Predictions of Disaster Prompt State to Rethink Vast Pits of Hog Waste," *The Salt Lake Tribune* (August 31, 1998), p. D1.

9. Gregory Kratz, "Will Corporate Farms Hog Market?" *Deseret New Service* (September 16, 1998).

10. Gregory Kratz, "Will Corporate Farms Hog Market?" *Deseret New Service* (September 16, 1998).

11. Heather May, "Predictions of Disaster Prompt State to Rethink Vast Pits of Hog Waste," *The Salt Lake Tribune* (August 31, 1998), p. D1.

12. Gregory Kratz, "Foes Fear Major Pollution From Circle Four Hog Farms," *Deseret News Service* (September 14, 1998).

13. Heather May, "Predictions of Disaster Prompt State to Rethink Vast Pits of Hog Waste," *The Salt Lake Tribune* (August 31, 1998), p. D1.

14. Mike Carter, "Fumes Overcome Four Workers At Hog Far, Company Says," *The Salt Lake Tribune* (April 24, 1998), p. D13.

15. Heather May, "Plastic Liners at Beaver County Hog Farm Are Bubbling," *The Salt Lake Tribune* (September 4, 1998), p. B5.

16. Heather May, "Plastic Liners at Beaver County Hog Farm Are Bubbling," *The Salt Lake Tribune* (September 4, 1998), p. B5.

17. On a November 1997 tour of the Circle 4 facility while the lagoons were being constructed, True Ott saw sand and gravel in locations where lagoons were to be dug.

18. Statement by Warren Peterson, attorney for Circle Four as witnessed by True Ott at meetings sponsored by Citizens for Responsible and Sustainable Agriculture in the fall of 1997, Cedar City, Utah.

19. Statement by Kathy Martin, engineer consultant to the Citizens for Responsible and Sustainable Agriculture at December 1997 meeting with staff from the Division of Water Quality, Salt Lake City, Utah.

20. Stuart Leavenworth and James Eli Shiffer, "Airborne Menace," *The News and Observer* (July 5, 1998).

21. Heather May, "Predictions of Disaster Prompt State to Rethink Vast Pits of Hog Waste," *The Salt Lake Tribune* (August 31, 1998), p. D1.

22. Heather May, "Predictions of Disaster Prompt State to Rethink Vast Pits of Hog Waste," *The Salt Lake Tribune* (August 31, 1998), p. D1.

23. Gregory Kratz, "Foes Fear Major Pollution From Circle Four Hog Farms," *Deseret News Service* (September 14, 1998).

24. Gregory Kratz, "Foes Fear Major Pollution From Circle Four Hog Farms," *Deseret News Service* (September 14, 1998).

25. Gregory Kraftz, "S. Utah Operations Will Soon Have 250,000 Hogs," *Deseret News Service* (September 13, 1998).

26. Heather May, "Giant Hog Farm Agrees to Participate in Public Hearing on Waste," *The Salt Lake Tribune* (August 11, 1998), p. B8.

27. The Agricultural Protection Act of 1998.

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Chapter 26

VERMONT

- Lake Champlain is so contaminated with phosphorus, emanating mostly from Vermont's farms, that three sizable areas of this great lake are considered virtually dead.
- Although the state has had authority to grant permits to factory farms for two years, it has exercised its authority for only two out of the twenty-five animal factories in Vermont. This leaves 23 animal factories that do not have to account for the pollution they might produce.
- Vermont law specifically excludes the public from commenting on permits for animal factories.

Agriculture in Vermont is dominated by the dairy industry, which accounts for 80 percent of gross farm income in the state.[1] Chronically low milk prices are putting droves of dairy farmers out of business or forcing many of those that remain to get on the expansion treadmill.[2] Vermont still has only a handful of dairy operations above the 1,000-cow threshold, but their number is increasing rapidly.[3]

Family-size dairy farms still dominate Vermont's postcard-perfect scenery. The average Vermont dairy farm has only 88 cows.[4] But many farms deeply in debt are under growing economic pressure to expand their herds. While Vermont lags behind the rest of the country in the trend toward giant livestock feedlots, environmentalists and family farmers in the state fear that mega-sized dairy farms and encroaching animal factories could have a devastating effect on the environment and their way of life.

Pollution Problems

Every year 496 tons of phosphorus are dumped into Lake Champlain fueling excessive algae growth and threatening the health of the lake.[5]

According to the Vermont Agency of Natural Resources, "agricultural activities impair 549 miles of stream, 1,819 acres of lakes plus more than half of the area of Lake Champlain (171,643 acres).[6]

By designating these waterways "impaired," the state has declared them so polluted that they no longer meet the uses—such as boating, fishing or swimming—for which the state has designated them. (See glossary for background.)

One manifestation of farming's pollution impact is the contamination of Lake Champlain with an oversupply of phosphorus, which is found in animal manure and fertilizers. Agricultural activities are the main source of phosphorus pollution in the lake. "[A]gricultural sources of phosphorus in order of importance are: manure and commercial fertilizer runoff from fields, soil erosion from fields, barnyard runoff, milkhouse effluent, runoff from stacked manure, livestock access to streams and induced streambank erosion."[7]

The Champlain Basin watershed is suffering from severe phosphorus contamination.[8] In growing portions of scenic Lake Champlain, phosphorus-fueled algae are choking off the oxygen supply upon which fish depend for survival. Algae scum in the lake's most polluted sections is so thick that about half the year boaters have trouble pushing their boats into the water and swimmers and fishermen are forced away. According to the Lake Champlain Basin Clean Up Plan, phosphorus pollution is so intense in three sizable sections of Lake Champlain—Missisquoi Bay, Saint Albans Bay and South Lake—that those areas are virtually dead.[9] "[I]n some areas levels are comparable to those found in the most polluted parts of the Great Lakes (Saginaw Bay and the western end of Lake Erie) during the 1970s," a 1996 report by the Plan concluded.[10]

In 1996, Vermont, New York and Quebec signed an accord, the Lake Champlain Basin Clean Up Plan, committing to a major clean-up of Lake Champlain.[11] The cooperative plan was the result of six years of discussion among officials from the two states, the Canadian province and the United States Environmental Protection Agency.[12] One of the main targets of the plan is reducing phosphorous pollution by changing agricultural practices on the more than 3,000 farms that operate within the 8,234 square mile basin.[13]

Under the Lake Champlain Basin accord, the parties have agreed to reduce the phosphorous seeping into Lake Champlain by 57 metric tons per year. Vermont, considered the leading source of phosphorus pollution among the three geographic areas involved, has been given the lion's share of responsibility toward that reduction goal with the majority of its reduction to come from curtailing phosphorus-rich farm runoff.[14]

Over the last few years, the state has begun to allocate funding, totaling just over $1 million, to assist farmers with manure management.[15] But in light of agriculture's role as the dominant contributor to phosphorus pollution, the funding is minimal. By contrast, substantial state resources have been devoted to improving wastewater treatment facilities, which contribute a smaller slice of the phosphorus pollution pie.[16] More than $100 million has been allocated to improving sewage treatment since the mid-1950s.[17]

Besides water quality problems, another environmental problem has been flies. The source of many citizen complaints has been the 100,000-hen facility, Vermont Egg Farms, Inc. (VEF), owned by a Canadian agribusiness that has also attempted to open hog operations in Maine.[18] Virtually every farm within a one-mile radius of VEF has reported unprecedented problems with flies, according to a July 1998 survey by the family farm group, Rural Vermont. Farmers report that the flies are spreading mastitis, an udder infection, among their cows as well as increasing stress for the animals, leading to reduced milk production and economic losses.[19]

VEF's closest neighbor, a dairy farmer a half mile away, has filed a nuisance suit for economic losses and put his farm up for sale.[20] The state Agriculture Department has measured as many as 3,000 flies in a single calf hutch on that farm, reports Ellen Taggart, Executive Director of Rural Vermont, who has visited the farm. Upon entering the cow barn, Taggart says, the flies were so thick that they looked "like a cloud of dust moving up from your feet. Cows were constantly stomping their feet and moving around trying to get rid of the flies." The cows, whose tails have been removed, were "shooting their feed onto their backs to shoo the flies," Taggart recalls. "This farmer said he was losing thousands of dollars each week in feed."[21]

Regulatory Climate

In 1995, Vermont adopted into law a set of standards for manure management on farms aimed at protecting water quality. These so-called Accepted Agricultural Practices are mandatory, but the assumption is that all producers are in compliance unless complaints are registered. Because of this system, the level of farm compliance with the standards is unknown.[22] There are no routine inspections.[23] One pioneering aspect of the standards, however, is its ban on the winter spreading of manure, a practice that contributes to pollution once snow and frozen ground melt.[24]

In 1996, the legislature enacted a weak law to require individual permits for "large farm operations."[25] The law was passed in response to citizens' complaints about Vermont's first factory-scale chicken farm, Vermont Egg Farms.[26] Under this permit program, factory farms had to submit a manure management plan and have it approved prior to permit issuance.[27] The standards were identical to the state's existing manure management standards aimed at protecting water quality.[28] The required plans ignored several other environmental threats posed by the factory chicken farm, including air pollution and the transmission of disease from flies. The legislature with support from the state Agriculture Department expressly chose to bar public input in the granting of permits.[29]

In 1998, the legislature again took a small step to strengthen regulation on factory farms. In response to severe fly problems surrounding VEF, criteria for permitting "large farm operations" was expanded to include odor, noise, traffic, insects and pests—along with manure management.[30] Following passage of this law, farmers and environmentalists successfully fought the granting of a permit in the summer of 1998 to expand the VEF facility from 100,000 laying hens to 400,000. The state Agriculture Department denied VEF's permit for expansion amidst a storm of negative media publicity over VEF's unsanitary conditions and its impact on local farmers.[31] (The state has no formal role for citizen participation in its permitting process.) VEF has appealed the permit decision[32] and has plans to expand to 700,000 laying hens before the year 2,000.[33] Many policymakers have also made a commitment to continuing work on this issue in recognition of the need for more comprehensive legislation that allows for adequate public input.

