

Regulation No. 5: Liquid Animal Waste Management Systems

Karl VanDevender
Professor - Extension
Agricultural Engineer

On May 16, 1990, then Governor Bill Clinton announced the formation of the Governor's Task Force on Animal Waste. The task force's membership included representatives from federal and state agencies, environmental, tourism and agricultural interests, as well as legislative and academic bodies. The objective of the task force was to initiate solutions to Arkansas' animal waste concerns. To address liquid animal waste concerns, the task force made recommendations to the Arkansas Department of Environmental Quality (ADEQ) which resulted in the adoption of Regulation No. 5. This regulation became effective in July 24, 1992. Since then, the regulation was revised on March 23, 2000, and April 26, 2008.

This publication provides a summary of the regulation. For details and questions not addressed by this publication, the ADEQ web site, www.adeq.state.ar.us, provides a copy of the regulation. Listed at the end of this publication are several organizations that are also sources of information.

Purpose of Regulation No. 5

The purpose of Regulation No. 5 is to establish minimum guidelines for issuing permits that deal with confined animal operations using liquid waste management systems and the land application of liquid animal wastes. The objectives of these guidelines are to prevent point source water pollution, to minimize nonpoint source water pollution and to reduce offensive odors produced by confined animal operations.

Those Affected by Regulation No. 5

Regulation No. 5 requires that a permit be obtained from ADEQ before the construction and operation of a confined animal operation that uses a liquid waste management system. This means any individual or organization that is currently operating a liquid waste management system must have a permit. Also, anyone planning to build a liquid waste management facility must obtain a permit before construction begins. Operations existing at the time of the April 26, 2008 revisions are required to make any necessary changes to comply with the revised regulations "at the earliest practicable time." The maximum allowed time is five years from April 26, 2008.

Definitions

Confined Animal Operation – any lot or facility that keeps livestock or fowl confined for extended periods of time where a significant portion of any vegetative cover in the lot or facility is not maintained during its normal growing season.

Liquid Animal Waste Management System – any system involved in the collection, storage and distribution or disposal of liquid animal waste generated by a confined animal operation.

Waste Management Plan – a plan specifying the management and disposal of animal waste. Regulation No. 5 specifies who can write waste management plans and that they meet state regulations pertaining to plan writer certification. Most plans are written by the Natural Resources

*Arkansas Is
Our Campus*

Visit our web site at:
<http://www.uaex.edu>

Conservation Service, an Arkansas Natural Resources Commission water quality technician or a professional engineer registered in the state of Arkansas.

Site Management Plan – a plan that provides information regarding land application of animal waste. A plan includes maps showing land application areas, a description of the vegetative cover in the application area, a land use agreement if the land is not owned by the owner of the confined animal operation and nonapplication buffer areas. Regulation No. 5 specifies who can write site management plans and that they meet state regulations pertaining to plan writer certification. Most plans are written by the Natural Resources Conservation Service, an Arkansas Natural Resources Commission water quality technician, a certified nutrient management planner or a professional engineer registered in the state of Arkansas.

Waters of the State – all bodies or accumulations of water. These waters may be surface or subsurface, natural or artificial, public or private. For example, all streams, lakes, marshes, ponds, water courses, waterways, wells, springs, irrigation systems and drainage systems are considered waters of the state.

Permit Application and Procedures

Permitting Process

The regulation requires a permit before a liquid animal waste disposal system is constructed or operated. This applies to both new operations and existing operations that are making major modifications. The application process is in accordance with Regulation No. 8, Administrative Procedures. This means the application must be made using forms supplied by ADEQ. It also means there are two public notices made in a local paper. The first is made as part of applying for a permit. The second is made after ADEQ determines whether or not to issue a permit. The public notices provide the opportunity for public comment and requests for a public hearing. The comment period for the application public notice is ten days. The comment period for the permit public notice is 30 days. ADEQ has the discretion to hold public hearings based on comments they receive.

In addition to Regulation No. 8's application requirements, Regulation No. 5 also requires both new operations and existing operations that are making major modifications to make a reasonable effort to notify all adjacent landowners. This notification is to be made by a letter providing the permittee's name, mailing address, type of permit action, type of facility, size of facility and location. Copies of the notification letters are submitted with the permit application. The adjacent landowners have the right to comment to ADEQ.

Once an application for a permit is made, ADEQ may issue or deny the permit. If issued, the permit can be appealed within 30 days by any interested party. If the permit is denied, ADEQ will provide a

written explanation of the reason for denial. The applicant then has 30 days in which to appeal the permit denial.

