

AIR QUALITY

Air Quality Regulation of Animal Agriculture

AIR QUALITY EDUCATION IN ANIMAL AGRICULTURE

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This publication presents an overview of federal regulations and court cases related to animal agriculture air quality issues.

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Air Quality in Animal Agriculture
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For years, many believed the only air quality threats posed by agricultural production facilities were odor, dust, noise, and related complaints that arose in nuisance-based lawsuits by neighbors. Few other law and regulatory problems were believed to be applicable to modern agricultural enterprises. Beginning in the late 1990s, that belief was examined, and courts began to decide cases that challenged existing environmental laws and regulation application to agricultural production facilities.

In this publication, three of these laws will be examined: the Clean Air Act (CAA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Emergency Planning and Community Right-to-Know Act (EPCRA). Each will be discussed separately. Additionally, this publication discusses the Mandatory Greenhouse Gas (GHG) Reporting Rule, which is not a stand-alone law like the acts just mentioned.

Understanding the Problem and How It Can Be Addressed

Air pollution results from a process involving chemical solids, liquids, and gases interacting with other chemicals in the atmosphere, including sunlight and rain water. Some pollutants are harmful in their own right while others are harmful when they interact with other chemicals in the environment.

Pollutants come from a variety of sources, including industrial facilities, plants, mines, backyard grills, residential chimneys, and agricultural facilities. Some sources are stationary. Others are mobile. Some sources are similar to point sources as that term is used in water quality law and regulations. Others are area sources producing emissions from many different sources located in close relationship to each other.

Some pollutants can be reduced or eliminated by technology that prevents the pollutant from being created or released to the environment. Each type of pollutant and each type of pollution source may require a different approach to address the potential harm the pollutant presents.

The Federal Clean Air Act

Regulation of air emissions was initiated at the federal level in 1955 when the Air Pollution Control Act was passed. Under this law, state and local governments were delegated primary responsibility for addressing air quality problems at their respective levels. In 1963, Congress passed the first of several laws that have been named the "Clean Air Act." This law was the first to establish air quality criteria to be applied to activities that introduced harmful elements into the environment. In 1965, Congress

The Clean Air Act is actually made up of several laws and their subsequent amendments, which were passed by Congress starting in 1963.

passed the Motor Vehicle Pollution Control Act. These laws establish some key elements that apply to the current situation.

- The various levels of government have concerns for air quality. Pollutants are of greatest concern at the level at which they can do the most harm. Pollutants that threaten human health are generally considered to be the most serious pollutants and can result in dramatic action to control or prevent them.
- Air pollutants can move great distances from the source at which they were first introduced to the environment.
- There are a variety of sources of air pollution, and this variety triggers the need to fashion different strategies to address problems created by these sources.

The Clean Air Act Amendments, passed in 1970, usher in what most people consider the modern age of federal regulation of air pollution. Under this approach, the federal government's role is to establish uniform national standards for certain criteria pollutants that affect ambient air and to identify specified technology-based standards to control harmful air emissions from facilities. Ambient air is air that plants and people breathe in day-to-day living situations.

The federal government establishes these national standards, called "**national ambient air quality standards,**" or **NAAQs**. In turn, states enforce these standards through creation of **state implementation plans** designed to achieve the ambient air quality. Therefore, to have air quality regulation apply to a given facility, the source and amount of the pollution must be identified (*Figure 1*).

For most states, the primary enforcement tool is the **state Clean Air Act**, which is intended to protect public health, safety, and welfare, and prevent injury to the public interest. Under this law, the state proposes regulations under the Clean Air Act but has no authority to adopt regulations relating to air contaminants or air pollution arising from production of agricultural commodities in their unmanufactured state **unless** the federal Clean Air Act or regulations issued under it direct that to happen.

For many years, people looked at the Environmental Protection Agency's lack of interest in air emissions from agriculture and this language and concluded that there was little reason to be concerned about problems related to agricultural air quality. Note that odor is not generally regulated under the federal Clean Air Act and is managed at the local level under the law of nuisance. The current interest by the EPA in agricultural emissions would indicate that each state's view may be superseded by EPA action.