Although the VEF facility was issued an initial permit, it is the exception rather than the rule. In two years, the Agriculture Department has granted permits to only two of the 25 facilities the Department estimates meet the state definition of factory farms.[34] The two were issued to VEF in response to the public outcry and to one other facility that requested a permit. The Agriculture Department has issued no rules for a permit program and has made little use of its authority under the law to require permits. As a

result, the 23 remaining factory farms in Vermont do not have to account for any pollution they might produce.

Lack of Citizen Input

As noted above, the permit program allows for no required public hearing or public comment period prior to the permitting of factory farms.[35] In addition, the right to appeal a permit decision is limited to the applicant and excludes even the farmers and rural residents who must live next door to factory farms.[36]

Local Control

Unfortunately, all farms, no matter what their size, are exempt from the state's land use control law, Act 250,[37] and from local zoning laws.[38]

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NOTES

1. University of Vermont College of Agriculture and Life Sciences, *Vermont...Dairy: Agriculture, Food, and Community in Vermont* (July 1996).

2. University of Vermont College of Agriculture and Life Sciences, *Vermont...Dairy: Agriculture, Food, and Community in Vermont* (July 1996).

3. University of Vermont College of Agriculture and Life Sciences, *Vermont...Dairy: Agriculture, Food, and Community in Vermont* (July 1996).

4. Vermont State Department of Agricultural Statistics (Winter 1998).

5. Nancy Bazilchuk, "Grant to Help Prevent Pollution: Farm Runoff Will Be Studied," *Burlington Free Press* (April 20, 1998).

6. Lake Champlain Basin Management Conference, *"Opportunity for Action: An Evolving Plan for the Future of Lake Champlain Basin* (October 1996).

7. Lake Champlain Basin Management Conference, *Opportunity for Action: An Evolving Plan for the Future of Lake Champlain Basin* (October 1996); Vermont Natural Resources Council Draft Report, Kim Kendall, p. 3.

8. Leon Graves, "Farmers Do Their Part for Water Quality," *Burlington Free Press* (December 31, 1997).

9. Nancy Bazilchuk, "Grant to Help Prevent Pollution: Farm Runoff Will Be Studied," *Burlington Free Press* (April 20, 1998).

10. Lake Champlain Management Conference, *Opportunities for Action: An Evolving Plan for the Future of Lake Champlain Basin* (October 1996), p. 8.

11. Nancy Bazilchuk, "Lake Cleanup Shows Progress," *Burlington Free Press* (March 13, 1998).

12. Nancy Bazilchuk, "Grant to Help Prevent Pollution: Farm Runoff Will Be Studied," *Burlington Free Press* (April 20, 1998).

13. Nancy Bazilchuk, "Lake Cleanup Shows Progress," *Burlington Free Press* (March 13, 1998).

14. Nancy Bazilchuk, "Grant to Help Prevent Pollution: Farm Runoff Will Be Studied," *Burlington Free Press* (April 20, 1998).

15. Leon Graves, "Farmers Do Their Part for Water Quality," *Burlington Free Press* (December 31, 1997).

16. Leon Graves, "Farmers Do Their Part for Water Quality," *Burlington Free Press* (December 31, 1997).

17. Leon Graves, "Farmers Do Their Part for Water Quality," *Burlington Free Press* (December 31, 1997).

18. "The Egg Man Cometh," *Rural Vermont Report*, Vol. 7, No. 2 (Summer 1996).

19. Leon Graves, Commissioner Vermont Department of Agriculture, Food and Markets, Large Farm Operation Permit Application #98-LFO-01 Decision dated July 28, 1998 and Large Farm Operation Permit Application #98-LFO-02 Decision dated July 28, 1998; Vermont Egg Farms, Inc., "Impact Survey for Households and Farmers," Rural Vermont (July 1998).

20. Richard Cowperthwait, "Egg Farm Brings in New Flock," *Burlington Free Press* (October 1, 1998).

21. Vermont Egg Farms, Inc., "Impact Survey for Households and Farmers," Rural Vermont (July 1998).

22. Lake Champlain Management Conference, *Opportunities for Action: An Evolving Plan for the Future of Lake Champlain Basin* (October 1996), p. 7.

23. *Vermont Agricultural Non-Point Sources Pollution Reduction Program Law and Regulations*, Accepted Agricultural Practice Regulations, pp.11-24, Vermont Department of Agriculture Food and Markets.

24. *Vermont Agricultural Non-Point Sources Pollution Reduction Program Law and Regulations*, Accepted Agricultural Practice Regulations, pp.11-24, Vermont Department of Agriculture Food and Markets.

25. Title 5, Chapter 215, Subchapter 3, Regulation of Large Farm Operations.

26. "The Egg Man Cometh," *Rural Vermont Report*, Vol. 7, No. 2 (Summer 1996).

27. "The Egg Man Cometh," *Rural Vermont Report*, Vol. 7, No. 2 (Summer 1996).

28. "The Egg Man Cometh," *Rural Vermont Report*, Vol. 7, No. 2 (Summer 1996).

29. "The Egg Man Cometh," *Rural Vermont Report*, Vol. 7, No. 2 (Summer 1996).

30. Title 6, Chapter 215, Subchapter 3, Regulation of Large Farm Operations.

31. Leon Graves, Commissioner Vermont Department of Agriculture, Food and Markets, Large Farm Operation Permit Application #98-LFO-01 Decision dated July 28, 1998 and Large Farm Operation Permit Application #98-LFO-02 Decision dated July 28, 1998; Vermont Egg Farms, Inc., "Impact Survey for Households and Farmers," Rural Vermont (July 1998).

32. Nancy Remsen, "Rejection Angers Egg Farm," *Burlington Free Press* (July 30, 1998).

33. "The Egg Man Cometh," Rural Vermont Report, Vol. 7, No. 2 (Summer 1996).

34. Testimony by Vermont State Agriculture Department to House Agricultural Committee (Winter 1998).

35. Title 6, Chapter 215, Subchapter 3, Regulation of Large Farm Operations.

36. Title 6, Chapter 215, Subchapter 3, Regulation of Large Farm Operations.

37. Act 250, Vermont's Land Use and Development Law, Title 10, Chapter 151 and the agricultural exemption from local zoning (Law 24 VSA section 4495).

38. "The Egg Man Cometh," Rural Vermont Report, Vol. 7, No. 2 (Summer 1996).

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Chapter 27

VIRGINIA

- Hog factory farms in Virginia are expanding and are regulated too leniently.
- Virginia's poultry operations, which produce more than one billion pounds a year of manure, are unregulated.

Hog factory feedlots are an emerging problem in Virginia. Citizens and environmental organizations are working to develop regulatory controls before pollution problems become more severe. Currently, Virginia has issued 72 permits for feedlots that have more than 750 swine or 200 dairy cattle. Fifty-two of these permits are for swine operations; 20 are for dairy facilities. A few of the swine facilities also have some confined beef cattle. Only a few poultry operations classified as "layer" facilities have permits.[1] The remaining poultry feedlots are unregulated.

Aided by studies by Virginia Tech and a welcome by Department of Agriculture and Consumer Services officials, the hog industry is targeting the "southside" of Virginia,[2] the area of the state south of Richmond and reaching west from the Tidewater area to Danville in south-central Virginia. This is a rural, economically depressed area, making it vulnerable to the lure of jobs and tax dollars presented by factory-scale farms seeking as little regulation as possible. Environmentalists fear that Virginia's lax regulatory environment could attract hog operators from neighboring North Carolina,[3] which last year adopted toughened regulations for hog factory farms.

Southern Virginia has many rivers and streams that are susceptible to pollution. Two regions of the state with active factory-scale farming are particularly vulnerable to groundwater contamination from animal waste: the southside of Virginia because of its high water table and the Shenandoah Valley because of its karst topography—a type of geology characterized by a porous imestone layer just above groundwater.

Pollution Problems

Virginia's more than 1,300 unregulated poultry operations produce more than one billion pounds of manure each year from more than 280 million birds.[4] The chicken droppings, known as "litter," generated by Virginia's poultry industry have a nutrient content equivalent to the human sewage from 1,800 towns of 6,000 people each. In Virginia's Shenandoah and Potomac River basins alone, poultry produces one and a half times as much nutrient pollution as is generated by human waste in the same area.[5]

Researchers at Virginia Polytechnic Institute and State University calculate that poultry farmers annually generate 159,000 tons more poultry waste than can be properly applied to the land in certain areas.[6] Applying more waste to farmland than the crops can safely take-up inevitably contributes to polluted runoff into nearby bodies of water.

Years of data indicate that animal waste has polluted rivers and streams favored for recreation and contaminated drinking water supplies from groundwater and surface water. In fact, Virginia has classified 712 miles of state waters as "impaired" due to diffuse sources of agricultural pollution.[7] According to Virginia Tech, "Soils in some parts of the Shenandoah Valley contain as much as eight times the phosphorus needed by crops, the result of years of over-application."[8]On Virginia's Eastern Shore, close to one third of the nitrogen and two-fifths of the phosphorus nutrients entering the Chesapeake from that region are attributed to animal waste pollution.[9]

In order to cope with the manure produced by 2,700 hogs—the most common size for Virginia's confined feeding operations—operators generally store the waste in one or more manure lagoons at each facility. Leaks and overflows from these lagoons have occurred, threatening some of Virginia's most environmentally vulnerable regions. In the early 1990s, Virginia Department of Environmental Quality (DEQ) inspection reports documented several waste overflows from hog houses and a manure lagoon at Smithfield-Carroll's Farms' hog factory in Surry County. The reports cited signs that some of the waste discharged had reached state waters. However, no enforcement action was taken. Inspections at a number of other hog operations have revealed evidence of improper disposal of manure. In one instance, a Virginia Beach hog feedlot constructed in a wetlands area was supposed to ship its waste to another site. Instead, the waste was left next to the wetlands where rainwater washed polluted runoff into the environmentally fragile area.[10]

Regulatory Climate

Despite the increasing number of poultry operations in the state and the substantial potential for these operations to harm water quality, poultry facilities remain unregulated. The rationale is that poultry facilities generate dry litter and therefore pose no threat of polluted liquid discharge to state waters. In reality, the waste generated by poultry farms poses significant threats to water quality. Poultry litter, left uncovered or applied to land as fertilizer, can wash into rivers and streams during rainstorms and contribute to nutrient pollution of waterways if it is spread too generously, or at inappropriate times.

