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Testimony of Catharine Fitzsimmons
on behalf of the National Association of Clean Air Agencies (NACAA)
before the Senate Environment and Public Works Committee regarding
"Human Health, Water Quality and Other Impacts
of the Confined Animal Feeding Operation Industry"
September 6, 2007

Good morning. My name is Catharine Fitzsimmons and I am Chief of the Air Quality Bureau of the Iowa Department of Natural Resources. I appear today on behalf of NACAAð the National Association of Clean Air Agenciesð the association of air pollution control agencies in 54 states and territories and over 165 metropolitan areas across the country. I am pleased to have this opportunity to testify before this Committee on the important subject of confined animal feeding operations (CAFOs), their impacts on the environment and efforts to address those impacts.

NACAAôs members are responsible for ensuring that our citizens breathe clean air. We are required under the Clean Air Act to develop State Implementation Plans (SIPs) demonstrating, to EPAôs satisfaction, that areas attain the health-based National Ambient Air Quality Standards (NAAQS) by statutory deadlines and maintain clean air thereafter. In developing these plans, we analyze every important source of pollution, large and small, ranging from electric utilities to other industrial sources, from cars and trucks to even bakeries and dry cleaners. In light of the fact that SIP development is a zero sum calculation, our agencies do not have the luxury of ignoring any significant source of air pollution. Doing so would not only make our task substantially more difficult, if not impossible, but would also unfairly shift the burden of control to those sources that are already regulated.

Accordingly, we are troubled by legislative and regulatory efforts to exempt huge industrial-size CAFOs from environmental laws. If CAFOs produce air emissions that exceed permitting thresholds or reportable quantities, and thus potentially harm human health and the environment, then, just like other relatively equivalent sources of pollution, CAFOs should comply with the laws concerning those harmful emissions.

<u>The Growing Size of the CAFO Industry and Proliferation of Industrial-Scale CAFOs</u>

The animal farming industry in the U.S. is a tremendously large one, both in terms of numbers of animals and revenue. There are over 100 million head of cattle and

calves in the U.S.,[1] and cash receipts for this industry in 2006 totaled $49.1 billion.[2] The U.S. swine industry is equally as largeð more than 60 million head of hogs and pigs,[3] amounting to a $14.1 billion business in 2006.[4] For poultry, the numbers of animals are even more impressive: almost 350 million layer hens and more than 175 million chicks for meat production (known as ñbroilersò),[5] with the total farm value of U.S. poultry production exceeding $20 billion a year.[6]

This industry has also evolved, with fewer larger operations replacing more numerous smaller ones, even as production has grown dramatically. The broiler industry is a good example. According to the U.S. Department of Agriculture, in 1934, there were 11,405 facilities that hatched all chickens in the U.S. Those hatcheries had the capacity to incubate 276 million eggs at one time for an average capacity of 24,224 eggs. In 2001, there were 323 chicken hatcheries, with an incubator capacity of 862 million eggs; the average incubator capacity of a hatchery is 2.7 million eggs.[7]

NACAAôs primary concern is with these industrial-scale CAFOs, those that house hundreds or thousands of animals. As the term CAFO suggests, most of these animals are housed in confined facilities: broiler houses usually handle between 20,000 and 30,000 birds per house[8] and swine finishing buildings in Iowa typically house 1200 to 2400 pigs each. It is these large CAFOs, not small family farms, that produce thousands of tons of manure and release air pollutants in levels of potential concern. The largest CAFOs house thousands of dairy cows or beef cattle, tens of thousands of swine and hundreds of thousandsð even millionsð of chickens.[9]

Human Health and Environmental Impacts of CAFOs

Air emissions from CAFOs can harm human health and the environment. These harmful emissions include ammonia, hydrogen sulfide and particulate matter, including fine particulate matter ($PM_{2.5}$).

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[1] National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture (USDA), ñCattle,ò (July 20, 2007), at 1 (available at http://usda.mannlib.cornell.edu/usda/current/Catt/Catt-07-20-2007.pdf).

[2] NASS, Agricultural Statistics Board, USDA, ñMeat Animal Production, Disposition, and Income: 2006 Summary,ò (April 2007) at 1 (available at http://usda.mannlib.cornell.edu/usda/current/MeatAnimPr/MeatAnimPr-04-27-2007.pdf).

[3] NASS, Agricultural Statistics Board, USDA, ñQuarterly Hogs and Pigs,ò (June 29, 2007) at 1 (available at http://usda.mannlib.cornell.edu/usda/current/HogsPigs/HogsPigs-06-29-2007.pdf).

