



# Enforcement Alert

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## Large Animal Feeding Operations: Reducing Their Impact on Air Quality

### *EPA Implements Landmark Air Compliance Agreement and Monitoring Study*

EPA is implementing a groundbreaking air quality agreement with animal feeding operations that concentrate hundreds or thousands of animals in confined areas. This nationwide agreement will create a reliable method to estimate air emissions from these operations. By applying this method to estimate emissions, the animal feeding operations will be able to determine if they are above regulatory thresholds and must obtain an emissions permit and install any necessary controls.

#### **A Growing Agricultural Industry Raises Environmental Concerns**

It is estimated that there are 450,000 animal feeding operations (AFOs) in the United States. They produce massive quantities of manure, urine and other wastes. Emissions from their animal waste storage areas can potentially harm public health.

The number of large animal feeding operations is growing, with increasing adverse effects. For example, in 2005 over 100 AFOs across the country, each housing 50,000 or more hogs, generated the same amount of waste as a city of 150,000. Large dairies and

poultry AFOs are also major sources of waste.

The U.S. Department of Agriculture estimates that confined animals excrete three times more waste than the entire American population each year.

***Large scale animal feeding operations have the potential to emit significant quantities of concentrated air pollution from manure storage areas.***

Clusters of AFOs in certain areas of the country contribute to significant air quality problems. For example, the California Air Resources Board estimates that dairies, many concentrated in the San Joaquin Valley, are the third-largest air pollution source in the State, after car exhaust and composting. EPA's Air Compliance Agreement is anticipated to help alleviate this situation by reducing AFO emissions in areas with high concentrations of AFOs, such as the San Joaquin Valley.

#### **EPA Targets Agricultural Pollutants of Concern**

Primary goal of EPA's Air Compliance Agreement is to ensure that AFOs

comply with the environmental laws. The Agreement addresses ammonia, hydrogen sulfide, chemical gases known as volatile organic compounds (VOCs) and small, breathable dust particles known as particulate matter (PM).

Exposure to airborne ammonia or hydrogen sulfide can cause eye, nose and throat irritation. Even low levels of hydrogen sulfide can cause irreversible damage to the nervous system.

VOCs contribute to ozone pollution, which can irritate airways and aggravate asthma and other lung diseases, leading to serious health problems that range from increased medication use to hospital emissions. Repeated ozone exposure can cause permanent lung damage.

PM, especially fine particles, can travel deep into the lungs and can aggravate heart and lung function, asthma attacks, irregular heart beats and heart attacks. Both ozone and fine particles have been linked with premature death.



Outdoor Dairy AFO

## Background

AFOs are subject to permitting requirements under the Clean Air Act (CAA) if their emissions reach specified thresholds, as well as reporting requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA).

Enforcing these requirements at AFOs has been difficult because there are no industry-wide, scientifically sound methods for estimating AFO air emissions and direct measurements of these emissions are expensive. EPA's enforcement actions under the CAA against Buckeye Egg Farm and Premium Standard Farms exemplify the problem. Although the actions were ultimately successful, the lack of an industry-wide method for assessing emissions meant EPA had to conduct extensive and expensive air monitoring at each facility to establish the violations. The cases took many years to resolve.

EPA commissioned the National Academy of Sciences (NAS) to analyze what methodology would effectively assess AFO emissions. NAS concluded that there were no industry-wide, scientifically credible ways to estimate emissions. The problem was that emissions vary from facility to facility depending on many factors, such as the number of animals confined, the species, type of feed, manure handling and storage practices, barn ventilation methods, and climate.

EPA determined that a comprehensive approach was needed that would both address the critical data gaps on AFO emissions by establishing the monitoring study recommended by NAS, and bring the industry as a whole into compliance with the CAA, CERCLA and EPCRA.

The Air Compliance Agreement is this comprehensive approach. The Agreement employs the type of monitoring study recommended by NAS and will result in the development of sound, nationally-applicable measurement methods for AFO emissions. The Agreement also

creates legally binding enforcement obligations with respect to the compliance status of participating AFOs. All AFOs that signed the Agreement will measure their emissions using the methodology developed from the study and must apply for permits if they trigger the emissions thresholds.

## Agreement: Highlights

The Agreement requires the nearly 2,600 participating AFOs to pay a civil penalty for potential past and ongoing violations, to fund the national air emissions monitoring study, and to make their facilities available for monitoring. The AFOs also committed to take all necessary steps to come into compliance with the CAA and applicable reporting requirements.