Until 1993, the Department of Environmental Quality (DEQ) issued site-specific permits to hog, beef and

dairy operations. Because it took 12 to 18 months to permit an operation, large producers criticized the system as too burdensome, and lobbied successfully for a weaker general permit system.[11] During the 1998 session of the Virginia General Assembly, the general permit system was strengthened slightly. The new regulations under the law become effective December 1, 1998.[12]

A major weakness of the general permit authorized under the 1998 law is its one-size-fits-all approach to environmental regulation. Although larger operations obviously have more potential to pollute state waters than do smaller ones, the law treats them the same, whether they contain 750 hogs or 50,000 hogs. Under the new legislation, DEQ will continue to issue general permits for all feeding operations of 300 or more animal units—equivalent to 300 beef cattle, 200 mature dairy cattle, 750 swine weighing over 55 pounds, 150 horses or 3,000 sheep. Under the permit, an operator must file a registration statement describing the facility and include a letter of approval from the state Department of Conservation and Recreation for a nutrient management plan for handling animal waste.[13]

Another major weakness of the new general permit is its failure to address the phosphorus content in manure. Even though most crops require much less phosphorus than nitrogen, both nutrients found in fertilizers and manure, waste management plans typically base their recommendations for manure-spreading on manure's nitrogen content. This approach can over-enrich soil with phosphorus and lead to the pollution of nearby waterways.

The state's 1998 legislation requires that all facilities greater than 300 animal units must be registered by July 1, 2000.[14] According to research by the Virginia office of the Chesapeake Bay Foundation, a significant number of hog facilities were not registered and are operating without a general permit. Also, prior to the 1998 legislation, there was a loophole that did not require nutrient management plans (NMPs) for facilities continuing to operate under an individual permit. The new law closed that loophole and now facilities with individual permits will need NMPs.[15]

The new program fails to require buffer zones to separate animal waste lagoons from adjoining neighbors, groundwater, streams and rivers. Some minimum buffers are mandated, however, between fields sprayed with manure and occupied dwellings, wells and surface water. Under the new amendments passed by the General Assembly, the lagoon design and construction must be certified by a professional engineer prior to startup.[16]

Under the system used prior to the new legislation DEQ was required to inspect operations once every five years. DEQ claimed to inspect annually, but the inspections were inadequate since inspectors from DEQ had not been trained in the operation of nutrient management plans. The new legislation provides for annual inspections, requires that DEQ personnel be trained in nutrient management and requires farm operators to be in trained in all aspects of CAFO management.[17]

Historically, the general permit system has allowed no opportunity for the public to comment on permits prior to issuance. Counties were notified of permit applications, but only to check if a livestock operation met zoning requirements; there was no requirement that the county notify citizens. The recently-enacted legislation requires that notice be given to adjoining landowners prior to construction or permit issuance and that the public have the opportunity to comment. Citizens can also comment on an enforcement order if they learn about it through the newspaper.[18]

The state has minimal monitoring requirements. The general permit requires livestock operators to monitor animal waste every year and the soil every three years for nutrient content. As an alternative to

prohibiting manure lagoons in areas with high water tables, the general permit requires groundwater monitoring at facilities where the bottom of the lagoon is constructed within one foot of the seasonable high water table. Under the new law, DEQ and the Virginia Department of Conservation and Recreation may increase the frequency of monitoring if they deem it necessary. However, the new law still does not require monitoring reports to be submitted to DEQ. All records are the property of the farmer and therefore are not subject to Freedom of Information Act requests. DEQ does not monitor air quality.[19]

Despite spotty enforcement of the general permit program, problems have been identified. For example, this past winter, the State Water Control Board took action against SJB Farms in connection with one of its hog feedlots in Brunswick County. The DEQ found that SJB Farms violated the requirements of its nutrient management plan by over-applying 2,000 gallons per acre more of liquid manure than was allowed under the plan. DEQ also found that liquid manure was to have been applied to soybeans on another site, but soybeans had not been planted. In a consent agreement with the state that admitted no responsibility, SJB Farms paid only a $3,000 fine for these problems.[20] A consent order in September 1998 imposed a mere $1,000 fine on a separate Southampton County hog feedlot that had situated a discharge pipe at its manure pond so that swine waste from the pond reached state waters.[21]

Local Control

Several counties have passed strict zoning ordinances specifically aimed at animal feedlots. Brunswick County, which enacted the strictest ordinance, has been sued by two large hog producers, Smithfield-Carroll and SJB Farms, on the grounds that its zoning violates Virginia's Right to Farm Act, a law aimed at protecting farmers.[22]

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NOTES

1. Southern Environmental Law Center, information received under Virginia Freedom of Information Act; request to Richard Ayers, Virginia Department of Environmental Quality.

2. Letter to unnamed swine company from Department of Agriculture and Consumer Services (November 17, 1995); Suzanne Thornsbury, et al., *The Economic Impact of Increased Swine Production in a Rural Virginia County*, Virginia's Rural Economic Analysis Program, Department of Agricultural Economics, College of Agriculture and Life Services, Virginia Tech; Lauren Harper, et al., *The Financial Feasibility of Finishing Feeder Pigs Under Production Contract in Virginia*, Virginia's Rural Economic Analysis Program, Department of Agricultural Economics, College of Agriculture and Life Services, Virginia Tech.

3. Tim Davis, "Huge Hog Farm Eyes County Site," *Star Tribune* (July 2, 1997).

4. Chesapeake Bay Foundation, "The Need to Regulate Poultry: What Science and the Experts Say" Fact Sheet.

5. Based on calculations from: Minority Staff, U.S. Senate Committee on Agriculture, Nutrition and Foresty, *Animal Waste Pollution in America: An Emerging Problem*, Washington D.C. (December 1997).

6. Presentations by Dr. James Pease, Dr. Marcus Alley, and Dr. Saied Mostghimi, Virginia Tech College of Agriculture and Life Sciences on the Relationships between Poultry Production and Water Quality, Senate Committee on Agriculture, Conservation and Senate Committee on Agriculture, Conservation and Natural Resources, Special Subcommittee Studying HB 1207, Richmond, Virginia (September 22, 1998).

7. Virginia Department of Environmental Quality and Department of Conservation and Recreation, "303(d) Total Maximum Daily Load Priority List and Report" (1998), Table 2.

8. Chesapeake Bay Foundation, "The Need to Regulate Poultry: What Science and the Experts Say" Fact Sheet.

9. Chesapeake Bay Foundation, "The Need to Regulate Poultry: What Science and the Experts Say" Fact Sheet.

10. Southern Environmental Law Center, information received under Virginia Freedom of Information Act; request to Richard Ayers, Virginia Department of Environmental Quality.

11. David Kenyon, "Developing Permits: A Virginia Case Study for Confined Animal Feeding Operations," Virginia Cooperative Extension Publication 448-225/Reap RO27 (1997).

12. Virginia Code section 62.1-44.17:1.

13. Virginia Code section 62.1-44.17:1.

14. Virginia Code section 62.1-44.17.1.

15. Virginia Code section 62.1-44.17.1.

16. Virginia Code section 62.1-44.17.1.

17. Virginia Code section 62.1-44.17.1.

18. Virginia Code section 62.1-44.17.1.

19. Virginia Code section 62.1-44.17.1.

20. Consent Order between SJB and Virginia State Water Quality Control Board (February 5, 1998).

21. Notice of Proposed Consent Special Order, J.R. Newsome, Jr. Hog Farm, Virginia Register of Regulations (August 17, 1998), p. 3972 and copy of consent order from Tidewater Region, Department of Environmental Quality, Virginia Beach, Virginia.

22. Sidney J. Brandon, Jr. and SJB Farms, Inc. v. Brunswick County and Board of Supervisors of Brunswick County, #CH97-78 and Carroll's Foods of Virginia, Inc. v. Brunswick County, Virignia and Board of Supervisors of Brunswick County, #CH97-77.

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Chapter 28

WASHINGTON

- Fecal coliform levels that exceed the human health standard have been found in the drainage system that dairies use to return irrigation water to the Yakima River.

- The state's commonly utilized system for granting clean water permits to large feedlots lacks a public review for each individual operation and until recently was generally ignored.