[4] ñMeat Animal Production, Disposition, and Income: 2006 Summary,ò *supra* note 2 at 1.

[5] NASS, Agricultural Statistics Board, USDA, ñChickens and Eggs: 2006 Summary,ò (Feb. 2007) at 1 (available at http://usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2007.pdf) and NASS, Agricultural Statistics Board, USDA, ñBroiler Hatchery,ò (Aug. 22, 2007) at 1 (available at http://usda.mannlib.cornell.edu/usda/current/BroiHatc/BroiHatc-08-22-2007.pdf).

[6] Economic Research Service, USDA ñPoultry and Eggs: Backgroundò website, accessed on Aug. 29, 2007, http://www.ers.usda.gov/Briefing/Poultry/Background.htm.

[7] NASS, Agricultural Statistics Board, USDA, ñU.S. Broiler Industry Structure,ò (Nov. 27, 2007) at 1 (available at http://usda.mannlib.cornell.edu/reports/nassr/poultry/industry-structure/specpo02.pdf).

[8] National Academy of Sciences, ñAir Emissions from Animal Feeding Operations: Current Knowledge, Future Needs,ò (2003) at pp. 37-38.

[9] EPAôs definition of a CAFO is at 40 CFR Part 122 Appendix B.

Human exposure to ammonia triggers respiratory problems, causes nasal and eye irritation and in large enough amounts can be fatal.[10] Ammonia also contributes directly to the formation of $PM_{2.5}$, which causes severe health effects in humans, including death, heart attacks and increased severity of asthma attacks, as well as visibility impairment.[11] Hydrogen sulfide is a toxic air pollutant that can cause severe health effects, even death, at high concentrations of exposure.[12]

Air emissions from CAFOs are, by no means, trivial. In fact, CAFO ammonia emissions represent *half* the U.S. ammonia emissions inventory.[13] In California, livestock ammonia emissions contribute 38 percent of the stateôs entire inventory of ammonia emissions. In San Joaquin Valley, 70 percent of the areaôs ammonia emissions are from livestock.

Emissions of ammonia from the largest CAFOs approach and even dwarf those of other industrial facilities. Monitoring of Premium Standard Farms (PSF) conducted by EPA (under a settlement agreement) in 2004 shows that PSF releases 3 million pounds of ammonia annually from barns and lagoons at its Somerset facility, making it the fifth largest industrial emitter of ammonia in the country.[14] Threemile Canyon Farms in Boardman, Oregon, reported that its 52,300-dairy-cow operation emits 15,500 pounds of ammonia per day, totaling more than 5,675,000 pounds per year.[15] That is 75,000 pounds *more* than the nationôs number one manufacturing source of ammonia air pollution (CF Industries of Donaldson, Louisiana).[16]

Furthermore, CAFOs produce millions of tons of manure each year. According to EPA, CAFOs generate approximately 500 million tons of waste each year, three times more raw waste than is generated yearly by humans in the U.S.[17] Pollutants of concern in manure include ammonia, hydrogen sulfide, nitrogen, phosphorus, pathogens, antibiotics, hormones and particulates.[18] In Iowa, the greatest number of air complaints we receive

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[10] Schiffman, S.S., et al., *Health Effects of Aerial Emissions from Animal Production and Waste Management Systems*, available at http://www.cals.ncsu.edu/waste_mgt/natlcenter/summary.pdf and Agency for Toxic Substances and Disease Registry, ñPublic Health Statement for Ammoniaò (September 2004), available at http://www.atsdr.cdc.gov/toxprofiles/phs126.html#bookmark05.

[11] EPA, ñReview of the National Ambient Air Quality Standards for Particulate Matter: Policy Assessment of Scientific and Technical Information,ò (OAQPS Staff Paper) (December 2005) (available at http://www.epa.gov/ttn/naaqs/standards/pm/data/pmstaffpaper_20051221.pdf).

[12] Agency for Toxic Substances and Disease Registry, ñPublic Health Statement for Hydrogen Sulfideò (July 2006), available at http://www.atsdr.cdc.gov/toxprofiles/phs114.html.

[13] National Academy of Sciences report, *supra* note 8, at 51.

[14] Premium Standard Farms, *Air Emissions Monitoring Completion Report* (Nov. 17, 2004) and EPA, ñToxics Release Inventoryò (2004), available at http://www.epa.gov/triexplorer.

[15] Letter from Tom Lindley on behalf of Threemile Canyon Farms to EPA Region X, April 18, 2005.

