

## APPENDIX B

This appendix explains how we developed the list of recommended monitoring sites in Appendix A. The facilities generally meet a certain size threshold. We listed layer operations that house approximately 1.5 million birds or more, swine operations that house approximately 25,000 head or more and dairy operations that house 1,000 head or more. We also listed groups of facilities that are owned by the same company and that have a combined total number of animals that exceed the thresholds listed above.

In addition to meeting the size thresholds, the facilities listed in Appendix A meet one or more of the following criteria:

- They are located in counties that have the densest populations of livestock operations in the nation;
- They are located in an area where there are documented adverse health effects from CAFOs;
- They are in an area where there have been some studies completed on the relative contribution of CAFOs to air emissions or there has been some ambient data collected near CAFOs; and/or
- They are the subject of citizen complaint.

### I. IOWA

#### A. Poultry Operations

**Size Determinations:** The Iowa Department of Natural Resources (“IDNR”) has a database of the animal feeding operations that have applied for state permits to construct a facility (“construction database”). This database includes information about the size and location of each facility. We determined the number of head of each layer facility by dividing the registered weight by 4 lbs per bird. We tried to verify whether or not each facility was currently in operation at the permitted size capacity by looking at aerial photographs of the facilities and by consulting with IDNR. The images of the livestock facilities are available through the Iowa Geographic Image Map Server (2002). *See* <http://ortho.gis.iastate.edu/>. We identified eight layer operations that have more than 1.5 million animals. Five of these facilities are owned by companies that are listed as top U.S. egg producers by the U.S. Poultry and Egg Association. *See Top U.S. Egg Producers* located at <http://www.poultryegg.org/EconomicInfo/index.html>

**Facilities of Particular Concern:** Two of the listed layer facilities are very close to population centers; therefore, EPA should investigate these facilities first. **Oakridge Farm** has 2.5 million layers and is located near the town of Esterville. Likewise, **Winterset Egg Farm** has over 2 million chickens and is very close to the town of Winterset. *See* attached aerial photographs.

EPA should also focus initial investigations on two of **DeCoster's** largest layer operations because they are adjacent to two of DeCoster's large hog operations in Wright County (see below).

**Density:** Iowa has the highest population of layers in the nation. One of the facilities on our list, **Sunrise Farms, Inc.**, is located in Osceola County which is one of the leading counties in the country for layer operation density.

## B. Swine Operations

**Size Determination:** We used IDNR's construction database to determine which facilities have about 25,000 animals. For sow facilities, we divided the registered weight by 400 lbs. For finishing facilities, we divided the registered weight by 150 lbs.

**Facilities of Particular Concern: DeCoster Farms** has two finishing farms in Wright County in sections 34 and 35 of Lincoln Township. These facilities have a combined total of 24,000 finishing hogs. Two DeCoster layer operations are adjacent to these swine facilities, one in section 34 and one in section 35. Each of these layer operations has about 1 million animals, although IDNR does not have exact numbers because **DeCoster** was not required to obtain a construction permit at the time these facilities were built.

On April 1, 2003, IDNR began monitoring ammonia and hydrogen sulfide emissions near another one of DeCoster's hog confinements in Wright County near Clarion. *See* "real time" air quality data at <http://www.iowacleanair.com/current/current.htm>. This facility is located in Lincoln Township, about three miles north of the DeCoster facilities in Sections 34 and 35. Preliminary data compiled on May 15, 2003 by IDNR established concentrations of ammonia well above the limits recommended by the Iowa State University and the University of Iowa Study Group ("Iowa Study"). The highest ammonia level found near **DeCoster's** facility was 494 ppb. *See* attached data. The Iowa Study group recommends that the ammonia limit should only be 150 ppb. Based on previous statements made by EPA, a public health hazard may exist around this **DeCoster** facility because ammonia concentrations exceed the peer-reviewed, consensus recommendations for ambient ammonia limits in the Iowa Study. *See, e.g.*, Memorandum from Mario Jorquera, Stationary Source Enforcement Branch in the Air Enforcement Division to Scott Clardy, Missouri Department of Health and Senior Services, Section for Environmental and Public Health (December 2, 2002). The same **DeCoster** swine facility also had an exceedance of hydrogen sulfide above the Study Group's recommended limit. *Id.*

In addition to the **DeCoster** facility, we listed two groups of **Iowa Select** facilities. The first group has five **Iowa Select** facilities in four adjacent sections that straddle the Clarke-Union County line in southern Iowa. These facilities have separate permits but are located in close proximity to each other in a four square mile area. There are about 20,000 sows at the five sites. In addition to potential Clean Air Act problems, the Clarke

sow facility has had two major spills, one in September 1999 and one in September 2001. The most recent spill killed over 10,000 fish.