Over the past fifteen years, Washington has seen the number of farms decrease by half. At the same time, the number of animals per facility has grown, reflecting a shift toward factory-scale feedlots and dairies in the state.[1]

Pollution Problems

Runoff and spills from Washington's dairies are a major contributor to the water pollution in the state.[2] In the central and south central part of the state, there is both a high concentration of feedlot operations and a circuit of irrigation canals that empty into larger rivers.[3] "The lower Yakima basin is one of the most intensively irrigated … areas in the United States … A vast and complex irrigation network has allowed the Yakima Valley to become a leading producer of … milk [and other commodities]."[4] However, the irrigation canals also have become conduits for polluted runoff.[5] Granger Dam (one of seven main irrigation return drains that empties into the Yakima River[6]), as well as portions of the Yakima River, have both been determined by the Washington Department of Ecology to exceed the state water quality standards for fecal coliform.[7] Additionally, in 1997 within the Sunnyside Irrigation District, nearly half of the 27 water quality testing sites regularly registered at twice the legal limit for fecal coliform of 100 colonies per 100 milliliters.[8]

Residents' quality of life has altered radically since the influx of factory dairies into the lower Yakima Valley over the past ten years. Helen Reddout, a long-time resident of the valley, speaks of her experience. "It was a hot summer night... about two o'clock in the morning, I was awakened by the most

hideous smell oozing through the window. It smelled like I had fallen into an open septic tank. The next morning, I drove up the road to track where the stench was coming from. There in the middle of the field was a manure gun spraying huge streams of gray-green sewage onto the already over-saturated field. Sewage water rolled down the furrows into the drain ditch and puddled in other areas of the field. The ammonia smell was so strong it made me gasp. We can no longer entertain outside.... The family home we had hoped to enjoy during our retirement has become a prison where we try to barricade ourselves from the pollution pumped out by the unregulated `dairy factory' on a daily basis."

In the spring of 1998, two dairy feedlot operators reported catastrophic lagoon failures. Each of the spills dumped the contents of an entire lagoon. One spill dumped 1.3 million gallons of waste, while the other dumped 700,000 gallons. In one week, the spills dumped a total of two million gallons of raw lagoon waste into the Yakima River. The Washington Department of Ecology levied fines against the two dairies in the amount of merely $2,000 and $3,000, respectively.[9]

Regulatory Climate

In Washington, a factory farm of 1,000 animal units or more is required to obtain a federal Clean Water Act permit only if it discharges to water.[10] Up until 1998, agencies only found out about discharges that were reported by the operators or if there was a complaint. Washington covers most dairies under a general permit.[11] Citizens may comment on the general permit when it is renewed, but are not informed or invited to comment when individual dairies obtain coverage. In order to obtain coverage under the general permit, an operator must simply write a letter to the Department of Ecology requesting coverage. The permit prohibits discharges except in the case of a 25-year, 24-hour storm event (a rainfall so severe that it is only likely to occur every 25 years).[12]

Individual permits are also available for dairies in Washington, but few dairies apply for them. In practice, the only difference in substance between the general and an individual permit is that an individual permit includes the specific name of the operation written in. The form used for individual and general permits is identical.[13] Individual permits do require that the public be notified prior to permit issuance. For an individual permit, the state sends out notice letters inviting public comment.[14]

The Washington state general permit requires each dairy covered by the permit to "have a current animal waste management plan." The permit does not, however, require any particular provisions to be incorporated into these plans but rather defers that decision to the Natural Resources Conservation Plan.[15] There also appears to be no public participation in the development of a waste management plan.[16] Waste management plans do not always restrict such harmful practices such as applying manure to frozen ground.[17]

Until recently, almost no factory farms in the state were covered under either the general or an individual permit. Many of the large-scale operations decided, however, to obtain coverage under the general permit immediately after the Community Association for Restoration of the Environment of Outlook, Washington, and the Western Environmental Law Center of Eugene, Oregon, notified ten dairies of their intent to sue under the Clean Water Act.[18] Additionally, the passage of the Dairy Nutrient Management Act of 1998 appears to have increased compliance.[19]

Up until the enactment in 1998 of the new waste management laws, there were no inspections for feedlots in Washington unless a discharge was reported or a citizen filed a complaint. When that happened, polluting dairies were turned over to their local conservation districts and given six months to complete a waste management plan. The dairies then were given 18 months to implement it.[20] Now, under the Dairy Nutrient Management Act of 1998, annual inspections are to be required and more inspectors for dairies are to be authorized.[21] The state now has eight inspectors.[22]

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NOTES

1. Washington Dairy Products Commission, "Dairy Trends in Washington State," Fact Sheet (1997).

2. Statement by Tom Charles Fitzsimmons, Director, Department of Ecology, Continuing Legal Education Seminar (May 7, 1998).

3. Columbia Basin Institute, *Abstract: Environmental Consequences and Regulator Impacts of the Industrialization and Geographic Concentration of Milk Production in the Pacific Northwest: A Yakima Valley Case Study* (1997), p. 2.

4. Washington Department of Ecology, "A Suspended Sediment and DDT Maximum Daily Load Evaluation Report for the Yakima River" (July 1997), p. 4.

5. Columbia Basin Institute, *Abstract: Environmental Consequences and Regulator Impacts of the Industrialization and Geographic Concentration of Milk Production in the Pacific Northwest: A Yakima Valley Case Study* (1997), p. 2.

6. Washington Department of Ecology, "A Suspended Sediment and DDT Maximum Daily Load Evaluation Report for the Yakima River" (July 1997), p. 4.

7. Washington Department of Ecology, "A Suspended Sediment and DDT Maximum Daily Load Evaluation Report for the Yakima River" (July 1997), p. 4.

8. Roza Sunnyside Board of Joint Control, "1997 Irrigation Season Environmental Water Quality Data for Sites 1-27."

9. "DOE Fines Yakima V. Dairies," *Capital Press* (June 5, 1998), p. 8.

10. State of Washington, Department of Ecology, Dairy Farm NPDES and State Waste Discharge General Permit (August 10, 1994).

11. State of Washington, Department of Ecology, Dairy Farm NPDES and State Waste Discharge General Permit (August 10, 1994).

12. Washington Administrative Code 173-220-050; State of Washington, Department of Ecology, Dairy Farm NPDES and State Waste Discharge General Permit (August 10, 1994).

13. Review by Michael Tedin, Columbia Basin Institute, of permits issued to View Point Dairy (individual permit WAG 015012) and Hollandia Farms Partners (individual permit number WAC 013000).

14. Revised Code of Washington 34.05 et seq.

15. State of Washington, Department of Ecology, Dairy Farm NPDES and State Waste Discharge General Permit (August 10, 1994); Section 53, "Animal Waste Management Plans."

16. An example of the lack of public participation in the development of a Waste Management Plan is the 1998 plan developed for the Henry Bosma Dairy, as reviewed by the Western Environmental Law Center.

17. For example, the Hank Bosma Dairy and Liberty Dairy, Dairy Waste Management Plan, Natural Resources Conservation Service (1998) does not prohibit spraying on frozen ground.

18. Review of Washington Department of Ecology files by Western Environmental Law Center (January 1998); Notices of Intent to Sue Henry Bosma Dairy, Liberty Dairy, Sunnyside Dairy, Sid Koopman Dairy, George DeRuyler Dairy, Viewpoint Dairy, S and S DeRuyler Dairy, Cox Palace Dairy and John Bosma Dairy under the Clean Water Act by the Western Environmental Law Center on behalf of Community Association for the Restoration of the Environment (October 31, 1997).

19. Personal communication between Western Environmental Law Center staff and Department of Ecology staff, Bob Barwin and Max Linden (September 9, 1998).

20. "State Legislators Wrestle to Regulate Dairy Waste," *Tri-City Herald* (March 3, 1998).

21. Revised Code of Washington 90.48.144, 90.48.465, 90.64.005 et seq., Washington State Legislature 2d. Substitute House Bill 2915 (1998).

22. Personal communication between Robbin Marks and Max Linden, Department of Ecology staff (November 18, 1998).

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Chapter 29

WEST VIRGINIA

- One-third of all river sites tested in the Potomac headwaters of West Virginia exceed bacteria safety standards.
- West Virginia has no program for regulating environmental pollution from poultry, which produces about 155,000 tons of manure each year.

The headwaters of the Potomac River have long been home to West Virginia agriculture, with poultry and cattle farms dominating the countryside. In the early 1990s the poultry industry began expanding on a vast scale.[1] Major food corporations have been the driving force behind this expansion, with Wampler Foods' chicken processing plant in Moorefield at the geographic hub of this growth. Other major corporations—Tyson Foods, Inc., Perdue and Rocco Turkey—have spurred growth in chicken houses by contracting with poultry farms in the state to supply their chicken processing plants in neighboring Virginia. Some of the state's political leaders have been eager to lure large corporations to the state with economic incentives for opening new poultry farms and processing plants.[2] Leaders in the West Virginia legislature recently introduced a bill giving a large tax subsidy to industry for jobs created by agricultural expansion.[3]

Pollution Problems

Intensive agriculture in Potomac Headwaters region has led to alarming levels of bacteria in the river and its tributaries and spurred excessive algae and siltation.[4] A 1994-1995 study completed by the U.S. Geological Survey (USGS) and sponsored by the U.S. Department of Agriculture (USDA) indicates that one third of all sites tested in the headwaters of the Potomac exceeded accepted bacterial safety standards.[5]

Many stretches of this great river are no longer safe for recreation. The high levels of fecal coliform bacteria that have been measured in Potomac waters indicate that swimmers run the risk of infection

from disease-causing organisms like *Salmonella*, *Giardia* and *Cryptosporidium*.[6] The world class recreational resources of Smoke Hole, the Trough, and Seneca Rocks in the South Branch area of the Potomac—all locations favored by tourists for canoeing, fishing and swimming—are threatened by this pollution.[7] State agencies and the U.S. Department of Agriculture recently came to this alarming conclusion:

> *A high potential exists for contraction of waterborne illnesses in the Potomac Headwaters because of the widespread presence of bacteria throughout the watershed and heavy dependence on the streams for drinking water and for water contact recreation.... The report further states that the numbers of feedlots and poultry houses per square mile also correlate with concentrations of fecal coliform, fecal streptococci, and nitrates.*[8]

Additional testing done in 1996 and 1997 by the West Virginia Department of Environmental Protection (WVDEP) supports the USGS study of 1994 and 1995.[9]

In 1996, the state classified as "impaired" seven tributaries of the Potomac headwaters, including the South Branch of the Potomac, the South Fork of the South Branch and the North Fork of the South Branch. The impaired classification indicates that many of these waters are so polluted they can no longer support swimming or fishing. Agriculture is cited as the cause of this pollution. All seven of the Potomac tributaries on the impaired list were new additions due to recent data indicating serious water quality problems.[10]

