

FACT SHEET

ENVIRONMENTAL PROTECTION REQUIREMENTS FOR SWINE OPERATIONS

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Water and air pollution from swine feeding operations can be minimized by proper site selection and facility design. The design of swine waste management systems depends heavily upon State and Federal pollution control regulations. These requirements are summarized briefly in this publication.

State Water Pollution Control Regulations

The Texas Water Quality Act of 1967 states that no person or operation may handle waste in any manner that causes a discharge of pollutants off-premises without a permit from the state water pollution control agency, the Texas Department of Water Resources (TDWR). In 1978, the TDWR issued water pollution control regulations that apply to "commercial swine production operations." This regulation was enacted under authority of Sections 5.131 and 5.132 of the Texas Water Code.

The swine regulation requires swine feeding operations with 50 or more animal units (breeder or feeder hogs weighing 50 pounds per head or more) in confinement to construct waste management facilities which will *prevent discharge of wastewater, runoff or manure* from the premises. The term "confinement" applies when the pen area allotted per hog is 2,000 square feet or less.

For example, a finishing operation with 65 hogs in open lots or in a building is subject to this regulation and is required to meet the zero discharge standards discussed later in this fact sheet. Similarly, a 40-sow, farrow-to-finish operation also would have to meet the water pollution abatement standards, but a 40-sow, feeder pig operation would not.

"No-discharge" restrictions also apply to swine operations with 20 or more animal units that are located closer to a stream than 5 feet per head and that provide an animal spacing of less than 4,000 square feet of pen space. For example, a person feeding 30 finishing hogs in an open lot or in a confinement building located within 150 feet of a stream would need to achieve the no-discharge standards.

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In addition to controlling discharge, hog operations with 500 or more animal units are required to obtain a *Certificate of Registration* from the Texas Department of Water Resources. In some cases producers may choose, or may be required, to obtain a formal TDWR permit, which always requires a public hearing, instead of the less formal *Certificate of Registration*.

To meet the "no-discharge" standard, it is necessary to provide appropriate waste collection and disposal facilities. These facilities should be capable of:

1. Diverting uncontaminated outside runoff and roof drainage around the feeding area.
2. Routing runoff from open feedpens through a settling channel or basin for solids removal.
3. Retaining in holding ponds all open-lot runoff from the 25-year frequency, 24-hour duration rainfall event, which is defined in Figure 1.

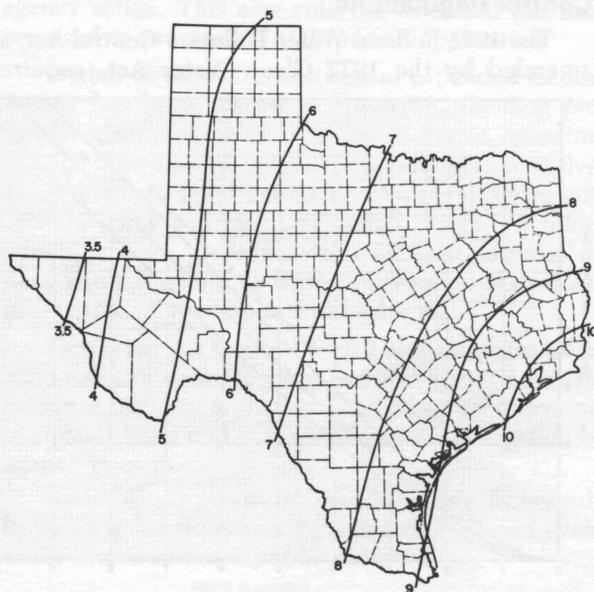


Figure 1. Magnitude of 25-year frequency, 24-hour duration rainfall (inches) for designing runoff retention ponds according to TDWR and EPA standards.

Runoff is considered to be at least 75 percent of the rainfall volume and can be determined from Figure 2.

4. Providing storage for a 30-day production of manure and wastewater from confinement buildings.
5. Disposing of collected runoff by irrigation within 14 days, or providing additional storage capacity.
6. Lagoons and holding ponds constructed before August 28, 1970 are exempt from the seepage restriction. Restrict seepage either by constructing ponds and lagoons in silty clay or clay soils or by installation of suitable lining materials such as compacted clay. Soils from the bottom and sides should be tested by a soil mechanics laboratory and should meet these criteria (which define the soil as a silty clay or clay):
 - a. Percent passing 200 mesh screen = 30 percent or more
 - b. Liquid limit = 30 percent or more
 - c. Plasticity index = 15 percent or more

Solid and liquid wastes must be distributed onto crop or pasture land in such a way as to prevent direct or indirect discharge to a stream or to adversely affect stream quality. Application rates should be low enough to prevent damage to vegetation. (Guidance on land application is available from the Extension bulletin MP-1269, *Land Disposal of Swine Manure*.) Solid and liquid wastes also should be managed so as to prevent odors, flies and nuisance conditions.