After construction is completed, the facility must be certified as being built in accordance with the plans and specifications approved by ADEQ before operation may begin. The certification can be prepared by Natural Resources Conservation Service, an Arkansas Natural Resources Commission water quality technician, a certified nutrient management planner or a professional engineer registered in the state of Arkansas.

Permit Modification

To address changes that will take place on permitted confined animal operations, Regulation No. 5 defines a permit modification process. When ADEQ becomes aware of proposed changes, they will determine if the permit should be modified.

Among the causes for permit modifications are:

1. A greater than 10 percent increase in the volume of manure excreted from the original permit or last major modification;
2. The addition of land application sites;
3. Changes in the waste treatment, type, handling or disposal.

If a permit modification is required, the modification will be classified as a minor or major modification. Minor modifications do not require the public notifications described above. Major modifications do require the public notifications described above. Major modifications will also require contacting adjacent landowners as described above. The only minor modification that should require notifying adjacent landowners is the addition of application sites. A major modification is defined as any modification that is not a minor modification.

A modification is defined as a minor modification if it only:

1. Corrects typographical errors;
2. Allows for change in ownership;
3. Transfers permitted land application sites from another permit, provided both permits are for the same species of animal;
4. Adds new application sites, provided the permit includes an active confined animal operation that is not increasing its volume of excreted waste greater than 10 percent;
5. Removes land application sites from the permit;
6. Changes practices so that environmental protection should be increased, provided there is not a significant increase in storage volume.

Educational Requirements

Regulation No. 5 has two types of educational requirements for individuals to remain in compliance with the regulation. The first is an initial minimum of four hours of individualized training in the areas of waste management and odor control. Permit

applicants and managing operators must submit certification of this training prior to the operation of the facility. The regulation does not specify who provides the training but does require the curricula be approved by ADEQ.

The second educational requirement is continuing education in the areas of waste management and odor control once every three years. The regulation does not specify who provides the training but does require the curricula be approved by ADEQ. It also requires the providers to provide certification of training and attendance within 30 days of the training event. Both the permittee and ADEQ are to receive copies of the certification.

Technical Requirements

Facility Siting

New confinement facilities and liquid waste structures for large operations will not be constructed within 1,320 feet of the nearest occupied dwelling. A large operation is defined as an operation having more than 600 beef cattle, 430 dairy cows, 1,500 finishing hogs, 600 sows, 6,000 nursery pigs, 33,000 turkeys or 130,000 chickens at any one time. A buffer zone of 500 feet shall apply for smaller operations.

These buffer zones will not apply if the dwelling belongs to the owners or operators of the confined animal facility or the adjacent landowner consents in writing. ADEQ may exempt a confined animal operation from the buffer requirement, provided it existed prior to 1992, and the installation of a liquid animal waste system should reduce waste/wastewater runoff to waters of the state. These buffer zones do not apply to confinement buildings or waste containment structures that existed prior to April 2008.

Waste and Site Management Plans

All liquid animal waste management systems are required to have a waste management plan that is approved by ADEQ. The plan must follow the standards and specifications of the Natural Resources Conservation Service. The Natural Resources Conservation Service, an Arkansas Natural Resources Commission water quality technician, a certified nutrient management planner or a professional engineer registered in the state of Arkansas are authorized to write plans.

The waste management plan describes the management and disposal of liquid waste generated from the confined animal operation. In the design of earthen holding ponds and lagoons, subsurface investigations to determine site suitability and liner requirements are to extend two feet below the planned bottom of excavation. The plan will address the timing of land application to match nutrient uptake and, to the extent practical, measures to minimize the off-site movement of offensive odors. For each land area receiving animal waste, a site management plan must be developed. The site management plan must include maps, crops to be

grown, application timing and a description of the site. ADEQ will also require proof of ownership for land application sites or contractual land use agreements.

After the permit is issued, the facility waste management plan is to be reviewed annually by the operator. When significant changes are made, proposed or as required by ADEQ, the plan will need to be updated. The updated plan will need to include a soils analysis for each application site that includes pH, potassium, phosphorus and nitrates.