Chicken processing plants pose an additional pollution threat to the area. Wampler Foods' poultry processing plant in Moorefield, which has a NPDES permit under the Clean Water Act, is barred under the Act from dumping its waste into town facilities without approval from the state. Wampler has been cited for unauthorized disposal of some of its industrial waste into the town sewage treatment facility. For several months in 1995, Moorefield's sewage treatment plant spilled raw sewage into the South Branch, in part due to the failure of the town's sewage waste lagoon. Some citizens of the community suspect that the town's sewage treatment problems were linked to the town's illegal acceptance of untreated industrial waste from Wampler. A local sewage treatment plant operator reported poultry feathers in the town lagoon on a number of occasions.[11] Wampler and the town of Moorefield have each been the subject of two enforcement actions by the Department of Environmental Protection for this activity.[12]

The Potomac Headwaters area has also suffered four major floods in recent memory, one in 1985 and three in 1996. The floods intensified pollution from the region's poultry and cattle industries[13] as rushing torrents washed animal waste from croplands and farm buildings into nearby waterways. Following flooding from Hurricane Fran in 1996, "one of the biggest public health threats was 268,000 chicken and 56,000 turkey carcasses" that had died in the floods, according to a state Department of Agriculture spokesperson.[14]

Other local problems have involved nuisance complaints. Moorefield residents have lost business because of the overwhelming odors and flies.[15] One local restaurant owner complained her herb garden died due to the toxicity of the air.[16] Another resident told the County Commission he can no longer use his well because of pollution from poultry manure stored and spread near his house.[17]

The Potomac Headwaters of West Virginia supply some of the drinking water for many towns downstream. The Washington D.C. metropolitan area, which is downstream from the Potomac

Headwaters, last year began having bacteria outbreaks in its drinking water system.[18] For the second year in a row, the Potomac is listed as one of the 20 most endangered rivers in the country due to agriculture and land development. This news comes after several years of celebrating a clean-up campaign that made it possible for Washington-area residents to safely fish and swim in the river after decades of pollution had put it off-limits. "The unfettered expansion of the poultry industry could very well undo much of the progress that has been made in the last 25 years," an American Rivers spokesperson recently warned.[19]

The Potomac River empties into the Chesapeake Bay, bringing nitrogen and phosphorus pollution from the river's source in West Virginia. The health of the Bay's fish and shellfish is seriously threatened by a glut of these inputs emanating from manure and fertilizer used at surrounding farms. In 1987, the Chesapeake Bay Agreement, signed by the District of Columbia, Maryland, Pennsylvania, and Virginia, agreed to reduce nutrient pollution to the Bay by forty percent by the year 2000. While almost 25 percent of the Potomac watershed lies in West Virginia, and about 13 percent of the nutrients delivered to the Bay by the Potomac comes from West Virginia, the state refused to sign this document and cooperate with neighboring states. In doing so, the state also declined federal assistance for reducing nutrient pollution to the Chesapeake Bay.[20] West Virginia, despite its renegade status, was asked to attend Governor Glendening's Chesapeake summit this year on *Pfeisteria*, an algae that thrives in nutrient-polluted waters and has caused major fish kills.[21] Unfortunately, the summit agreement West Virginia signed was limited to information-sharing and included no commitment to reduce nutrient pollution of the Bay.

Regulatory Climate

The state Department of Environmental Protection together with the U.S. Environmental Protection Agency (EPA) recently proposed cleanup plans for six impaired tributaries in the Potomac Headwaters. The plans were developed to fulfill a Clean Water Act requirement that the state allocate reductions in water pollution among contributing polluters. (This process is known under the Clean Water Act as Total Maximum Daily Load or TMDL.) A cleanup plan for a seventh river classified as impaired, the Lost, was recently developed. The plans direct agricultural sources—primarily confined poultry operations—to reduce fecal coliform bacteria contributions by 38 percent. Under the plan, Wampler Foods' poultry processing plant in Moorefield is to reduce by 100 percent the fecal coliform contributed by its storm sewers.[22] However, the state's plan for achieving these goals merely reaffirms its existing program for handling animal waste, which is entirely voluntary.[23]

State agency officials are not aware of any Clean Water Act permits that have been issued to factory farms in West Virginia. The state has adopted the view that dry litter poultry facilities are exempt from the Clean Water Act and the non-poultry animal feeding operations are smaller than 1,000 animal units, so state agency officials claim that the state has no CAFOs that would require a Clean Water Act permit.[24] Theoretically, if a facility were caught polluting, it could be issued a Clean Water Act permit, but this appears to never have happened.[25] In the absence of any regulatory requirements, the state relies upon the voluntary implementation of agricultural best management practices (BMPs).[26] This effort includes out-of-pocket costs for producers and significant taxpayer subsidies. Large corporate integrators have not provided financial support to farmers for the implementation of BMPs.[27]

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NOTES

1. Eric Lipton, "A Growth Industry Spurs Concern," *Washington Post* (June 1, 1997); personal communication between West Virginia University Extension Specialist and Potomac Headwaters Resource Alliance.

2. Proposed H.B. 2871, West Virginia House Committee on Agriculture and Natural Resources, re: tax credit for new farming or agricultural processing operations. Committee substitute for HB 2871, Tax credit for new poultry farming or processing operations (February 11, 1998); Ken Ward, "Wise Defends State Poultry Industry," *The Charleston Gazette* (June 4, 1997).

3. Proposed H.B. 2871, West Virginia House Committee on Agriculture and Natural Resources, re: tax credit for new farming or agricultural processing operations. Committee substitute for HB 2871, Tax credit for new poultry farming or processing operations (February 11, 1998).

4. Potomac Valley Soil Conservation District, West Virginia Soil Conservation Agency, USDA Natural Resources Conservation Service, "Potomac Headwaters Land Treatment Watershed Project Environmental Assessment" (June 1996), p, 10; Eric Lipton, "A Growth Industry Spurs Concern," *Washington Post* (June 1, 1997); Melvin Mathis, USGS, "Streamwater Quality in the Headwaters of the South Branch Potomac River Basin, West Virginia, 1994-95, and the Lost River Basin, West Virginia" (1995), p. 13.

5. Potomac Valley Soil Conservation District, West Virginia Soil Conservation Agency, USDA Natural Resources Conservation Service, "Potomac Headwaters Land Treatment Watershed Project Environmental Assessment" (June 1996), p. 10.

6. Potomac Valley Soil Conservation District, West Virginia Soil Conservation Agency, USDA Natural Resources Conservation Service, "Potomac Headwaters Land Treatment Watershed Project Environmental Assessment" (June 1996), p. 10; USDA Agricultural Research Service, Draft - Section II Poultry Manure Management, received May 5, 1995 from Dr. Robt. Wright, Beltsville, Maryland; Ken Ward, "Wise Defends State Poultry Industry," *The Charleston Gazette* (June 4, 1997); New York Times New Service, "Poultry Bug Fuels Concern," *Daily-News Record* (October 20, 1997).

7. Potomac Valley Soil Conservation District, West Virginia Soil Conservation Agency, USDA Natural Resources Conservation Service, "Potomac Headwaters Land Treatment Watershed Project Environmental Assessment" (June 1996).

8. Potomac Valley Soil Conservation District, West Virginia Soil Conservation Agency, USDA Natural

Resources Conservation Service, "Potomac Headwaters Land Treatment Watershed Project Environmental Assessment" (June 1996), p. 10.

9. West Virginia Department of Environmental Protection TMDL Assessment Data 1996-1997.

10. West Virginia Department of Environmental Protection News Release, Draft List 303(d) (June 17, 1998).

11. Personal communication between Walt Miller, Moorefield STP operator and Margaret Janes, Potomac Headwater Resource Alliance (March 21, 1995).

12. Letter from Daniel L. Fitch of Wharton, Aldhizer & Weaver to Laidley Eli McCoy Chief of Water Resources, West Virginia Department of Environmental Protection (WVDEP) (September 2, 1993); Letter from Barbara S. Taylor, West Virginia Department of Environmental Protection, to Gene Misner, President of Wampler-Longacre Chicken (March 1, 1996); Letter from Barbara S. Taylor, WVDEP, to Mayor Sager of Moorefield, West Virgnia (March 1, 1996); Administrative Order from WVDEP to the Town of Moorefield, Order Number 3678 (December 1, 1995); "In Magistrate Court," *Moorefield Examiner* (April 1994).

13. Associated Press, "Panhandle Residents Cope, Clean Up after Fran's Floods," *The Charleston Gazette* (September 10, 1996).

14. Associated Press, "Panhandle Residents Cope, Clean Up after Fran's Floods," *The Charleston Gazette* (September 10, 1996).

15. "Council Holds Special Meeting to Discuss Odor, Development," *Moorefield Examiner* (June 12, 1996).

16. "Council Holds Special Meeting to Discuss Odor, Development," *Moorefield Examiner* (June 12, 1996).

17. "Council Holds Special Meeting to Discuss Odor, Development," *Moorefield Examiner* (June 12, 1996); *Moorefield Examiner*, Town Council and County Commission Briefs, (September 13, 1995).

18. Eric Lipton, "A Growth Industry Spurs Concern," *Washington Post* (June 1, 1997).

19. Eric Lipton, "A Growth Industry Spurs Concern," *Washington Post* (June 1, 1997). Note: Some fish in the Potomac River are subject to consumption adviseries due to high levels of chlordane on fish flesh.

20. Interstate Commission on the Potomac River Basin, "The Bay Needs Your Help" (Spring 1993).

21. Rodney White, "Underwood to Attend Regional Meeting," *The Journal*, Martinsburg, West Virginia (September 18, 1997).