The second group of **Iowa Select** facilities is located in the same one square mile in Sac County. These facilities were the subject of a nuisance suit brought by neighbors that resulted in a 33 million dollar award.

**Density:** Iowa is the number one hog producing state in the nation and produces 15.3 million hogs. See National Agricultural Statistics Service (“NASS”), Agricultural Statistics (2003). The **DeCoster** swine and poultry facilities are located in Wright County, one of the densest hog counties in the nation.

### C. Dairy

**Facility of Particular Concern:** Ammonia concentrations at a residence downwind of a dairy CAFO, **Milk Unlimited**, exceeded the recommended standard of 15 ppb for fifteen days in one month. Seven of the ammonia readings were above 200 ppb. Hydrogen sulfide concentrations exceeded the recommended standard of 15 ppb six times in the same month. The highest reading exceeded 100 ppb. Although this dairy is listed in IDNR’s construction database, there is no information about its size.

**Health Impacts:** Emissions from agricultural operations in Iowa cause significant health problems in workers and in nearby residents. For instance, Iowa State University and the University of Iowa Study Group documented serious health effects in agricultural workers from CAFOs, including acute and chronic respiratory disease, sinusitis, acute and chronic bronchitis, decline in lung function, respiratory impairment, and even premature mortality. See Iowa State University and The University of Iowa Study Group, *Iowa Concentrated Animal Feeding Operations Air Quality Study* (February 2002) (“Iowa Study”). Similarly, residents within two miles of a large hog operation in Iowa have experience increased eye and upper respiratory symptoms. K. Thu et al., *A Control Study of the Physical and Mental Health of Residents Living Near a Large-Scale Swine Operation*, 3 J. Agric. Safety & Health 1, 13-26 (1997).

**Citizen Complaints:** IDNR’s Compliance and Enforcement Bureau consists of six field offices that are responsible for handling odor complaints from citizens in their designated counties. Last year, the Air Quality Bureau analyzed odor complaint records involving CAFOs that were collected by the field offices from July, 1, 1994 through October 15, 2001. See B. Bunton, *Odor Complaints from Animal Feeding Operations* (January 2002). The Air Quality Bureau received a total of 306 complaints from only four of the six field offices. This number of complaints is probably underestimated because there is no requirement that field offices record odor complaints. While we do not have information about which facilities the complaints were associated with, the results of the study revealed that the majority of the recorded complaints were about odor from swine CAFOs (86.9%).

## II. NORTH CAROLINA

### A. Poultry Operations

**Density:** North Carolina is one of the largest poultry producing states in the nation. For example, Duplin and Sampson counties rank second and third in the nation for turkey production; therefore, an investigation of large poultry operations in these counties is warranted. National Agricultural Statistics Service (NASS), *Agricultural Statistics* (2003). We did not include any poultry operations in North Carolina on our list because we were unable to find any details about specific facilities, because the North Carolina Division of Water Quality in the Department of Environmental and Natural Resources only has information about poultry operations that have liquid waste systems while most of the operations have dry litter systems. EPA will have to use its information gathering authorities under the Clean Air Act to find out information about the size and locations of these operations.

**Citizen Complaints:** Like Iowa, complaints related to CAFO odors are handled by the regional offices of the state environmental agency. The Division of Air Quality (“DAQ”) has done some statistical analyses on the data collected by the regional offices. According to conversations with DAQ staff, there have been roughly 400 complaints since 1999 and most of them occurred in the first year. Since 1999, half of the complaints have been related to turkey and other poultry operations in Sampson and Duplin counties.

### B. Swine Operations

**Size Determination:** EIP obtained farm-level data on swine operations courtesy of the North Carolina Department of Environment and Natural Resources, Division of Water Quality (“DWQ”). The database includes all active animal operations in North Carolina that are required to be permitted by DWQ. Swine operations with more than 250 head are required to apply for a state permit. *See* 15A NCAC 2H .0217. The DWQ categorizes the numbers of animals on each farm by using the steady state live weight which represents the collective weight of all of the animals at a facility. We determined the number of head for each facility by dividing the steady state live weight by an average hog weight of 135 lbs. *See* 2003 North Carolina Agricultural Chemicals Manual, Table 10-1. We listed the top eleven swine operations with more than 25,000 head.