[16] U.S. EPA, Toxics Release Inventory, 2003, http://www.epa.gov/triexplorer/.

[17] EPA, ñNational Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operationsð Final Rule,ò 68 *Federal Register* 7176 (February 12, 2003) at 7180.

[18] Id., and EPA, ñEnvironmental Assessment of Proposed Revisions to National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations,ò (January 2001) at pp.3-1 to 3-17 (available at http://www.epa.gov/waterscience/guide/cafo/envir.html).

concern emissions from land application of manure. In 2006, Iowa monitored 10 homes for ammonia and hydrogen sulfide emissions to assess the air emissions of CAFOs and recorded high ammonia emissions on a regular basis and high hydrogen sulfide emissions periodically.[19]

Given the focus of our association on air pollution, our testimony deals only with air emissions from manure, but pollutants from manure also have a tremendous impact on water qualityð for example, livestock wastes can contribute up to 37 percent of total nitrogen loads and up to 65 percent of total phosphorus loads in surface waters.[20]

In light of these statistics, it seems obvious that, like every other industry that has an impact on human health and the environment, CAFOs should comply with environmental laws. Instead, however, there have been numerous attempts to exempt the agricultural industryð including CAFOsð from environmental laws. Any such exemptions are of serious concern to NACAA. Let me review them in more detail.

AFO Air Compliance Agreement

In 2002, NACAA was informed by EPA that the agency had been approached by representatives of certain animal farming associations (which we will refer to as the ñCAFO industryò) about entering into an agreement under which CAFOs would fund a monitoring program to obtain emission data in exchange for a ñsafe harborò from enforcement of certain Clean Air Act; Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); and Emergency Planning and Community Right to Know Act (EPCRA) requirements. Our association expressed to EPA that although gathering air emissions data from CAFOs was a worthwhile exercise, we had numerous concerns with the agreement as drafted. As negotiations between EPA and the CAFO industry on the agreement progressed, we continued to voice our objections, but to no avail. The final agreementð called the Air Compliance Agreement for AFOs[21]ð contains many highly problematic provisions.

First, the enforcement waiver is too broadly defined. CAFOs participating in the agreement, regardless of whether their air emissions are monitored, receive a waiver from enforcement of the Clean Air Act, CERCLA and EPCRA. The waiver applies retroactively, during the period of agreement, andð potentiallyð forever. The waiver also intrudes on state prerogatives to regulate sources in order to attain the health-based air quality standards.[22]

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[19] Iowa Department of Natural Resources Ambient Air Monitoring Group, ñResults of the Iowa DNR Animal Feeding Odor Studyò (January 2006).

[20] Environmental Assessment, *supra* note 18 at pp. 2-21-2-22.

[21] EPA, ñAnimal Feeding Consent Order Agreement and Final Order,ò 70 *Federal Register* 4958 (Jan. 31, 2005).

[22] The waiver applies to ñ[c]ivil violations of the permitting requirements contained in Title I, Parts C and D, and Title V of the Clean Air Act, and any other federally enforceable State implementation plan (SIP) requirements for major or minor sources based on quantities, rates, or concentrations of air emissions of pollutants that will be monitored under this Agreement.ò Id. at 4963. Thus it even waives civil violations of requirements in a stateôs federally enforceable SIP.

Second, fewer than 1 percent of the farms covered by the agreement will be monitored, which severely limits the amount of data collected. According to EPA, 6,267 farms signed up to receive the waiver,[23] but there are only 20 monitoring sites in 9 states.[24] Thus, there is no assurance that the data that are collected will be representative. Nor is it clear that enough data will be collected to advance the understanding and characteristics of emission sources or address the concerns regarding emission estimates highlighted by the National Academy of Sciences in its 2003 report on air emissions from CAFOs.[25] In addition, thousands of farm operators receive a waiver from enforcement even though no emissions data are being gathered from their farms.

Furthermore, the agreement does not require participants to adopt, or even test, any best management practices or technologies to reduce air emissions, therefore providing no assurance that air emissions will be reduced as a result of the agreement.

Finally, five years have elapsed since we first learned of the CAFO industry proposal, and monitoring that is scheduled to last for two years has just begun. Thus at least seven years will have passed without progress being made on monitoring emissions or, more importantly, *reducing* air emissions from CAFOs. In addition, participating CAFOs are not required to comply prospectively with Clean Air Act obligations until after EPA publishes an emissions-estimation methodology,[26] and since there is no timeframe for EPA to publish such a methodology, it may be years even after monitoring is completed before CAFOs are required to reduce their emissions. Moreover, given a certain interpretation of the Clean Air Act being sought by some members of the CAFO industry, which I will discuss later, the Clean Air Act may *never* apply to these operations, despite their substantial air emissions.