The monitoring study began in June 2007 to measure air pollutant releases at 24 sites in nine states over a two-year period. This data will be made available to the public. Within 18 months of the study's completion in 2009, EPA will develop and publish air emission estimating methodologies for these types of facilities. An independent science advisor is conducting the monitoring study and selected the representative facilities where emissions will be tracked.

Participating AFOs that comply with the Agreement will not be sued by the United States for past or ongoing violations under the CAA, CERCLA or EPCRA.



Indoor Dairy AFO

The participating facilities must use the results of the monitoring study to determine their level of emissions, apply for one or more permits if their emissions are above regulatory levels, and install any pollution controls required by law. The facilities must also agree not to contest the study's results. Failure to fulfill any of these commitments revokes EPA's commitment not to sue the facility for environmental violations covered under the Agreement.

## Air Agreement Essentials

### Goals:

- Ensure compliance with CAA, CERCLA, and EPCRA requirements.
- Reduce air pollution.
- Create a national methodology for estimating AFO air emissions

### Participation:

- Nearly 2,600 participants representing nearly 14,000 facilities in 42 states.
- Facilities in the pork, dairy, egg-laying and broiler chicken sectors nationwide, complete in 2009.

### Penalties:

- Requires payment of over \$2.8 million dollars in total civil penalties

Disclaimer: This document attempts to clarify in plain language some EPA provisions. Nothing in this Enforcement Alert revises or replaces any regulatory provision in the cited part, or any other part of the Code of Federal Regulations, the Federal Register, or the Clean Air Act, the Comprehensive Environmental Response, Compensation and Liability Act or the Emergency Planning and Community Right-To-Know Act. For more information go to: [www.epa.gov/compliance](http://www.epa.gov/compliance)

### National Air Emissions Monitoring Study Highlights

- Developed by EPA and representatives from the AFO industry, states and local regulatory agencies, and environmental groups.
- Funded by industry at a cost of approximately \$14.8 million.
- Conducted by an independent third party.
- Covers all major types of swine, dairy and poultry facilities.
- Monitoring to occur at 24 sites in nine states nationwide.
- Will continue for two years to account for weather and other conditions.
- Began in Spring 2007; to be complete in 2009.
- Air emissions will be measured for four pollutants:
  - Ammonia
  - Hydrogen sulfide
  - Particulate matter
  - Volatile organic compounds



**Indoor Swine AFO**



**Barn exhaust fans generate visible air emission from an egg-laying facility**

## Frequently Asked Question

### *How does EPA's Air Compliance Agreement impact state and local governments' ability to enforce against AFOs?*

States and local governments can rely on statutory or common law authority outside of the CAA, CERCLA and EPCRA to enforce against AFOs, such as local odor, nuisance and zoning laws. If participants fail to comply with local or state orders, their agreements with EPA become void. Citizens can seek enforcement under local laws.

## Additional Information

- For more information on the Air Compliance Agreement, contact Sanda Howland at (202) 564-5022, e-mail: [howland.sanda@epa.gov](mailto:howland.sanda@epa.gov), or Timothy Sullivan (202) 564-2723, e-mail: [sullivan.tim@epa.gov](mailto:sullivan.tim@epa.gov), EPA Special Litigation and Projects Division, Office of Civil Enforcement, Office of Enforcement and Compliance Assurance.
- For more information on the National Air Emissions Monitoring Study (NAEMS), contact Bill Schrock (919) 541-5032, e-mail: [schrock.bill@epa.gov](mailto:schrock.bill@epa.gov), EPA Office of Air Quality, Planning and Standards Division, Office of Air and Radiation. EPA will periodically update a publically-available website with air monitoring study status reports and additional information.

## General Information on AFOs

<http://www.epa.gov/agriculture/anafoidx.html>

## Further Information on the Air Compliance Agreement and National Air Emissions Monitoring Study

Introductory page to the Air Compliance Agreement and related links:  
<http://www.epa.gov/compliance/resources/agreements/caa/caf0-agr.html>

Summary of the air monitoring study and related links:  
<http://www.epa.gov/agriculture/airmonitoringstudy.html>

Home page for the National Air Emissions Monitoring Study:  
<https://engineering.purdue.edu/~odor/NAEMS>



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## Enforcement Alert

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