**Density:** North Carolina ranks second in hog production, with a standing herd of approximately 9 million hogs per year. NASS, *Agricultural Statistics* (2003). Duplin and Sampson counties account for approximately four million hogs or forty percent of the state’s hog population and rank as the top two number hog producing counties in the nation. NASS, *Agricultural Statistics* (1997). Bladen county is ranked number five. *Id.* Most of the facilities on our list are located in these counties, and many of the operations appear to be owned by **Smithfield Foods**.

**Health Impacts:** Air emissions from CAFOs in North Carolina adversely affect public health. Neighbors of large hog facilities report headaches, runny noses, sore throats and

excessive coughing more often than residents in communities without liquid manure facilities. S. Wing & S. Wolf, *Intensive Livestock Operations, Health, and Quality of Life Among Eastern North Carolina Residents*, 108 *Envtl. Health Persp.* 223-38 (2000). Likewise, persons subjected to liquid manure odors are significantly angrier, depressed, tense and fatigued, all psychological factors which can affect the body's immune response. Schiffman, et. al. *Mood Changes Experienced by Persons Living Near Commercial Swine Operations* (1998). To listen to North Carolinians tell their own stories about how pollution generated from hog confinements has adversely affected their health, visit [http://www.environmentaldefense.org/documents/2548\\_Hogwatch\\_speakout.htm](http://www.environmentaldefense.org/documents/2548_Hogwatch_speakout.htm).

**Environmental Impacts:** Air emissions from CAFOs in North Carolina harm the environment as well as public health. For the past twenty years, researchers at the National Atmospheric Deposition Program have collected rainfall data in Sampson county. See <http://nadp.sws.uiuc.edu>. Beginning in 1985, ammonia levels began to rise, and by 1995 ammonia levels had doubled in Sampson County while ammonia levels had not changed outside the area with industrial hog farms. Aneja, V.P., G. Murray, and J. Southerland, *Atmospheric Nitrogen Compounds: Emissions, Transport, Transformation, Deposition, and Assessment*, EM (Environmental Manager) at 22-25 (April 1998). As much as 80% of the total ammonium in the CAFO wastes are released to the atmosphere from lagoons and from currently accepted spray practices, and much of it reenters waterways as local precipitation. J. Burkholder, Director of the Center for Applied Aquatic Ecology at North Carolina State University, *Environmental Impacts of Concentrated Swine and Poultry Operations* (June 2001). The North Carolina Division of Air Quality estimated that hog farms collectively discharge at least 186 tons of ammonia into the air every day. Aneja, et. al. 1998. Poultry operations are also major contributors to airborne ammonia in eastern North Carolina. J. Burkholder, 2001.

### III OHIO

**Facility of Particular Concern:** Although **Heartland Quality Egg Farm** (Heartland Farms) is reported to have slightly fewer than 1.5 million layers, it is on our list because it appears to present a particularly egregious case of a nearby community being adversely affected by air pollution from a CAFO. Last month, the *Bellefontaine Examiner* published a three part series on the Heartland Farms facility. The series reported cases of histoplasmosis, a disease caused by fungus that is inhaled. Histoplasmosis first infests the lungs, but can spread elsewhere in the body if left untreated. The most common source of the fungus is bird or bat droppings. At least four men in the immediate area of Heartland Farms suffer from a severe form of histoplasmosis. One had to have a portion of his lung removed because of the disease and another attributes the amputation of his leg to complications arising from the spread of histoplasmosis in his body. According to the articles, state officials have been unwilling to consider the four confirmed cases an "outbreak" and claim that an investigation into the source of histoplasmosis would be too expensive.

EPA should conduct an investigation of this facility because of its size and because of the possibility that spores are being spread to the public by way of the facility's air emissions. Even if Heartland is not the source of histoplasmosis, affected persons living around the CAFO may be more susceptible to the spread of this disease throughout their bodies if their immune systems are compromised. At least one study shows that exposure to CAFO odors can affect immunity and influence susceptibility to disease. *See Schiffman, et. al. Mood Changes Experienced by Persons Living Near Commercial Swine Operations* (1998).