CERCLA/EPCRA Regulatory and Legislative Exemptions

We are also concerned about regulatory and legislative efforts to exempt CAFOs from CERCLA and EPCRA requirements. This spring, EPA Administrator Stephen L. Johnson testified before the House Energy and Commerce Committee and the Senate Environment and Public Works Committee that EPA planned to exempt emissions of air pollutants from manure from reporting requirements under CERCLA and EPCRA. Several bills have been introduced in previous Congresses to exempt CAFOs from CERCLA and EPCRA, and legislation (S. 807) has been introduced in the current Congress to exclude manure from the definitions of ñhazardous substanceò and ñpollutant or contaminantò under both these acts.

[23] EPA press release, ñEPA Takes Important Step in Controlling Air Pollution from Farm Country Animal Feeding Operations,ò (Aug. 22, 2006).
[24] Presentation of Al Heber to the USDA Agricultural Air Quality Task Force on National Air Emissions Monitoring Study (May 2007), slides 4 and 8 (available at http://www.airquality.nrcs.usda.gov/AAQTF/Documents/index.html).
[25] National Academy of Sciences report, *supra* note 8.
[26] 70 *Federal Register* at pp. 4963-4964.

If manure were excluded from the definitions of ñhazardous substanceò and ñpollutant or contaminant,ò releases or threatened releases of hazardous components of manure would not be covered by CERCLA or EPCRA. The implications of such an exclusion are significant.

First, the CERCLA and EPCRA requirements to report hazardous releases of toxic chemicals associated with manure, including ammonia and hydrogen sulfide, would be eliminated, preventing local, state and federal emergency responders from having critical information about potentially dangerous releases that could affect communities. Second, EPA or a state could not use CERCLA response authorities to respond to hazardous substances released from manure (e.g., investigations or clean-up) that threaten the environment, welfare or public health. Third, EPA would be prevented from taking action, including issuing abatement orders, in situations where there is an imminent and substantial endangerment to the public health, welfare or environment. Fourth, CAFOs would also be exempt from any natural resource damages that may result from a release of a hazardous substance, leaving the financial burden of any cleanup on the public.

The release of toxic substances from manure in amounts dangerous to human health is not a theoretical exercise– people have been killed. As reported in the *Dayton Daily News*, ñAt least 24 people in the Midwest have died from inhaling hydrogen sulfide and methane from manure since the 1970s, including fifth-generation Michigan dairy farmer Carl Theuerkauf and four members of his family, who collapsed one by one in 1989 after breathing methane gas from a manure pit.ò[27] More recently, in July of this year four members of a Shenandoah Valley dairy farming family and a hired hand died after breathing methane gas fumes in a manure pit.[28] Thus, given this evidence, releases from manure can be dangerous and thus should not be excluded from the definition of ñhazardous substanceò or ñpollutant or contaminantò in CERCLA and EPCRA.

In addition, the reporting requirements in these acts are useful to state and local air regulators. Given the paucity of monitors in rural states, CERCLA and EPCRA reports may be the only source of information to people affected by excessive air emissions from CAFOs.

Such an exemption also interferes with the Air Compliance Agreement I mentioned previously. Farms participating in this monitoring study have already received a waiver from enforcement of CERCLA and EPCRA provisions for air emissions of hydrogen sulfide and ammonia. Neither EPA nor Congress should consider a blanket exemption from reporting requirements for air pollutant emissions from manure while data on this very subject are being collected. We are also concerned about the precedent such an exemption will set with respect to application of the Clean Air Act to air emissions from manure.

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[27] Wagner and Sutherly, ñThe supersizing of Americaôs livestock farms,ò *Dayton Daily News* (December 1, 2002).

[28] Bill Brubaker, ñFour Family Members, Farmhand Killed by Gas Fumes in Methane Pit,ò *The Washington Post*, B06 (July 4, 2007).

PM NAAQS

Last year, EPA proposed a new NAAQS for particulate matter (PM).[29] The agencyôs proposal included a new ñcoarse PM standardò that would cover particles larger than so-called fine particulates (known as $PM_{2.5}$) up to particles less than or equal to 10 micrometers in diameter (PM_{10}). This coarse PM indicator ($PM_{10-2.5}$) would have excluded ñany ambient mix of $PM_{10-2.5}$ that is dominated by rural windblown dust and soils and PM generated by agricultural and mining sources.ò[30] In other words, EPA proposed to exclude agricultural sources from a health-based air standard despite extensive evidence that agricultural operations can contaminate the environment.