Federal Water Pollution Control Regulations

The 1972 Federal Water Pollution Control Act, as amended by the 1977 Clean Water Act, requires

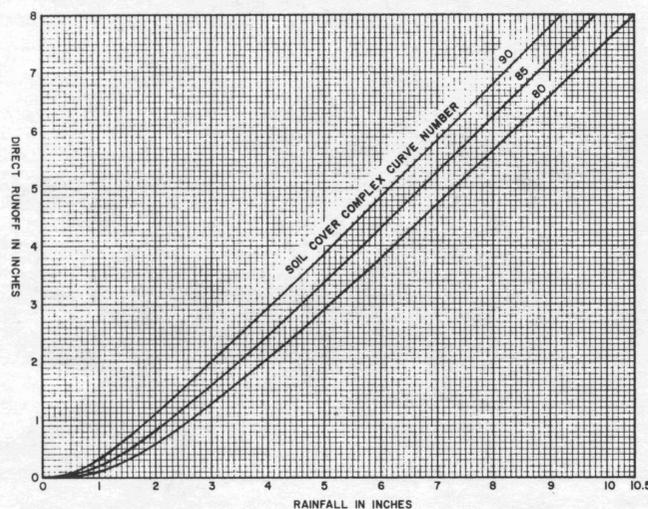


Figure 2. Prediction of runoff from dirt-surfaced animal feedlots using the soil cover complex procedure of the Soil Conservation Service-USDA.

“point sources” of water pollution to obtain a Federal permit. The U.S. Environmental Protection Agency issued regulations in 1976 which classify “concentrated animal feeding operations” as a point source which needs an EPA permit if they discharge to navigable waters. The EPA permit is called a “NPDES permit,” which stands for National Pollutant Discharge Elimination System.

EPA considers a swine operation to be a point source — thereby needing a permit — if the following criteria apply:

- Animals are kept in open lots or buildings at least 45 days per year; and
- Animal density on open lots is such that forage growth is not sustained; and
- The operation has more than 2,500 hogs weighing 55 pounds or more and discharges off premises; or
- The operation has more than 750 hogs (55 pounds per head) and discharges either (a) to a stream that flows through or alongside the operation or (b) through a man-made conveyance (ditch, pipe, flushing system, etc.).

An operation is considered to “discharge” if manure-contaminated wastewater will leave the premises under rainfall conditions smaller than the 25-year frequency, 24-hour duration storm as defined in Figure 1. The hog producer is not held responsible for discharges which occur because of rainfall events higher than the 25-year, 24-hour storm.

EPA has assigned responsibility for review and approval of NPDES permits to the Texas Department of Water Resources. The EPA ultimately grants the permit based on State approval. Thus, a hog producer should apply for both the Federal (NPDES) permit and the state permit through the Texas Department of Water Resources.

Essentially, the same set of criteria are applicable to both the State and Federal permit. An exception is that under the EPA permit, the swine producer is required to measure and submit records of rainfall, amount of runoff held in storage and pumpdown rates to satisfy the agency that all steps are being taken to avoid a discharge.

Construction of new facilities in accordance with EPA standards and receipt of a Federal permit insures that the swine producer will not be subject to more stringent pollution control requirements within 10 years after construction or during the period of amortization, whichever period ends first.

It is expected that EPA will soon delegate full authority for issuance of NPDES permits to the Texas Department of Water Resources. If this occurs, the separate EPA regulations for water pollution control will no longer be applicable to Texas swine producers except as a back-up enforcement mechanism.

State Air Pollution Control Program

The Texas Air Control Board has imposed permit requirements on large swine operations. New production operations with more than 1,000 hogs of any size must obtain a *construction permit* before any construction can begin. In addition, existing swine operations planning to expand by more than 100 percent of their animal capacity as of March 2, 1972, must also obtain a construction permit before expansion begins when the new capacity exceeds 1,000 head. This is a very critical requirement that all hog producers should meet. Otherwise, the operator is an easy target for enforcement action if an odor complaint arises later.