#### IV. MAINE

**Facility of Particular Concern: DeCoster** appears on the list because it is the nation's fourth largest egg producer and confines approximately 3.5 million hens near Turner, Maine. *See* Sierra Club's Rapsheet. **DeCoster** also has a long history of violating environmental laws. For instance, in June 2000, Iowa classified **DeCoster** as a "habitual violator" of state environmental laws for committing three or more violations that were referred to the attorney general for legal action and that were the subject of a civil penalty or a court conviction. *See* Iowa Code § 459.604 (2003).

#### V. UTAH

**Facility of Particular Concern: Circle Four Farms**, a subsidiary of **Smithfield Foods**, is the nation's 15<sup>th</sup> largest pork producer and confines 57,500 sows in Beaver and Iron counties. *See* <http://www.c4farms.com/FAQ/FAQ.htm> (last visited on July 20, 2003). Circle Four Farms has growth plans in place to confine a total of 77,000 sows which will produce approximately 1.5 million market hogs per year. *Id.* Circle Four Farms' air emissions should be investigated because it does not land-apply its waste. Rather, the waste evaporates from their lagoons because Circle Four is located in the southwestern desert of Utah. *Id.* Some experts speculate that in arid climates more of the nitrogen from manure lagoons may be converted to ammonia than in wetter locations. *See* Natural Resources Defense Council, *America's Animal Factories: How States Fail to Prevent Pollution from Livestock Waste* (December 1998)

**Health Impacts:** At least nine workers have been sent to the hospital as a result of air emissions from Circle Four. Four workers were sent to the hospital because they had difficulty breathing and experienced chest pains and nausea. Mike Carter, *Fumes Overcome Four Workers at Hog Farm*, Salt Lake Tribune (April 24, 1998). Three months later, five workers were hospitalized after being overcome by toxic gases in a confinement building. Ben Winslow, *Hog Fumes Send 5 to Hospital*, Salt Lake Tribune (July 9, 1998).

**Citizen Complaints:** Citizens who live near Circle Four often complain of odor; some report smelling an offensive hog odor most or all of the time. *See* <http://www.c4farms.com/FAQ/FAQ.htm> (last visited on July 20, 2003). Unfortunately,

Circle Four is located in a valley where the prevailing winds blow south to north. Many of the residents live just north of the facilities.

## VI. CALIFORNIA

**Facilities of Particular Concern:** All of the facilities on our list are of particular concern because they are very large and are located in the San Joaquin Valley in some of the densest counties in the country for dairy cows. The San Joaquin Valley is in serious nonattainment for PM<sub>10</sub> and severe nonattainment for ozone. Dairies emit particulate matter and precursor pollutants for both PM and ozone.

**Density:** According to the most recent USDA Census of Agriculture, California has the most milk cows in the nation. NASS, *Agricultural Statistics* (1997). The California Air Resources Board estimates that the San Joaquin Valley houses 70% of the statewide dairy population or approximately 1.8 million cattle, including 960,000 milking cows. California Air Resources Board Planning and Technical Support Division, *A Preliminary Assessment of Air Emission From Dairy operations in the San Joaquin Valley* (November 15, 2000). Tulare County, in the San Joaquin Valley, has the highest number of dairy cows in the nation. NASS, *Agricultural Statistics* (1997). **Sierra View Dairy** on our list is in Tulare County.

**Environmental Impacts:** In the summer, the agriculture industry in the San Joaquin Valley creates more air pollution than the eight highest-polluting industrial businesses in the area combined, including an oil company and glass manufacturer. *Last Gasp: A Fresno Bee Special report on Valley Air Quality* (December 15, 2002). The San Joaquin Valley Unified Air Pollution District recently ranked livestock waste as the Valley's second highest source of VOCs. In 2005, livestock waste will be the largest source category of VOC emissions. The California Air Resources Board has an emissions factor for VOC emissions from decomposing livestock waste. See South Coast Air Quality Management District, Board Meeting Agenda (December 6, 2002) at [www.aqmd.gov/hb/021222a.html](http://www.aqmd.gov/hb/021222a.html). Using this emission factor, a dairy with 4,000 cows would exceed the 25-ton per year VOC threshold. All of the dairies on our list, including **B&B Dairy, LLC, George Borba & Sons, Diamond H Dairy and Sierra View Dairy**, have well above 4,000 head and probably exceed the VOC threshold.