22. U.S.EPA and WVDEP, "Fecal Coliform Total Maximum Daily Loads for the South Fork South Branch Potomac River, South Branch Potomac River including Lunice Creek, Mill Creek and North Fork and Anderson Run, West Virginia" (February 20, 1998).

23. Evan Hansen, Potomac Headwaters Resource Alliance and West Virginia Rivers Coalition, "Total Maximum Daily Loads for Fecal Coliform in the Potomac Headwaters of West Virginia: An Assessment of the Data, Assumptions, and Model" (December 18, 1997); U.S. EPA and WVDEP, Fecal Coliform Total Maximum Daily Loads for the South Fork South Branch Potomac River, South Branch Potomac River including Lunice Creek, Mill Creek and North Fork and Anderson Run, West Virginia (February 20, 1998);WVDEP, WVDA, WVSCA, USEPA, USDA-NRCS, Agricultural Water Quality Protection Position Paper (December 15, 1997).

24. Personal communication between Robbin Marks and Dave Watkins, Groundwater Program Manager, Department of Environmental Protection (November 5, 1998); personal communication between Rebecca Knuffke and Lyle Bennett, Office of Water Resources, Department of Environmental Protection (November 10, 1998).

25. Personal communication between Rebecca Knuffke and Lyle Bennett, Office of Water Resources, Department of Environmental Protection (November 10, 1998).

26. Personal communication between Rebecca Knuffke, Robbin Marks and Lyle Bennett, Office of Water Resources, Department of Environmental Protection (November 10, 1998).

27. Evan Hansen, Potomac Headwaters Resource Alliance and West Virginia Rivers Coalition, "Total Maximum Daily Loads for Fecal Coliform in the Potomac Headwaters of West Virginia: An Assessment of the Data, Assumptions, and Model" (December 18, 1997); U.S. EPA and West Virginia Department of Environmental Protection, "Fecal Coliform Total Maximum Daily Loads for the South Fork South Branch Potomac River, South Branch Potomac River including Lunice Creek, Mill Creek and North Fork and Anderson Run, West Virginia" (February 20, 1998); WVDEP, WVDA, WVSCA, U.S. EPA, USDA_NRCS, "Agricultural Water Quality Protection Position Paper (December 15, 1997).

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Chapter 30

WISCONSIN

- Wisconsin is poised in 1998 to experience the biggest rise in factory-sized farms in its history.
- Wisconsin has only five inspectors for 65,000 feedlots of all sizes.
- Wisconsin's cost-sharing program to help farmers prevent environmental pollution has come under scrutiny because of a recent grant to a farmer who converted his farm into an industrial swine operation.

Wisconsin's strict water quality laws may have deterred the factory farming industry from locating in the state in the past. But recently the governor has stepped up efforts to attract feedlots. Two years ago, hoping to promote economic development in the state, Wisconsin's Governor Thompson sent Agriculture Secretary Allen Tracy to California to attract large-scale dairy operations.[1] Meanwhile, the state provides planning grants "to encourage and stimulate the start up, modernization and expansion of Wisconsin dairy farms."[2]

Wisconsin now has 51 livestock operations with 1,000 or more animal units, and another 19 operations of this size have been proposed in 1998. This 37 percent increase would be the biggest jump in large livestock farms Wisconsin has ever seen. The biggest dairy facility proposed to expand would milk 1,400 cows. The factory-scale dairy farm is still a relatively recent phenomenon in Wisconsin, where a 500-cow herd was considered a large farm a mere two years ago. The largest hog farm facility proposed to expand would have approximately 3,000 hogs, and the largest poultry farm could have as many as two million chickens.[3]

Of Wisconsin's total 65,000 livestock operations, 3,000 have more than 300 animal units.[4]

Pollution Problems

Animal waste entering streams and rivers has been noted as a "massive water quality problem" by the Wisconsin Department of Natural Resources.[5] According to the U.S. Environmental Protection Agency's (EPA) 1994 National Water Quality Inventory, polluted runoff is the major water quality problem in Wisconsin rivers near agricultural areas. Agriculture is also a primary source of groundwater pollution.[6] Groundwater provides 97 percent of Wisconsin communities with their water supply needs. In Wisconsin, there are over 800,000 private wells and 10,000 municipal wells.[7]

Factory farms in Wisconsin have created serious pollution problems throughout the state. Fish kills have been reported on numerous occasions. On June 12, 1998, manure runoff from a large dairy near Cleveland in Manitowoc County created a "dark plume in Lake Michigan stretching one quarter-mile offshore. Hundreds of game fish died, along with thousands of minnows and sculpins, cool water forage fish that provide food for larger fish."[8] The incident remains under investigation.

Fish kills are not a new phenomenon in Wisconsin and neither is the recalcitrance of farmers causing the pollution. Over a 12-year period, the Department of Natural Resources contacted a large hog farm owner in Grant County 20 times for multiple fish kills in the Sinsinawa River, according to files from the Department of Natural Resources (DNR).[9]

Seven years ago, an Iowa County cattle feedlot operator was pumping liquids out of the bottom of a waste pit and spraying the scum mat on the surface to break it up when the directional device on his irrigation gun broke. The gun sprayed a nearby stream 50 to 100 yards away, with between 20,000 and 30,000 gallons of manure. The spill polluted 13 miles of river and killed tens of thousands of fish.[10] The DNR could have issued a citation. However, by the time the DNR issued a fine the operator had gone out of business, and the public had to suffer the loss of a valuable fishing resource. Since that time, DNR has worked to improve its enforcement methods.[11]

Regulatory Climate

Wisconsin has one of the oldest programs in the country aimed at controlling polluted runoff from farms. Farmers can receive state grants to pick up most of the cost of implementing measures to reduce environmental pollution. The program is administered jointly by the DNR and the State Department of Agriculture, Trade and Consumer Protection. The program, which is to be used for livestock operations with less than 1,000 animal units, recently became the focus of controversy after a farmer came under suspicion for using cost-share money to expand his farm into a factory-scale hog feedlot.[12]

Under the Priority Watershed Program, as the cost-share program is known, the state develops a watershed plan tailored to the individual farm site that includes best management practices, such as moving feedlots off hillsides, where runoff could pollute a stream, to building concrete and steel manure lagoons.[13]

The state requires operations with more than 1,000 animal units to get a Wisconsin Pollution Discharge Elimination System (WPDES) permit. Approximately 50 livestock factories and feedlots have a WPDES permit, but approximately 60 percent of these permits have expired.[14] Livestock operators must develop

nutrient management plans prior to receiving a permit. The nutrient management plans have been based on the U.S Department of Agriculture's Natural Resource Conservation Service (NRCS) standards.[15] A weakness of the plans includes a failure to require setbacks from ecologically sensitive areas and the lack of inspections to determine compliance.

In 1994, the state Agriculture Department gave a Platteville hog and beef farmer, Jim Schaefer, $205,989 under the state's cost-share program to cover 70 percent of the cost of solving persistent pollution problems. That single grant placed 24 percent of the department's cost-share funds for 1994-1995 into Schaefer's pocket. Before receiving the grant, Schaefer had a persistent record of polluting. Every time it rained, according to DNR officials, polluted runoff would flow from Schaefer's open lots into a nearby creek. The DNR repeatedly measured elevated levels of bacteria and ammonia in the creek, but Schaefer remained recalcitrant about installing equipment to reduce pollution.[16]

One condition of Schaefer's grant was that he could not raise more than 2,500 swine or 1,000 beef cattle (1,000 animal units) at his facility. But in December 1997, Schaefer requested release from this condition. Approval was granted by the Department of Agriculture Trade and Consumer Protection. Some DNR staff suspect that he used the grant to convert his farm to an industrial-scale swine operation.[17]

"What's outrageous is that he's a known polluter using up taxpayer dollars. We're rewarding a known polluter to expand into a factory hog farm," says Bill Wenzel of the Wisconsin Rural Development Center.

State Senator Alice Clausing, chairwoman of the Senate Agricultural Resources Committee, has said she may seek to restrict the cost-share funds that can be granted to a single farmer.[18]

The Schaefer incident could influence rules currently being written under a state law that requires new water quality standards for contaminants from diffuse pollution sources, such as farm runoff,[19] known as nonpoint sources. Citizen activists hope this will be an opportunity to bar farmers from using their cost-share money to expand into factory farms.

Wisconsin's inspections are complaint-based.[20] In response to a complaint, the DNR first conducts a pre-investigation. According to a 1994 Legislative Audit, the backlog of pre-investigation complaints rose from 94 complaints in FY 1989-90 to 198 complaints in FY 1992-93.[21] If a determination is made to respond to the complaint, the DNR, the Department of Agriculture, Trade and Consumer Protection and the local land conservation department, together, make an on-site inspection. If a pollution problem is found, the DNR issues a notice of discharge in a letter to the landowner. The owner then has anywhere from 60 days to two years to correct the problem depending on the severity of the problem and the degree of technology needed.[22] To oversee the 65,000 livestock operations, large and small, the DNR has only five animal waste specialists "We are spread thin," animal waste specialist Vollrath conceded in a recent newspaper interview. A Wisconsin State Journal analysis of DNR records showed that deadlines to comply with or submit records pertaining to the land application of manure, are regularly not met. Only approximately six cases involving agricultural pollution have been referred to the Wisconsin Department of Justice by the DNR. All of these cases were settled out of court with penalties of less than $10,000.[23]

Inspectors rely heavily on a visual assessment of pollution problems. The DNR uses this type of analysis most frequently to determine if it needs to issue a notice of discharge.[24] This type of analysis mainly

picks up obvious problems, and not all feedlot pollution is obvious to the naked eye. If the DNR issues a citation to the operation, however, the department will use more sophisticated water analysis and pollution measures. [25]

Only a few of the larger livestock operations are required to monitor groundwater. Neither the state nor livestock operators are required to monitor air quality.[26]

Local Control

At least one county so far, Trempeleau County, has established siting restrictions for CAFOs, but the Wisconsin legislature has restricted local counties' ability to establish stronger protections for bodies of water.[27]

In Richland County, before a livestock operation can expand to more than 1,000 animal units, it must obtain a local permit, in addition to the state permit.[28]

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NOTES

1. Associated Press, "California Dairy Farmers Move to Wisconsin: Lure: Dairy State Officials Will Recruit During Fall Trip to Warm Weather State" (October 20, 1996).