Figure 1. Odor is often associated with manure storage, but odor is a nuisance issue mostly handled at the local level through zoning. Odor is not generally regulated under the Clean Air Act. (Photo courtesy of Rick Koelsch, University of Nebraska–Lincoln)

Federal Clean Air Act Regulatory Concepts

Six criteria pollutants are identified in the federal Clean Air Act:

- carbon monoxide,
- sulfur dioxide,
- nitrogen oxide,
- solid particulate matter,
- liquid particulate matter, and
- lead

These were selected because of the potential harm the pollutants could cause if the concentration of the pollutant increased dramatically. In regulating these criteria pollutants, two types of **ambient air quality standards** were created. The first is the primary standard. This is the level of the pollutant below which air quality should be to avoid harmful physical health effects. The second standard deals with the level of pollutant below which air quality should be to avoid harmful effects to the public welfare. This includes soils, crops, water, visibility, comfort, and man-made materials. As described above, these ambient air quality standards are enforced by the states through their state implementation plans that control the various sources of pollution found in the state.

Ambient air quality standards are measured for each of the six criteria pollutants on a regional basis across the states. If air quality standards for a pollutant are being met for these pollutants, the region is described as an **attainment region** for the pollutant in question. Failing to meet the standard results in the region being classified a **nonattainment region**. The consequence of this action will be most important to new air polluting facilities proposing to locate in nonattainment regions.

Facilities in operation when the Clean Air Act was adopted were subject to its standards. New facilities and existing facilities that are substantially modified must meet established standards and also must comply with New Source Performance Standards. Facilities must submit an application for a permit to build a new facility, and the facility's design must incorporate pollution control technology considered to be the best available control technology. These are technologies available within an industry to address air pollution threats the industry presents.

A new facility in a region that is considered an attainment region also must meet the Prevention of Significant Deterioration program requirements. In attainment regions, new facilities that threaten that status may be subject to requirements that will prevent the desired status from being lost. If a new facility that adds pollution is proposed for a nonattainment area, the applicant is likely to face significant restrictions and possible offsets in other facilities in order to locate in that region. The choice of where a new facility is located is often decided on the basis of the "regulatory cost" of locating in one place or another as well as the construction cost.

In addition to criteria pollutants, the Clean Air Act regulates hazardous air pollutants, such as ammonia and hydrogen sulfide. These pollutants require special measures because of their potentially severe impact on public health and safety.

An important concept is whether the facility meets the definition of a major source of the hazardous pollutant in question. A major source is one that annually emits more than 10 tons of a single hazardous air pollutant or 25 tons of a combination of hazardous air pollutants. Facilities not considered major sources are classified as area sources. A facility emitting a hazardous air pollutant could face special measures, including adoption of pollution control technology designed to limit the amount of hazardous pollutants discharged from a facility. These technology standards may be more extensive and more complex than technologies that control criteria pollutants.

National Ambient Air Quality Standards regulate six criteria pollutants and include both primary and secondary standards.

CERCLA is intended to hold companies accountable for the financial responsibility for cleanup of large polluted areas if a company goes out of business.

The Comprehensive Environmental Response, Compensation and Liability Act (Superfund Act)

The Comprehensive Environmental Response, Compensation and Liability Act, or the Superfund Act, has been the focus of several court cases related to animal agriculture. In December 2008, the EPA finalized a rule granting animal agriculture an administrative exemption from CERCLA. This exemption applies to air emissions that normally occur from raising farm animals. Legal challenges followed, and in 2010, a federal court approved the government's request to remand the rule to the EPA for reconsideration. At the time this publication was published, no animal agriculture operations were required to report, and the schedule for EPA reconsideration is unclear.

The purpose of CERCLA is to address the physical and financial responsibilities associated with the release of hazardous materials into the environment. As in the case of the Clean Air Act, some important concepts under this law involve the nature of what is released, the amount released, and the nature of the contamination caused by the release.

Under CERCLA, material is considered **"hazardous"** if it has been designated as such by other environmental laws, including the Clean Air Act. Therefore, there is some coordination in the approach to identifying the nature of what these laws regulate. Some items, such as petroleum and nuclear materials, are excluded from CERCLA consideration as hazardous substances although they are recognized as hazardous by other laws.