In evaluating construction permit applications, the Texas Air Control Board (TACB) is interested mainly in the location of the proposed facility with respect to neighbors and prevailing winds (Figures 3 and 4). The agency also considers proposed waste management practices and other operating factors that are known to produce and to control odors. (Information on odor control measures is contained in Extension publication MP-1128, *Liquid Manure Management for Swine Operations*.)

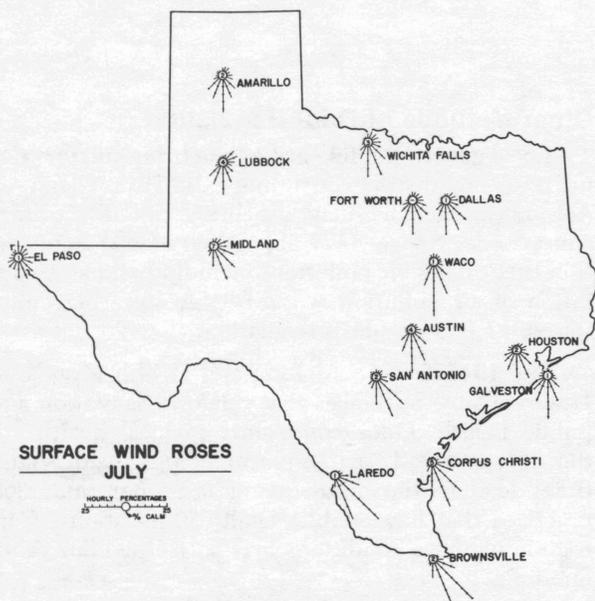


Figure 3. Wind rose diagram depicting the percentage of time wind blows from each direction during July.

As of October 2, 1978, rules concerning "Public Notification and Comment Procedures" require each permit applicant to provide public notification of the proposed construction. The notice must be published in a newspaper having general circulation in the county where the proposed facility is to be located. Each applicant is sent detailed information on the contents of the notice. This notice must be located in

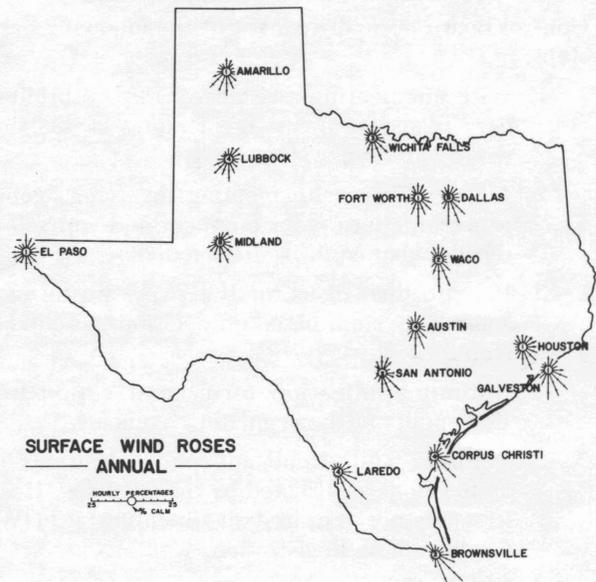


Figure 4. The percentage of time the wind blows from each direction annually is shown in this wind rose diagram.

the public notice section of the paper and in a prominent location elsewhere in the same issue. These notices must be published on two successive issues of the paper. Persons interested in making comments on the proposed construction permit must submit the comments in writing to the Executive Director of the Texas Air Control Board within 30 days of the last publication date. In addition, if persons request to be notified of proposed agency action on an application, another 30-day comment period is provided. All written comments shall be considered in formulating agency action. This new rule has extended the time required to process a TACB permit application.

Within 60 days after the new or expanded feeding facility has been placed in operation, the hog producer must re-apply to the TACB for an *operating permit*. Specific restrictions commonly placed on livestock feeding operations in TACB operating permits include good pen drainage, wind directions under which manure disposal is not allowed, disposal of dead animals within 48 hours, prevention of dust and prevention of odor nuisance conditions.

The Texas Air Control Board also regulates odors from existing swine feeding facilities under a *general nuisance regulation*. This is handled on an individual complaint basis and will result in an investigation by agency personnel.

If complaints persist, the producer may face a public hearing, an Administrative Board order and eventually a civil suit as a public nuisance.