2. Wisconsin Department of Commerce, "Dairy 2020 Early Planning Grant Program" Fact Sheet.

3. Rick Barrett, "Part One: Report on Big Farms: Growing Too Fast: Can Regulators Keep Up With Expansions?" *Wisconsin State Journal* (July 26, 1998).

4. Rick Barrett, "Part One: Report on Big Farms: Growing Too Fast: Can Regulators Keep Up With Expansions?" *Wisconsin State Journal* (July 26, 1998).

5. Wisconsin Legislative Audit Bureau, An Evaluation of the Nonpoint Source Water Pollution Abatement Program (August 1992), p. 2.

6. U.S. EPA, National Water Quality Inventory, 1994 Report to Congress, Office of Water, Washington, D.C. (December 1995), EPA 841-R-95-005.

7. Personal communication between Eric Uram, Sierra Club, and staff of the Wisconsin Department of Natural Resources, Bureau of Drinking Water and Groundwater (November 18, 1998).

8. Rick Barrett, "Part Two: A Report on Big Farms, More Pollution Caused by Small Farms" *Wisconsin State Journal* (July 27, 1998).

9. Rick Barrett, "Part Two: A Report on Big Farms, More Pollution Caused by Small Farms" *Wisconsin State Journal* (July 27, 1998).

10. "Manure Spill Wreaks Havoc on River's Fish," *The Wisconsin State Journal* (July 6, 1991).

11. Personal communication between Eric Uram, Sierra Club and Mike Vollrath, Animal Waste Specialist, Wisconsin Department of Natural Resources (November 18, 1998).

12. Rick Barrett, "Part One: Report on Big Farms: Growing Too Fast: Can Regulators Keep Up With Expansions?" *Wisconsin State Journal* (July 26, 1998).

13. Joint Legislative Audit Committee, An Evaluation of Surface Water Programs (April 1994), 94-8, p. 22.

14. Letter from Mary Jo Kopecky, Director, Wisconsin Department of Natural Resources to Kenneth Fenner, Chief, EPA (Chicago Office) (June 15, 1995).

15. Personal communication between Rebecca Knuffke and Mike Vollrath, Animal Waste Specialist, Wisconsin Department of Natural Resources (Spring 1998).

16. Rick Barrett, "Part One: Report on Big Farms: Growing Too Fast: Can Regulators Keep Up With Expansions?" *Wisconsin State Journal* (July 26, 1998).

17. Rick Barrett, "Part One: Report on Big Farms: Growing Too Fast: Can Regulators Keep Up With Expansions?" *Wisconsin State Journal* (July 26, 1998).

18. Rick Barrett, "Part One: Report on Big Farms: Growing Too Fast: Can Regulators Keep Up With Expansions?" *Wisconsin State Journal* (July 26, 1998).

19. 1997 Wisconsin Act 27.

20. Personal communication between Rebecca Knuffke and Mike Vollrath, Animal Waste Specialist, Wisconsin Department of Natural Resources (Spring 1998).

21. Joint Legislative Audit Committee, *An Evaluation of Surface Water Programs* (April 1994), 94-8, p. 22.

22. Personal communication between Rebecca Knuffke and Mike Vollrath, Animal Waste Specialist, Wisconsin Department of Natural Resources (Spring 1998).

23. Rick Barrett, "Part One: Report on Big Farms: Growing Too Fast: Can Regulators Keep Up With Expansions?" *Wisconsin State Journal* (July 26, 1998).

24. Personal communication between Rebecca Knuffke and Mike Vollrath, Animal Waste Specialist, Wisconsin Department of Natural Resources (Spring 1998).

25. Personal communication between Rebecca Knuffke and Mike Vollrath, Animal Waste Specialist, Wisconsin Department of Natural Resources (Spring 1998).

26. Personal communication between Rebecca Knuffke and Mike Vollrath, Animal Waste Specialist, Wisconsin Department of Natural Resources (Spring 1998).

27. Wisconsin Act 27 (1998).

28. Rick Barrett, "Part One: Report on Big Farms: Growing Too Fast: Can Regulators Keep Up With Expansions?" *Wisconsin State Journal* (July 26, 1998).

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America's Animal Factories

How States Fail to Prevent Pollution from Livestock Waste

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Chapter 31

WYOMING

- Swine factory farms, which are making a new incursion in Wyoming, have come under toughened pollution regulation as a result of a 1997 state law. But the law left cattle feedlots, a long-standing pollution concern, untouched.

- Citizen groups see the many cattle feedlots clustered along the North Platte River as a threat to the water quality of the river, which is used for drinking water, fishing and boating.

- In 1997, Wyoming passed a law requiring swine factory farms to locate at least one mile away from residences, schools or towns. Since the law's passage, several Wyoming counties have passed even stricter rules, mandating buffer zones of up to five miles from town limits.

Swine factory farms started arriving in Wyoming on a serious scale in the early to mid-1990s and immediately sparked citizen complaints over odors, flies and water pollution. Under pressure from the Powder River Basin Resource Council, a group of farmers, ranchers and environmentalists originally formed to fight strip-mining devastation, the state legislature passed a law in 1997 aimed specifically at regulating swine factory farms.[1]

Currently, Wyoming's Department of Agriculture has a long-range plan to bring large confined swine feeding operations into southeast Wyoming and has invited several companies to consider Wyoming's wide open spaces and small population as an asset to this type of operation.[2]

Unlike the newer pig factories, cattle feedlots are a deeply entrenched part of Wyoming's history, politics and economy. Although citizens' groups have long-standing concerns about pollution threats from cattle feedlots, Wyoming's 1997 law to curb pollution from factory farms left cattle feedlots untouched.[3]

Most of Wyoming's cattle feedlots are concentrated in the southeastern corner of the state because of its proximity to grain supplies in neighboring Nebraska and a favorable climate.

Taxes in Wyoming are also very favorable to industry. The state has no corporate (or personal) income tax, and agricultural land is taxed at a lower level than industrial properties.[4] Factory farms can claim

both the advantages that the state gives to industry and the lower taxes afforded to agriculture.

Pollution Problems

Feedlots and feedlot-related pollution problems are concentrated in the southeastern corner of Wyoming—primarily in Goshen, Laramie and Platte counties.[5] The majority of feedlot operations in Wyoming raise cattle. Many cattle feedlots are clustered along the North Platte River, a historic river followed by pioneers traveling westward out of Nebraska.[6] The river supplies drinking water to several communities in southeastern Wyoming. Reservoirs created by damming up the river are also popular for fishing and boating. Citizens represented by the Powder River Basin Resource Council have long been concerned that feedlots in this area might be polluting the river. Major pollution threats, in the Council's view, include polluted runoff from the hard-packed manure upon which that cattle stand, erosion of riverbanks trampled by cattle and cattle droppings stockpiled or spread on nearby fields. Officials at the Wyoming Department of Environmental Quality say they have found nitrates in the North Platte River above natural background levels, but not in sufficient quantities to pose a health or environmental threat.[7]

However, unsafe levels of nitrate pollution have been found in underground aquifers close to the Platte River, which supply drinking water for several towns.[8] At high levels, nitrates can cause "blue baby syndrome," which impairs infants' ability to carry oxygen in their bloodstream. High nitrate levels in drinking water have also been linked to miscarriages in women.

In Goshen County's Torrington, a town of some 5,000 people, nitrate levels in the groundwater have been measured well above safe drinking levels. In some areas, groundwater is so contaminated that residents cannot use their wells. The U. S. Department of Agriculture is providing millions of dollars in grants to build new wells for communities like Torrington.[9] Citizens in Torrington have also complained of cattle feedlot odors so bad they cannot leave windows open in the summer. Air pollution from factory cattle farms have been blamed for some residents' health problems.[10] One Torrington couple was forced to move from their house near a cattle feedlot after the wife suffered asthma complications.[11]

Fear of contaminated drinking water spurred controversy for several years over a 2,500_head cattle feedlot built by Maxfield Farms along the North Platte River near the Goshen County town of Lingle. By November 1992, the feedlot was substantially built without the owner ever having applied to the state for water pollution control permits.[12] In addition, one of Maxfield Farm's neighbors complained that he had never been notified of the plans to build the feedlot. At the time, Lingle resident Marv Billings noted that the water table in the area was only about 10 or 12 feet and "when the water table drops, the drainage [from the feedlot] will go right into the aquifer that people drink out of."[13]

Under pressure from local residents, Maxfield Farms finally applied for water quality permits from the state. Engineers from the Department of Environmental Quality (DEQ) twice rejected the owner's plans for wastewater treatment facilities because they did not adequately protect groundwater. In public hearings, lawyers for Lingle-area residents and the Powder River Basin Resource Council presented evidence of high nitrate levels found in water samples taken at the feedlot in March 1993.[14] It was too late for citizens to block the cattle feedlot from operating. But when the agency finally granted Maxfield Farms a permit in 1994, one condition imposed at the demand of local citizens was a requirement that Maxfield Farms install groundwater-monitoring wells.[15]

In neighboring Platte County, a massive complex of swine feedlots has been producing such a stink that residents say they are regularly wakened by the smell in the middle of the night. The town of Wheatland is surrounded by four hog factory farms within a 10-mile radius. Together they produce about 100,000 pigs a year. Wheatland residents complain of flies plastered so thick to the exterior of their homes that they can no longer hold picnics outdoors on the Fourth of July. When Wyoming Premium Farms started to build the four hog feedlots in 1995, it assured citizens that it would store the hog manure in state-of-the-art lagoons and line the lagoons with protective liners. Less than a month after the first of Wyoming Premium's hog facilities began operating, its manure lagoon sprang a 750-gallon-a-day leak. The company had to drain the facility and reseal the seams of the lagoon liner.[16] The manure produced by the four facilities is the equivalent of the waste produced by a town of 200,000, the Powder River Basin Resource Council estimates. That dwarfs the human waste of Platte County, which has a population of only 12,000.