Land Application

1. Waste will be evenly distributed over application sites at the rates specified in the site management plans.
2. Land application of waste will not occur if the soil is saturated, frozen, covered with ice or snow or when significant precipitation is reasonably expected in the next 24 hours.
3. Waste will not be applied on slopes greater than 15 percent or in any manner that may cause the waste to enter the waters of the state or run onto adjacent landowner's property.
4. Waste will not be applied within 100 feet of streams including intermittent streams, ponds, lakes, springs, sinkholes, rock outcrops, wells and water supplies, or within 300 feet of extraordinary resource waters as defined by the Arkansas Pollution Control and Ecology Commission Regulation No. 2. These buffer distances are measured from the ordinary high water mark. ADEQ may require additional buffer zones if deemed necessary.
5. Waste will not be applied within 50 feet of a property line or 500 feet of neighboring occupied buildings existing at the date of the permit, unless the adjacent landowner consents in writing. These restrictions will not apply if the adjoining property is approved as a land application site under the permit.
6. Waste will not be applied where prohibited by the Arkansas Department of Health for the protection of public water supplies.

Record Keeping

1. When making land applications, a daily log should be kept with enough detail that application rates can be determined. The log should include date, field identification, weight and/or volume applied and acreage covered. The log and any associated records are to be kept at the facility and provided to ADEQ upon request.
2. Representative samples of the waste/wastewater being land-applied are to be collected and analyzed at least once a year. The analysis should include pH, total nitrogen, potassium, total phosphorus, soluble phosphorus and percent solids.
3. A soil sample from each field on which the waste is to be applied must be collected, sampled and analyzed at least once every five years. The analysis

should include pH, potassium, phosphorus and nitrates. The soil analyses are to be submitted whenever the Waste Management Plan is updated.

4. Unless specified otherwise, the waste and soil sampling and analysis procedures should follow University of Arkansas Division of Agriculture, Cooperative Extension Service recommendations.
5. Annual reports for the previous calendar year must be received by ADEQ before May 30. The annual reports must include nutrient analysis of the wastewater; locations, volumes and nitrogen application rates; method of application; and type of crops grown on each application site. ADEQ report forms should be used.

Alternative Permitting and Waste Management Provisions

Permitting Land Application Sites Only

A separate permit may be issued for a land application site if the operator submits an application that includes an approved site management plan. This provision allows landowners without a confined animal operation to obtain liquid animal waste and take responsibility for its disposal through land application. The applicant is responsible for submitting a copy of any land use agreements to ADEQ. The applicant is also responsible for meeting the land application and record keeping requirements of a standard permit. In addition, records should be kept pertaining to the source of the waste and its associated permit number if applicable.

Composting as an Alternative to Land Application

Waste management plans may include composting as an alternative to land application of liquid animal waste. The composting may be done at a permitted facility that meets the requirements of the Arkansas Pollution Control and Ecology Commission Regulation No. 22, Solid Waste Management Rules. If such a facility is not referenced in the plan, sufficient data must be included that shows the composting facility will not harm Arkansas surface or groundwater.

Closure of Waste Management Facilities

The owner/operator must submit to ADEQ a closure plan for the liquid waste storage/treatment facility within 60 days of the last day of operation. After ADEQ approves the closure plan, the facility should be physically closed. When completed, certification that the closure plan was followed must be submitted within 10 days to ADEQ to officially close the permit. The closure plan and final closure certification can be prepared by the Natural Resources Conservation Service, an Arkansas Natural Resources Commission water quality technician, a certified nutrient management planner or a professional engineer registered in the state of Arkansas.

Contact Information and Services

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317
(501) 682-0744
www.adeq.state.ar.us

United States Department of Agriculture
Natural Resources Conservation Service
Federal Office Building, Room 3416
700 West Capitol Avenue
Little Rock, AR 72201
(501) 301-3137
www.ar.nrcs.usda.gov

University of Arkansas
Division of Agriculture
Cooperative Extension Service
P.O. Box 391
Little Rock, AR 72203
(501) 671-2000
www.uaex.edu

Arkansas Natural Resources Commission
101 East Capitol, Suite 350
Little Rock, AR 72201
(501) 682-1611
www.anrc.arkansas.gov

Arkansas Department of Health
4815 West Markham
Little Rock, AR 72205
1-501-661-2000
www.healthyarkansas.com

This material is adapted from the Arkansas Pollution Control and Ecology Commission's Regulation No. 5 Liquid Animal Waste Management Systems. Acknowledgment is given to Marcus Tilley, Arkansas Department of Environmental Quality, for his assistance in revising this publication.

Printed by University of Arkansas Cooperative Extension Service Printing Services.

KARL VANDEVENDER, Ph.D., P.E., is Professor - Extension Agricultural Engineer with the University of Arkansas Division of Agriculture, Cooperative Extension Service in Little Rock.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director, Cooperative Extension Service, University of Arkansas. The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.