Permit Procedures

Procedures for obtaining permits from the Texas Department of Water Resources and the Texas Air

Control Board normally consist of the following basic steps:

1. With engineering assistance, prepare preliminary plans for the swine feeding facility and waste handling system.
2. Arrange an on-site meeting involving agency representatives, your engineer and yourself to decide what controls are needed.
3. Prepare final plans for the swine waste management system based on decisions reached in step 2.
4. Submit application forms and supporting documents to the regulatory agencies.
5. Publicize and attend any public hearings on applications as directed by the agencies. Hearings are not required in obtaining a TDWR Certificate of Registration.
6. Modify plans for the waste management system as requested by agencies.
7. Initiate construction in accordance with the terms and conditions of the permit.

These steps for obtaining the permits may require several weeks or months to complete. To initiate the process of obtaining permits, the producer should contact and obtain application forms from the appropriate district or regional representatives of the TDWR and TACB. These are located as shown in Figures 5 and 6.

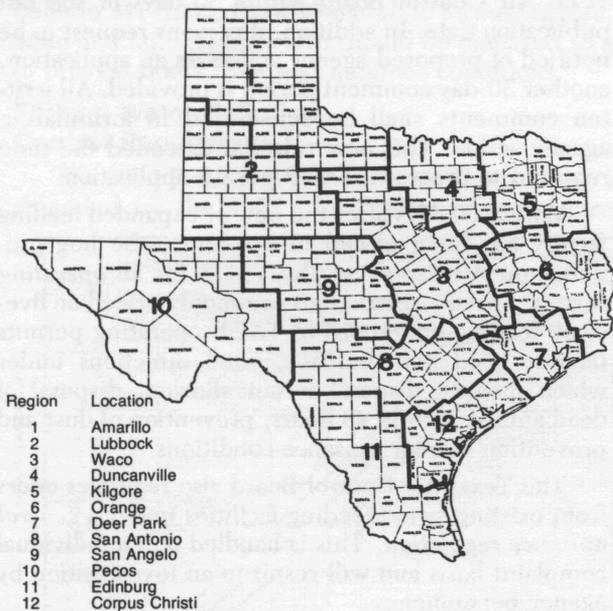


Figure 5. Locations of intrastate regions and regional offices of the Texas Department of Water Resources.

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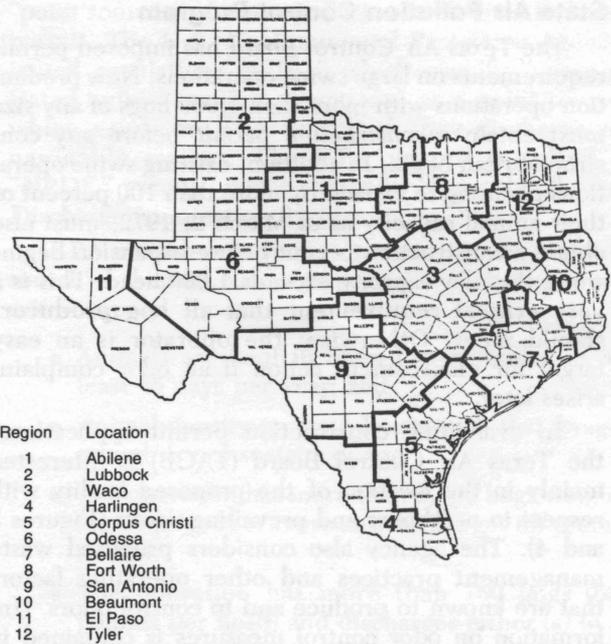


Figure 6. Locations of intrastate regions and regional offices of the Texas Air Control Board.

Other Methods of Odor Regulation

Local governmental entities can bring suit for odor nuisance in a district court under the Texas Clean Air Act. Local agencies may also bring suit in a county court (under Article 4477-5b, VATS) against an operation that causes air pollution, including odors. A condition of air pollution is punishable by a maximum fine of \$1,000 per day of violation.

The 1945 Texas Sanitation and Health Protection Law regulates nuisances that relate to sanitation and public health. Odor complaints to local health authorities or the Texas Department of Health sometimes lead to the discovery of improper sanitation practices that have public health implications. Correction of these conditions may solve the odor problem.

Finally, swine producers are subject to private nuisance lawsuits brought by neighbors without any involvement of governmental agencies. The term "nuisance" is legally defined as any condition or action which interferes with the normal use and enjoyment of property. Private nuisance suits are discussed in detail in Extension leaflet L-1449, *Odor Regulation by Nuisance Laws*.