Another key concept in CERCLA is the term **"release."** As you might expect, this term is broad in scope and includes any acts that spill, leak, pump, empty, discharge, dump, or dispose of these materials into the environment. Intent to accomplish these results is not part of the definition, which can mean that accidental as well as intentional acts are covered by the law. When a release occurs, the amount of material released is crucial to determining if the facility owner-operator has an obligation to report the release.

The EPA administrator determines a release quantity that triggers the report. This is the **"reportable release quantity."** The reportable release quantity for ammonia, for example, is 100 pounds. Normal application of fertilizer is not considered a release. Releases that occur solely within a workplace and for which workers can assert claims against their employers are not covered events for CERCLA purposes.

The Emergency Planning and Community Right-to-Know Act

In the same 2008 final rule as described in the CERCLA section, the EPA also granted an administrative exemption to all but large concentrated animal feeding operations (CAFOs) for reporting under the Emergency Planning and Community Right-to-Know Act. At the present time, while the EPA is reconsidering its final rule, large CAFOs are required to report, while all other animal operations are exempt.

EPCRA was passed in 1986 following a disastrous accident in Bhopal, India. A chemical manufacturing plant in Bhopal, which was located next to a densely populated residential area, accidentally released a cloud of hazardous chemical into the community. Thousands of people died and many more were injured by the release. As a result, people realized that hazardous materials are stored in many locations, and knowledge about what is stored where can help all of us make better decisions about the risks associated with living or working nearby.

As in the other examples, the identity of the material and the amount of it are important pieces of information. This act establishes a specific list of extremely hazardous materials and a threshold planning and reportable release quantity for each. The term **"hazardous chemical"** for purposes of this law excludes substances to the extent they are used in routine agricultural operations or as fertilizer held for sale by a retailer to the ultimate customer.

Threshold planning and reportable release quantities are considered to be the amount of material likely to cause harm if it is released. For example, ammonia is a listed hazardous material. The threshold planning quantity for it is 500 pounds and the reportable release quantity is 100 pounds per day.

Under EPCRA, a facility having a quantity of a designated hazardous substance greater than the threshold planning quantity for the material is required to report the presence of that material in its facility to the local emergency response committee within 60 days after the substance is acquired. If the hazardous substance is released in an amount that is greater than the release reporting amount, then a release notification to state and local emergency planning committees must be made. If a release is permitted under CERCLA, such as the field application of pesticides, no reporting obligation applies.

Legal Action that Brought These Issues to the Forefront

Complaints about dust, noise, and odors have been the typical complaints directed toward agricultural producers. Complaints about pesticide drift onto adjoining lands also have been common. In some parts of the country, people have complained that smoke drift caused by the field burning of crop residues created hazards in the community.

By the 1990s, this period of relative calm and inactivity began to change. Arizona's air quality state implementation plan failed to include the role that production agriculture played in creating particulate matter air emissions. This failure became the subject of litigation to bring significant areas of the state into attainment status for particulate matter emissions. The state eventually modified its plan to incorporate best management practices for agricultural producers.

California proposed a plan to allow agricultural producers a three-year exemption period from complying with Clean Air Act requirements, despite the fact that agricultural production was charged with playing a significant part in the state's nonattainment status for several criteria pollutants. The EPA moved to withdraw approval of the state's plan to exempt agricultural producers and proposed to take over regulation of major agricultural stationary sources of pollution. Despite a challenge to the agency's decision to withdraw approval of the plan, the decision to withdraw was approved.

The California Legislature addressed this issue by taking up a bill to provide for regulation of air pollution from agricultural sources. In the Chino basin region of California where more than 250,000 dairy cows are housed, the local Air Quality Management District approved rules to reduce smog and particulate-forming emissions from manure generated in the basin. In other Air Quality Regions of California, implementation of proposed dairy regulations was postponed following lawsuits aimed at challenging their adoption.

Two other reported cases that raise key agricultural air emission issues are winding their way through federal courts. In *Sierra Club v. Tyson*, 299 F. Supp. 2d 693 (2003), the Sierra Club sued Tyson Foods and others on the grounds that chicken production operations of Tyson Foods were responsible for ammonia air emissions and that they failed to comply with CERCLA and EPCRA obligations. Tyson defended on several grounds, including a challenge to whether the plaintiff has adequate standing to maintain its suit. Standing is a constitutional requirement that requires a plaintiff to show some type of injury caused by the activities of the person charged with liability.