In our comments to EPA on that proposal, NACAA cited evidence of the environmental impacts of agricultural operations, including that manure contains pollutants such as ammonia and other nutrients, organic matter, solids, pathogens, odorous compounds, trace metals, pesticides, antibiotics and hormones. We said an exemption for agricultural operations does not comport with science, since it is likely that pesticide-laden and toxics-laden coarse particles from agriculture pose risks similar to the coarse PM included in the standard (urban coarse PM dominated by resuspended dust from high-density traffic and industrial sources). We opposed carving out an exemption for agricultural sources from application of the health-based coarse PM standard, since excluding these sources implies their emissions are not harmful, and yet, EPA did not present any such evidenceð on the contrary, substantial evidence exists that emissions from CAFOs *do* contaminate the environment with harmful substances.

In its final PM NAAQS decision, EPA dropped consideration of a coarse PM standard, instead retaining the existing 24-hour PM standard, with no exemptions.[31]

While we are pleased that agricultural activities were not exempted from the PM NAAQS, we remain troubled with language in the final preamble that treats agriculture favorably as compared to other industries. The preamble states that ñEPA believesò that conservation systems and activities approved by the U.S. Department of Agriculture (USDA), when properly implemented, ñshould satisfy the requirements for reasonably available control measures or best available control measures.ò[32] It is unprecedented for EPA, in setting a health-based air quality standard, to address implementation issues such as what constitutes reasonably available or best available control measures. EPA never discussed this with NACAA members, even though EPA and state and local clean air agencies share a co-regulator status. We have no opinion on the merits of USDA conservation systems and activities, but we are disappointed that EPA would presumptively declare them adequate control measures for air pollution without first

[29] EPA, ñNational Ambient Air Quality Standards for Particulate Matterð Proposed Rule,ò 71 *Federal Register* 2620 (Jan. 17, 2006).
[30] Id. at 2667-2668.
[31] EPA, ñNational Ambient Air Quality Standards for Particulate Matterð Final Rule,ò 71 *Federal Register* 61144 (Oct. 17, 2006).
[32] Id. at 61215.

discussing the matter with the state and local officials who hold primary responsibility for achieving and sustaining clean air standards.

Other Contemplated Exemptions

Finally, we are also concerned about efforts by a federal advisory committee of the U.S. Department of Agriculture, the Agricultural Air Quality Task Force (AAQTF), to limit the application of environmental laws to CAFOs. The Task Force has been criticized for a ñlack of balanceò since its 30 members include at least 10 representatives of ñlarge scale agriculture industry,ò but only one environment organization representative[33] and only two representatives of state air pollution control agencies.

Last year the task force adopted a policy document with several recommendations for definitions that should be used in applying the Clean Air Act to emissions sources from agriculture.[34] These recommendations included defining the word ñsourceò so narrowly that permitting/reporting thresholds for air pollutants would not be triggered, nor would control requirements be applicable. Thus, for example, if the term ñsourceò is defined narrowly enough, CAFOs might not face *any* requirements for controlling air emissions, regardless of the results of the monitoring being conducted under the Air Compliance Agreement for AFOs.

The task force recommendations also include declaring that the definition of ñpollutantò or ñcontaminantò should not include substances produced by natural biological processes (i.e., manure), even if the substance harms human health or the environment. This is similar to the amendments to CERCLA and EPCRA proposed in S.807, which we oppose, and we oppose the industry-dominated AAQTFôs tinkering with these definitions for the same reasons.

Conclusion

In summary, the well-documented adverse health effects and substantial levels of air emissions from CAFOsð including ammonia and hydrogen sulfideð warrant rigorous application of environmental laws to these sources. It is exactly such sources that statutes such as the Clean Air Act, CERCLA and EPCRA are intended to address. Attempts by Congress, EPA and others to exempt CAFOs from environmental laws, and arguments made in support of such exemptions, are inappropriate. Instead, CAFOs, like every other major industry in this country, should be expected, and required, to accept their obligations and comply in full with environmental laws.

Thank you for the opportunity to testify.

[33] Environmental Integrity Project, et al., Letter to Arlen Lancaster, Chief, Natural Resources Conservation Service, USDA, ñThe USDA-Agricultural Air Quality Task Forceôs Failure to Comply with the Federal Advisory Committee Act,ò (Jan. 30, 2007).
[34] USDA Agricultural Air Quality Task Force document adopted at March 2, 2006 meeting.