

# **Factsheet: Why Animal Waste Lagoons on Factory Farms Should be Banned**

## **Toxic Air Emissions Are Making People Sick**

- The decomposition of liquid manure in lagoons releases 400 volatile organic compounds into the air including ammonia (a toxic form of nitrogen), hydrogen sulfide, and methane.
- *Hydrogen sulfide* is a gas that can cause health effects such as chest tightness, heart palpitations, shortness of breath, sudden fatigue, comas, seizures, and even death. The lagoons of one facility in Minnesota exceeded the state health standard 271 times in 1999 and 2000.

## **Pathogens in Manure Cause Human Diseases**

- Drinking water contaminated with pathogens (bacteria and viruses) can infect people, causing diarrhea, vomiting, stomach cramps, fever, kidney failure and even death.
- According to researchers in North Carolina, the level of bacteria found in swine lagoon effluent is much higher than the level allowed for municipal wastewater that is either land applied or discharged to water.
- A study by the Centers for Disease Control (CDC) of nine large Iowa confinement sites found bacteria, parasites and other pollutants in lagoons and in other sites including lagoon monitoring wells, underground water and a river.
- *Cryptosporidium*—a Canadian study at ten swine farms found this parasite in liquid swine manure storage structures, surface drain water and subsurface tile drainage water.
- *Fecal Coliform*—a study of lagoon spills in North Carolina found high counts of fecal coliform, indicating the presence of bacteria even 61 days after a spill.

## **Nitrates From Animal Waste Pollute Drinking Water**

- Drinking water supplies may be contaminated with nitrates from lagoon seepage, spills or leaks, or the over- or misapplication of manure onto the land.
- Infants who drink nitrate-contaminated water may be at risk of methemoglobinemia, or “baby-blue syndrome,” which can cause developmental deficiencies or even death.
- The Centers for Disease Control has linked the high nitrate levels in Indiana well water near feedlots to spontaneous abortions in humans.
- Seaboard operations in Oklahoma have contaminated drinking water wells with high levels of nitrates. EPA issued an emergency order to the company in June 2001, requiring it to provide safe drinking water to area residents and hog factory employees.
- In 1998, North Carolina officials found that 34% of 1,600 drinking water wells near factory farms were contaminated with nitrates.

## **Widespread Use of Antibiotics at Factory Farms Contributes to Antibiotic-resistance**

- Livestock producers in the U.S. use about 24.6 million pounds of antibiotics each year (8 times the quantity used to treat human disease) for growth promotion and to prevent disease in crowded conditions.
- The American Medical Association recently went on record opposing the nontherapeutic uses of antibiotics in agriculture.
- According to EPA, as much as 80 percent of the antibiotics administered orally to livestock pass through the animals unchanged into lagoons, which is then spread on croplands where it may runoff into waterways.

- Illinois researchers also found bacteria resistant to tetracycline in soil and groundwater near two hog facilities that use antibiotics as growth promoters.

### **Health of Factory Farm Neighbors and Workers is Harmed By Lagoons and Sprayfields**

- Studies have found that people living close to hog operations have suffered headaches, runny noses, sore throats, excessive coughing, respiratory problems, nausea, diarrhea, burning eyes, depression, and fatigue.
- In 1998, the National Institute for Health reported that 19 people (mostly workers) have died due to hydrogen sulfide emissions from manure pits.

### **Environmental Devastation**

- In 1995, an eight-acre animal waste lagoon in North Carolina burst, spilling 25 million gallons of animal waste into the New River, killing 10 million fish and closing 364,000 acres of coastal wetlands to shellfishing.
- In 1997, animal feedlots were responsible for 2,391 spills of manure in Indiana.
- In 1998, a 100,000-gallon spill into Minnesota's Beaver Creek killed close to 700,000 fish.
- In 1996, 40 spills killed close to 700,000 fish in Iowa, Minnesota, and Missouri.
- From 1995 to 1998, there were over 1,000 spills or other pollution incidents at livestock feedlots in ten states, and 200 manure-related fish kills that resulted in the death of 13 million fish.
- When Hurricane Floyd hit North Carolina in 1999, at least five manure lagoons burst and approximately 47 lagoons were completely flooded—allowing manure to flow out with the floodwaters.

### **Water Contaminants of Concern**

- Animal waste contains the nutrients nitrogen and phosphorus; excessive amounts of nutrients can be harmful, contaminating drinking water, causing toxic algal blooms, depleting oxygen in water, and killing fish.
- Nutrient pollution fosters the growth of *Pfiesteria piscicida*, which has been implicated in the death of more than one billion fish in coastal waters in North Carolina.
- A study by the U.S. Geological Survey found that in 88 percent of the 2,056 watershed outlets, manure contributed more to in-stream total nitrogen than traditional point sources; in 113 watersheds, manure was the single largest contributor. The study also concluded that manure contributes more to in-stream, total phosphorus than commercial fertilizers.
- The U.S. Fish and Wildlife Service estimates that in 1995, animal waste contributed 37 percent of all nitrogen and 65 percent of all phosphorus inputs to watersheds in the central United States.
- Manure can contain trace elements of arsenic, copper, selenium, zinc, cadmium, molybdenum, nickel, lead, iron, manganese, aluminum, and boron. Manure runoff contaminated with these metals can end up in waterbodies where the metals become more concentrated as they make their way up the food chain.
- EPA regulations restricting levels of heavy metals in human sludge do not apply to animal waste.

### **Groundwater Pollution and Depletion**

- Kansas researchers studying hog lagoons found that they leaked between .05 and .08 inches a day, which translates to .99 to 4.35 million gallons per year, or 19.8-87.1 million gallons over the twenty-year life of the lagoon.

- An Iowa study found 18 percent of the 34 earthen waste-storage structures studied were located over alluvial aquifers where there was a risk of contaminating private and municipal water supplies.
- In California's Chino Basin, home to 300,000 cows in 50 square miles, groundwater contaminated with high levels of total dissolved salts and nitrates flows into the Santa Ana River, which is used as a recharge source for the Orange County drinking water aquifer.
- North Carolina's Department of Environment and Natural Resources found that 90 percent of the state's 1,142 inactive lagoons presented a risk for groundwater contamination.
- Lagoon systems deplete groundwater supplies—Missouri activists estimate that a hog operation that finishes 80,000 animals consumes over 200,000 gallons of water per day, or 73 million gallons per year.

### **Poor Siting**

- An Iowa study found that 18 percent of the earthen waste-storage structures were located in floodplains, 21 percent were within 4500 feet of ephemeral streams, and 12 percent of the structures were within 500 feet of perennial streams.

### **Atmospheric Deposition**

- Up to 80 percent of a hog lagoon's nitrogen may volatilize, changing from a liquid to a gas; once ammonia is volatilized, it can be deposited onto land and water 300 miles away.
- In North Carolina, swine operations contribute nearly half of the total atmospheric ammonia in the state.

*(Adapted from Cesspools of Shame, a July 2001 report by the National Resources Defense Council and Clean Water Network.)*