A second significant basis involves the issue of the "facility" that is alleged to have released the pollutant in quantities sufficient to trigger any of these obligations. Tyson argued that each chicken house or other building needs to meet this emissions test. The Sierra Club argued that the term should be interpreted to mean all production buildings and sources of reportable emissions that are located on the specific site (Figure 2). By combining all emissions, the Sierra Club would be relieved of the obligation to compare emissions from each source to the 100 pounds per day standard. The Court adopted the Sierra Club's view.

Emergency Planning and Community Right to Know is meant to protect the public living near large quantities of potentially hazardous compounds and also help emergency responders plan for possible accidents.

Courts have generally defined a “facility” as including all of the animal housing, manure, or other sources on a single production site.

In *Sierra Club v. Seaboard Farms, Inc.*, 2004 U.S. App. LLEXIS 22455 (October 28, 2004), the 10th Circuit Court of Appeals addressed the issue of what is a “facility” for CERCLA purposes in the context of a hog farm operation in Oklahoma. The operation in question was operated on two sites located next to each other. Each site contained eight confinement buildings that shared a common waste management system. In this case, the Circuit Court agreed that the entire operation, including both sites, should be counted as a single facility for CERCLA obligation purposes.

While the issues raised in each of these cases are preliminary to the ultimate issue of whether the facilities were covered by CAA, CERCLA or EPCRA laws, the fact that the Sierra Club was successful in moving the cases forward toward a resolution of that key question is significant. Producers should take note that these cases are being decided and their outcome may affect a set of new obligations.

Mandatory Reporting of Greenhouse Gases Rule

The Mandatory Reporting of Greenhouse Gases Rule applies to animal agriculture operations that emit more than 25,000 metric tons of carbon dioxide equivalent (CO₂e) per year. This calculation applies only to manure management systems; it does not apply to enteric fermentation or to land application of manure. At the present time, Congressional action has prohibited the EPA from expending any funds to implement subpart JJ (manure management) of the rule. This prohibition does not change the rule or create an exemption for animal agriculture.

The GHG Reporting Rule does not regulate the emissions of GHGs. It is a reporting mechanism by which the EPA can gather data on large emissions sources for the purpose of deciding if future regulation is necessary. The rule was finalized in October 2009. Covered facilities were required to begin reporting their emissions starting with the 2010 calendar year, with those first reports due in 2011.

Which livestock and poultry operations are required to report? It is easier to start with those that are not required. *Table 1*, excerpted from the final rule, shows the levels below which animal operations are not required to report.

Why Is This Important?

While few would welcome new obligations to contend with, it should be noted that a key provision of many states’ Right to Farm laws on which the application of protection depends is that the facility is in compliance with applicable federal, state, and local regulations. Can a producer afford to gamble whether Right to Farm protection will be lost if these cases conclude that CERCLA and EPCRA apply to agricultural producers and the producer is not complying with them? How important is Right to

Table 1. Animal Population (Annual) Below Which Facilities Are Not Required to Report Greenhouse Gas Emissions

Animal Group	Average Annual Animal Population (Head)
Beef	29,300
Dairy	3,200
Swine	34,100
Poultry: Broilers	38,160,000
Poultry: Layers	723,000
Poultry: Turkeys	7,710,000

Facilities that meet or exceed these populations need to conduct an analysis to determine if they emit more than the reporting threshold of 25,000 tons of annual CO₂e. The EPA estimated that only around 100 animal facilities would be affected by this rule, but industry estimates are generally much higher.



Figure 2. Courts have generally favored the view that a “facility” includes all of the emission sources on a site. In this picture, the animal building (background) and manure storage (foreground) would be considered a single facility for the purpose of measuring or calculating emissions.

Farm protection to an individual producer who is facing complaints from local citizens about the more common complaints of odor, noise, and dust? Can producers continue to believe that few of these environmental protection laws apply to them without being somewhat conflicted by the reality that these issues are being challenged on an increasingly frequent basis?

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