Regulatory Climate

In 1997, under pressure from citizens fed up with smelly, polluting factory hog farms, Wyoming passed a new law governing confined swine feeding operations. The state is currently writing regulations to implement the law. Under the law, swine operations with at least 1,000 animal units—the equivalent of about 2,500 pigs—must get a confined swine feeding permit from the Wyoming DEQ.[17] Wyoming's swine permits are more stringent than federal Clean Water Act permits—known as National Pollutant Discharge Elimination System (NPDES) permits—because the state allows no pollution to state waters—a prohibition that applies not only to rivers and streams but also to groundwater. By contrast, a NPDES permit, which the state usually applies to cattle and other animal types, does not bar pollution to groundwater that is not hydrologically connected to surface water.[18] Under the new law, the operator of a swine factory farm must develop a groundwater protection plan and a plan for applying manure to land safely. The new law will require waste management, bonding and a reclamation plan.[19]

When the new swine law was passed, it required buffer zones between factory hog farms and residences that were considered quite strict compared to other states. Factory farm buildings and waste lagoons must be located one mile from dwellings, schools and towns. The one-mile setback can be waived with written permission from a town council, a neighbor or school board.[20]

However, the new law's setbacks are inadequate to protect the environment in several respects. The mandated buffer zones do not include fields applied with hog manure, frequently a major source of pollution. In addition, hog factories can be located as close as one-quarter mile from wells and streams. Existing operations do not need to meet these siting requirements. They are grandfathered under the law. However, if existing facilities significantly expand, they will have to meet the new requirements.[21]

Swine permit requirements, as modified by the new law, are more stringent than permits required for other animal types.[22] For example, cattle feedlots are covered under Wyoming's Environmental Quality Act, which imposes essentially no siting requirements—in contrast to the setback requirements for swine factories. For animals other than swine, such as cattle and sheep, concentrated animal feeding operations (CAFOs) with more than 1,000 animal units must get a Clean Water Act NPDES permit from Wyoming's Department of Environmental Quality (DEQ).[23] The DEQ may require smaller facilities to

obtain a permit if the state determines that they pose a threat of polluting the waters of the state.[24] The state requires that both cattle and swine CAFOs spread manure at agronomic rates.[25]

Currently, there are 11 permitted swine CAFOs and 11 permitted non-swine CAFOs in Wyoming.[26]

State employees inspect permitted livestock CAFOs at least once every five years, with many inspected annually. Hog operations are inspected quarterly during construction and start-up.[27] However, citizens active in passage of the new swine law note that pollution problems are more likely to occur after the start-up stage, when equipment has had time to wear out.

Under the state regulatory program, factory farms monitor their own operations and are supposed to test both their water quality and soil quality.[28] The test results are sent to DEQ. But the agency does not necessarily act on a violation unless citizens have identified a violation, according to members of the Powder River Basin Resource Council. Bringing infractions to the attention of the DEQ is often a laborious process, requiring citizens to travel to the state capital to pore through reports and files.

"DEQ is overworked, underpaid and takes the feedlot operator's word for a lot of things," said Vickie Goodwin of the Powder River Basin Resource Council.

Citizen Involvement

The public comment period prior to permit issuance depends on the type of operation. Swine operations must give public notice of intent to file an application for a permit. Once the application meets DEQ's requirements, a public hearing is held. For livestock operations other than swine and greater than 1,000 animal units, a public hearing is held if there is "sufficient public interest," according to state regulations, in which case public notice of the hearing is provided.[29]

Local Control

The new state swine law authorizes counties to establish stricter zoning for hog factory farms than the siting restrictions in the new state statute. Three counties—Laramie, Goshen and Platte—have taken advantage of the authority to pass stricter ordinances.[30] All three counties are located in the southeastern corner of the state, where most of Wyoming's cattle feedlots are concentrated and where swine factories are starting to make inroads.

Laramie County recently passed new rules in response to a plan by Hastings Pork to build a swine facility in the county a mere 28 feet above groundwater. Laramie's new zoning rules require swine feeding operations to be sited at least 150 feet above groundwater. In addition, the manure lagoons and buildings of swine factory farms must be situated at least three miles from homes, schools and municipalities.[31] Laramie County's new zoning rules effectively prevented Hastings from building its swine factory farm on its original site.

Goshen County has mandated a buffer zone of five miles between towns and factory farms that raise

either swine or cattle.[32] Because Goshen's towns are concentrated along the North Platte River, Goshen's buffer zone provision will force any new factory farm to locate at least five miles from the river, a major step toward preventing pollution of this waterway. Platte County passed rules in August 1998 requiring both cattle and swine feedlots to be situated no closer than two miles from homes, schools and towns.[33]

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NOTES

1. Wyoming Law, Enrolled Act 49, 1997 Wyoming Legislature, also WS 35-11-302.

2. Wyoming Department of Agriculture, Strategic Plan, Wyoming's Agriculture Industry 1990-2000 (July 8, 1990), p. 39.

3. Wyoming Law, Enrolled Act 49, 1997 Wyoming Legislature, also WS 35-11-302.

4. Wyoming Taxpayers Association, "Wyoming Tax Summary 1997,"

5. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality.

6. Personal communication between Bianca DeLille, Clean Water Network and Ron Ewald, Water Quality Office, Wyoming Department of Environmental Quality (November 19, 1998).

7. Personal communication between Sarah Glazer and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 28, 1998).

8. Personal communication between Bianca DeLille, Clean Water Network and Ron Ewald, Water Quality Office, Wyoming Department of Environmental Quality (November 19, 1998).

9. Associated Press, "USDA Grant to Improve Torrington Water Supply," *Casper Star-Tribune* (July 19, 1998).

10. Associated Press, "USDA Grant to Improve Torrington Water Supply," *Casper Star-Tribune* (July 19, 1998).

11. Personal communication between Sarah Glazer and Vickie Goodwin, Powder River Basin Resource Council (October 28, 1998).

12. Michael Bloom, "DEQ Officials Looking into Health Concerns at Feedlot in Lingle," *Torrington*

Telegram (November 13, 1992).

13. Michael Bloom, "DEQ Officials Looking into Health Concerns at Feedlot in Lingle," *Torrington Telegram* (November 13, 1992).

14. Kerry Drake, "EQC Hears Lingle Feedlot Protests," *Caspar Star Tribune* (March 27, 1994).

15. Personal communication between Sarah Glazer and Vickie Goodwin, Powder River Basin Resource Council (October 28, 1998).

16. Kerry Drake, "Wheatland Hog Lagoon Has Had Two Leaks, DEQ Says Farm Complies with State Permit," *Casper Star-Tribune* (July 19, 1997); Kerry Drake, "Leaks Appear at Wheatland Hog Farm Lagoon" *Casper Star-Tribune* (July 20, 1997).

17. Wyoming Law, Enrolled Act 49, 1997 Wyoming Legislature, also WS 35-11-302.

18. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 5, 1998).

19. Wyoming Law, Enrolled Act 49, 1997 Wyoming Legislature, also WS 35-11-302.

20. Wyoming Law, Enrolled Act 49, 1997 Wyoming Legislature, also WS 35-11-302.

21. Wyoming Law, Enrolled Act 49, 1997 Wyoming Legislature, also WS 35-11-302.

22. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 5, 1998).

23. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 5, 1998).

24. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 5, 1998).

25. For non-swine CAFOs getting permits, this is state policy, but there is no requirement in state regulations. Personal communication between Sarah Glazer and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 28, 1998).

26. Personal communication between Sarah Glazer and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 28, 1998).

27. Personal communication between Sarah Glazer and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 28, 1998).

28. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 5, 1998).

29. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 5, 1998).

30. Jessica Lowell, "Tough Rules OK'd for Swine Sites," *Wyoming Tribune-Eagle* (August, 20, 1997).

31. Kerry Drake, "Stiffer swine setbacks approved," *Casper Star-Tribune* (August, 20, 1998).

32. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 5, 1998).

33. Personal communication between Rebecca Knuffke and Lou Harmen, Water Quality Division, Wyoming Department of Environmental Quality (October 5, 1998). Chapter 32

1. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998).

2. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998). p. 26.

3. Clean Water Act, Sections 101(a) and 402.

4. Clean Water Act, Section 303(d).

5. Clean Water Act, Section 505.

6. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), pp. 15-18.

7. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), p. 31.

8. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), p. 5.

9. Concerned Area Residents for the Environment, et al. vs. Southview Farm and Richard Popp, 834 F. Supp. 1410 (W.D.N.Y. 1993), Defendant's Motion for Judgment as a Matter of Law, 834 F. Supp. 1422 (Cir. 2 1993), (rev'd 34 F. 3d 114 (2d Cir. 1994) (reversing defendant's motion)), cert. denied, 115 S. Ct. 1793 (1995)

10. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998). p. 8.

11. U.S. Department of Agriculture and the U.S. Environmental Protection Agency, *Draft Unified National Strategy for Animal Feeding Operations*, Washington, D.C. (September 11, 1998), p. 8-26.

12. U.S. General Accounting Office, Briefing Report to the Committee on Agriculture, Nutrition and Forestry, U.S. Senate, *Animal Agriculture, Information on Waste Management and Water Quality Issues*, GAO/RCED 95-200BR, Washington, D.C. (1995), pp. 58-61.

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