Dairies contribute approximately 44% of the ammonia emitted in the San Joaquin Valley. The highest percentage of these ammonia emissions occurs in Tulare County where dairies contribute approximately 62% of the county's ammonia emissions. California Air Resources Board Planning and Technical Support Division, *A Preliminary Assessment of Air Emission From Dairy operations in the San Joaquin Valley* (November 15, 2000). **Sierra View Dairy** is in Tulare County.

**Health Impacts:** Ammonia from livestock and dairy waste may contribute to significant health problems since it is a precursor for fine particulate matter (ammonium nitrate). In the Valley, ammonium nitrate represents between 30-50% of the total PM<sub>10</sub> concentration during winter, when PM<sub>10</sub> levels are at the highest. Karen L. Magliano, et. al., *Spatial*

*and Temporal Variations in PM<sub>10</sub> and PM<sub>2.5</sub> Source Contributions and Comparison to Emissions During the 1995 Integrated Monitoring Study*, Atmospheric Environment 33 (1999). In the eight-county San Joaquin air basin in California, 1,292 deaths occur annually as a result of current PM<sub>2.5</sub> levels. Renee Sharp and Bill Walker, Environmental Working Group, *Particle Civics: How Cleaner Air in California Will Save Lives and Save Money* (2002).

## VII. IDAHO

**Facilities of Particular Concern:** All of the dairies on are list should be investigated, however, EPA should focus its efforts first on **Desert Rose Farms**. **Desert Rose Farms** is one of the largest dairies at 8,000 head and has been the subject of the most citizen complaints (see below).

EPA should also focus its initial efforts on the six facilities listed in Canyon County. As discussed below, Canyon County exceeded ozone and PM<sub>2.5</sub> standards in 2002. Ammonia contributes to the formation of both ozone and PM<sub>2.5</sub>. IDEQ projects that an 8,000 head dairy like **Dry Lake Dairy** increases total ammonia emissions in the air shed by 350 tons per year. See Department of Environmental Quality, *Treasure Valley Air Quality Issues* (February 10, 2003). Dairies with around 5,000 head, like **Sun Ridge Dairy** and **DeGroot Dairy**, will increase total ammonia emissions in the air shed by 220 tons per year. *Id.*

**Density:** Idaho is ranked as one of the top ten states in the nation with the highest number of milk cows. In 2001, the Idaho Department of Agriculture estimated that there are 840 dairies in the state with a combined total of 337,000 animals. *Letter from Marv Patten, Chief of the State of Idaho Department of Agriculture Bureau of Dairying to Warren McFall, Environmental Protection Agency* (October 26, 2001). The counties with the highest density are Gooding County and Jerome County. Gooding County has 95,511 animals and Jerome County has more than 53,000 animals. Both counties have multiple dairies with greater than 2000 animals. **Beukers Dairy #2** is one of the dairies in Jerome County that has greater than 2,000 animals (~3,000 head). **Beukers Dairy #1** is right next door in Jerome County, but we do not know the exact number of animals at this facility.

**Environmental Impacts:** The Idaho Department of Environmental Quality (“IDEQ”) recently published a study on air quality in the Treasure Valley. Department of Environmental Quality, *Treasure Valley Air Quality Issues* (February 10, 2003). Northern Ada County in the Treasure Valley has had a long history of air quality problems and was designated as a nonattainment area for carbon monoxide and particulate matter (PM<sub>10</sub>) in the late 80s.

Northern Ada County is in the same air shed as Canyon County. Both counties exceeded ozone and PM<sub>2.5</sub> standards in 2002 raising the possibility of new nonattainment designations for the Treasure Valley. Ammonia contributes to the formation of both ozone and PM<sub>2.5</sub>. A 1999 Treasure Valley Emissions Inventory estimated annual



emissions of ammonia and revealed that the largest source of ammonia in the Treasure Valley, accounting for 64% of all emissions, was livestock urine and solid waste. A number of the dairies in Appendix A are located in Canyon County.

**Citizen Complaints:** In recent years, IDEQ and the Idaho State Department of Agriculture (“ISDA”) have received a record number of odor complaints. IDEQ Annual Report (2003). Dairies are the source of many of the odor complaints. *Id.* For instance, in just four months, between March and June 2001, the IDEQ received 775 complaints from citizens about odor from dairy operations. Between January 1, 2001 and September 13, 2002, ISDA also received hundreds of complaints. While DEQ’s log did not list the name of the offending facility, IDA’s did. Many of the dairies on our list appeared multiple times on IDA’s log. For instance, **Desert Rose Farm** was the subject of 126 complaints and **Beranna Farm** was the subject of 100 odor complaints. **Beuker’s Farms** and **Swager & Sons** dairy also appeared on ISDA’s log multiple times.

