

# Controlling Odors from Animal Operations

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North Carolina is among the first states to develop comprehensive rules for controlling odors from animal operations. The state Environmental Management Commission (EMC) adopted temporary odor rules in February 1999, under a mandate from the General Assembly to require economically feasible odor controls for animal operations. The legislature instructed the commission to base these rules on a University of North Carolina system study on the technologies available for controlling odors from animal operations, including hogs, poultry and other livestock. The EMC plans to adopt permanent rules after receiving input from public hearings to be held across the state in 1999.

## Why are odor controls needed?

The legislature called for odor controls in response to increasing complaints about animal operations, largely due to the expansion of the hog industry in Eastern North Carolina. The number of hogs in the state has increased by four-fold since 1990, mostly in the Coastal Plain. Odor problems also can be associated with other kinds of animal operations that are widespread in the state, including chickens, turkeys, and dairy cattle. However, the odor rules only deal with animal operations using wet waste disposal systems, such as lagoons and spray fields, which are largely confined to hog operations.

## What causes odors from animal operations?

Objectionable livestock odors are often caused by animal wastes, but problems can be aggravated by improper handling of dust from barns and feed storage areas, and dead animals. Dust, in particular, can magnify the intensity of odors. Weather conditions also contribute to prob-



lems, with odors often more pronounced in the evening and early morning hours, when winds are lighter. Other factors that can contribute to the magnitude of odors from animal operations include the size of the facility, type of animals, proximity to residential areas and management practices at a facility.

## How are odors measured?

Currently, reliable methods for measuring odors precisely are not available. Objectionable odors may be caused by thousands of different compounds, some of which can be smelled at extremely low concentrations that cannot be measured with available instruments. In addition, people vary widely in their sensitivity and reactions to odors. These factors have led the EMC to conclude that the best initial strategy for controlling odors is to require livestock practices that reduce or prevent odors, rather than trying to adopt measurable air quality standards for odors.



## How will the rules control odors?

The EMC odor rules are aimed at reducing objectionable odors beyond the boundaries of animal operations, phased-in by increasing levels of control. As a first step, the rules establish required management practices for all animal operations that have permits from the Division of Water Quality. These required prac-

tices must be in place by June 1, 1999. For example, farm operators must not use spray irrigation systems when winds can cause wastewater to drift off-site, except during emergencies when lagoons are in danger of spilling. As a second level of control, best management plans for preventing odors will be required for all new or modified animal operations and existing facilities determined to cause objectionable odors. These best management plans will contain a list of low-cost actions for reducing odors. If objectionable odors persist, facilities would have to submit modified plans and eventually could be required to install economically feasible equipment for controlling odors -- such as lagoon covers or "wash walls" that filter odors from barn ventilation systems.

## Who must comply with the odors rules?

Under the legislature's directive, the odor rules only apply to animal operations with liquid waste management systems. In addition, these facilities must contain at least 250 hogs, 100 cattle, 75 horses, 1,000 sheep, or 30,000 chickens or turkeys. The temporary rules do not apply to smaller facilities or those with dry litter operations, which include most poultry farms. Hog farms account for most of the animal operations that meet the size threshold levels and use liquid waste systems.



## How will objectionable odors be determined?

Inspectors with the Department of Environment and Natural Resources (DENR) will determine whether a facility has objectionable odors based on various factors, including personal observations, complaints from nearby residents, and health studies. Other factors to

be considered include the nature, intensity, frequency, pervasiveness and duration of odors. Inspectors also will consider the potential of an animal operation to emit odor-causing compounds, such as ammonia, hydrogen sulfide, and total volatile organics. Eventually, DENR may consider other options, such as using "odor panels" of people trained to objectively assess the magnitude of odor problems.

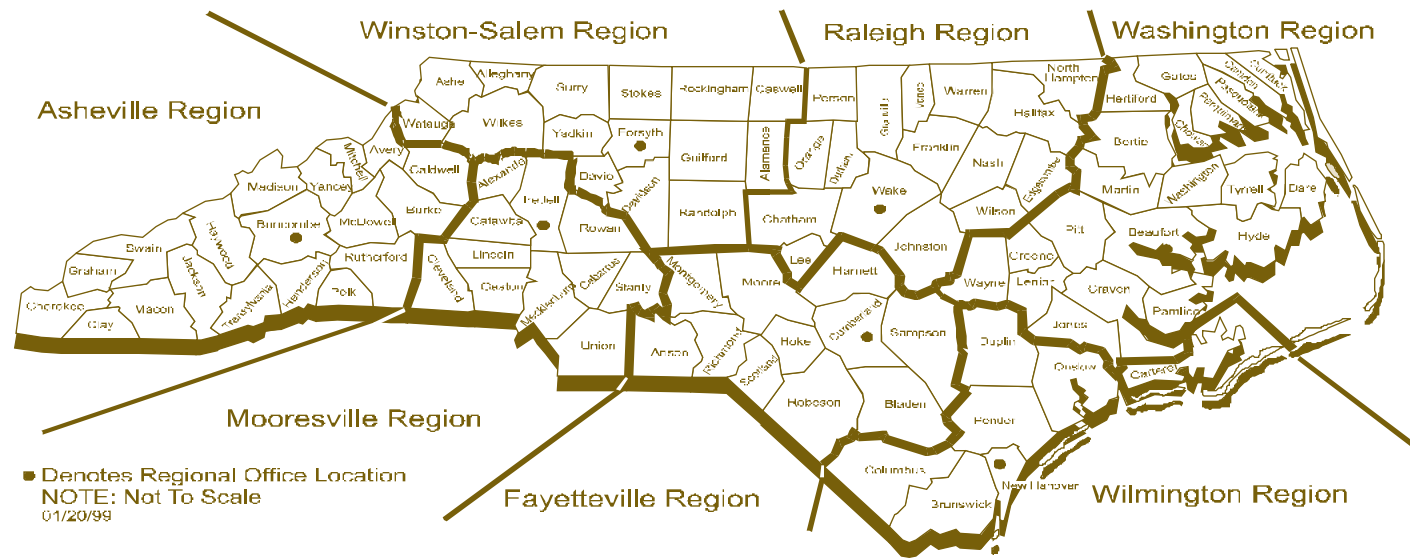
### When will the odor rules take effect?

The temporary odor rules adopted by the EMC take effect on March 1, 1999. Before adopting permanent rules, the EMC will hold a series of public hearings to gather input from citizens across the state. These hearings are tentatively scheduled for the summer of 1999, with specific locations and dates to be announced through the news media. Both the temporary and permanent odor rules will be enforced by the DENR Divisions of Air Quality, Water Quality, and Soil and Water Conservation. The legislative mandate to adopt odor control rules did not include additional funds for staff or resources. As a result, DENR will have to set priorities and address facilities based on the severity of their odor problems.

### How can citizens file complaints?

Citizens with questions about odors should contact the appropriate Division of Air Quality (DAQ) regional office, as shown on the map. Information also can be obtained by calling the toll-free Air Awareness hotline at 1-888-RU4NCAIR (1-888-784-6224), or by contacting the DENR web site, <http://www.state.nc.us/EHNR/>, or the DAQ web site, <http://daq.state.nc.us/>. To register an odor complaint, citizens should contact the appropriate DAQ regional office. DAQ staff will fill out detailed complaint forms to help determine the source of odors and respond to problems. Callers should be prepared to provide information, if possible, on the sources of odors and the locations and operators of offending facilities. It also would be helpful for citizens with complaints to keep accurate logbooks to record odor events. These logbooks should include information that will help describe odor events, including: dates, times, temperatures, wind direction, duration and intensity of odors, and suspected farm and operation (barn, lagoon, sprayfield) causing the problem.

## N.C. Department of Environment and Natural Resources Division of Air Quality - Regional Offices



Asheville Regional Office  
59 Woodfin Place  
Asheville, NC 28801  
(828) 251-6208

Mooresville Regional Office  
919 North Main St.  
Mooresville, NC 28115  
(704) 663-1699

Washington Regional Office  
943 Washington Square Mall  
Washington, NC 27889  
(252) 946-6481

Winston-Salem Regional Office  
585 Waughtown St.  
Winston-Salem, NC 27107  
(336) 771-4600

Fayetteville Regional Office  
225 Green St. Suite 714  
Fayetteville, NC 28301  
(910) 486-1541

Raleigh Regional Office  
3800 Barrett Dr.  
Raleigh, NC 27611  
(919) 571-4700

Wilmington Regional Office  
127 Cardinal Dr. Extension  
Wilmington, NC 28405  
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