## VIII. WISCONSIN

**Particular Facility of Concern:** Using an emission factor listed in a study contracted by EPA, which has been relied upon by a number of states to estimate ammonia emissions from cows, each of the listed facilities may be emitting more than 100 tons of ammonia per year, because they all have well over 1,000 head. *See* R.W. Battye, C. Overcash, and S. Fudge, *Development and Selection of Ammonia Emission Factors*, prepared for EPA by the Atmospheric Research and Exposure Assessment Laboratory in Durham, North Carolina (1994). As a result, these dairies may be “major sources” of air pollutants under Wisconsin law.

Wisconsin law defines a “major source” to include a stationary source that directly emits or has the potential to emit, 100 tons per year or more of *any* air contaminant other than particulate matter emissions. Wis. Admin. Code § NR 407.02(4). Major sources are required to control their air emissions under Wis. Stat. § 285.63(1), (2) and (3). This state law and regulation are incorporated into Wisconsin’s State Implementation Plan; therefore, EPA can enforce them as federal law.

EPA should confirm whether or not the listed dairies are major sources of ammonia emissions by ordering them to conduct source testing. If the testing confirms that there are major sources, EPA should require them to install pollution controls required by law.

**Density:** Wisconsin is a close second to California for the state with the greatest number of milk cows. *See* NASS, *Agricultural Statistics* (1997).

## IX. KENTUCKY

**Particular Facilities of Concern:** We listed four large broiler operations in Kentucky that are owned by **Tyson** and are located in fairly close proximity to each other. These facilities are the subject of citizen complaint.

## X. MICHIGAN

**Particular Facility of Concern: Hartland Farms**, a dairy CAFO in south central Michigan, is one of ten dairy CAFOs within a ten mile radius of the town of Hudson, Michigan. **Hartland Farms** is small by comparison to the other dairy CAFOs in Appendix A, however, we listed it because medical professionals have determined that its air emissions endanger the health of neighbors.

**Health Impacts:** At least three medical professionals have determined that air pollution from **Hartland Farms** is endangering public health.

On October 9, 2002, Lynn Henning went to her doctor, because she was experiencing dry heaves, a sore throat, watery eyes, headache and nausea as she and her husband were attempting to harvest their crops on a field next to **Hartland Farms**. Her doctor, Dr. Leland Wolf, sent her to the hospital for tests. Dr. Wolf concluded that Lynn suffered from acute exposure to hydrogen sulfide from **Hartland Farms**.

In April of this year, Lynn Henning's father-in-law and mother-in-law also tested positively for neurological impairment from exposure to hydrogen sulfide from dairies in their area, including **Hartland Farms**. In a letter dated May 13, 2003, Dr. Kaye Kilburn, a Ralph Edgington Professor of Medicine at University of Southern California whose team of examiners tested Mr. and Ms. Henning, stated that Mr. and Ms. Henning "show losses of functions that are characteristic of brains damaged by hydrogen sulfide" and it is "[his] expert opinion that their impairments are caused by hydrogen sulfide from the nearby cow husbandry operations, barns and manure lagoons." *Letter from Dr. Kaye Kilburn to Mr. Stanley Sala regarding Gerald and Cecilia Henning* (May 13, 2003). Dr. Kilburn compared their exposure to that of "workers exposed in oil or natural gas fields." *Id.*

Finally, as recently as last month, Kathy Melmoth, a Registered Nurse and former Public Health Nurse, wrote a letter to the Michigan Department of Environmental Quality, describing how air emissions from **Hartland Farms and Vreba-Hoff 2** jeopardize the health of local residents. *See Electronic mail from Kathy Melmoth, RN to Steve Chester, Director of Michigan Department of Environmental Quality* August 22, 2003). In her letter, she describes smog-like conditions of dust in the air from these facilities, causing at least one person to seek medical attention for respiratory problems. Other neighbors suffer from "headache[s], cough[s], burning eyes, nausea, and diarrhea." *Id.*

**Citizen Complaints:** Citizens routinely report odor and other air emissions problems associated with CAFOs to the Michigan Department of Agriculture, Michigan Department of Environmental Quality and the local County Health Department, but they

usually get no response. *Id.* Within the last week, MDEQ has reportedly begun to investigate air quality problems at CAFOs for the first time in twelve years.