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Animal Waste Control Programs of Iowa and Eight Other States

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ANIMAL WASTE CONTROL PROGRAMS OF IOWA AND EIGHT OTHER STATES

ABSTRACT

A telephone survey was conducted to obtain information on the animal waste control programs of eight states, including Illinois, Missouri, Nebraska, South Dakota, Minnesota, Wisconsin, Kansas, and North Carolina. This information was then used to prepare summaries of each state's program and develop a comparison with Iowa's program. In conducting the survey, emphasis was placed on those aspects of the state programs that dealt with confinement feeding operations.

Although all of the states have active animal waste control programs and the programs are generally addressing similar issues, there is considerable variation between states in terms of how they are dealing with these issues. This is illustrated by Figure 1, which is a matrix summarizing how the various state programs are responding to some of these issues.

Six of the nine states require certain confinement feeding operations to submit plans and obtain state approval prior to construction of new or expanded production facilities. Five of these states base their requirements solely upon the operation's capacity, while Iowa bases its requirements upon a combination of operation capacity and type of waste control system used.

Four states require certain new or expanded confinement feeding operations to obtain operation permits, with the requirement for a permit based on the operation's capacity. Five states, including Iowa, do not issue operation permits to confinement facilities. In most cases, these states only issue operation permits to facilities which have a waste discharge. Since confinement operations are required to operate as no-discharge systems, they are not issued permits.

All nine states are addressing the seepage potential from lagoons and other earthen waste storage systems in some manner. Four states, including Iowa, require soil borings as part of the site investigation conducted for operations required to obtain state construction approvals. In addition, seven states have set maximum seepage limits for newly constructed lagoons or earthen basins. Although two states have not set specific seepage limits, they utilize other means to ensure that lagoons and earthen basins are properly constructed.

Minnesota's animal waste control regulations include land disposal restrictions. The remaining states address land disposal through guidelines or recommendations. Seven states recommend waste applications be limited to rates that meet the agronomic nitrogen needs of the crops grown, one recommends disposal be based on both nitrogen and phosphorus considerations, and one recommends disposal rates be based on hydrologic considerations. Considerable variation exists in how states address other aspects of waste disposal, including waste management plans, waste disposal agreements, and recordkeeping on disposal operations.

Five states, including Iowa, have adopted minimum separation distance requirements. In all five states, the distance requirements apply to neighboring residences (not owned by the facility), and in several the distances also apply to public use areas. The other four states have not adopted state level distance requirements, but instead rely upon local authorities to regulate facility location.

Staffing of state animal waste control programs ranges from a low of 1 3/4 full time equivalents (FTE) in South Dakota to a high of 10 FTE in North Carolina. Iowa has the second lowest level of staffing, with 2 1/4 FTE being devoted to the program annually.

FIGURE 1 - MATRIX OF STATE PROGRAM FEATURES

[illegible]

COMPARISON OF STATE ANIMAL WASTE CONTROL PROGRAMS

Introduction: Over the past several years, the construction of large confinement livestock and poultry operations has increased rapidly in Iowa. This has prompted many citizens to become concerned about the impacts these operations may have on the state's environment, and has resulted in questions being raised as to whether Iowa's animal waste control regulations and programs are adequate.

To help answer the questions raised regarding Iowa's animal waste control programs, as well as to determine how other states were addressing the environmental concerns associated with large livestock and poultry operations, in September and October of 1994 the Iowa Department of Natural Resources (IDNR) conducted a study comparing Iowa's program with the programs of eight other states. States covered included the six contiguous states (Illinois, Missouri, Nebraska, South Dakota, Minnesota, and Wisconsin), as well as Kansas and North Carolina. Information was first obtained from each state on specific aspects of its program, after which a written summary of that state's program was prepared. These summaries were then used to develop an overall comparison between Iowa's program and the programs of the other states. This report presents the results of this effort, including both the overall comparison of Iowa's program and the programs of the other states, as well as the state program summaries.

The general procedures used in developing this report were:

- A list of questions designed to obtain information on each state's animal waste control program was developed. As the rapid expansion of livestock and poultry operations in Iowa has generally involved confinement feeding facilities, these questions generally dealt with issues associated with confinement operations, and particularly with hog confinement units. For purposes of this report, confinement feeding operations are considered to be operations in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

The issues dealt with included: construction and operation permit/approval requirements; seepage control for lagoons and earthen basins; land application of wastes; separation distance requirements; site clean-up if operation closes; odor control regulations; program staffing; and role of local agencies in state programs. The questions are given in Appendix A.

- Using the list of questions as guidance, IDNR interviewed staff of the agency responsible for administering the animal waste control program in each of the states covered by this report. The information obtained through this interview was then used to develop a draft report on that state's animal waste control program. In some instances, written information from agency rules or other reports was also used in preparing the report. Once drafted, the state report was sent to the state administrative agency for review and comment. Comments received were then used to develop a final report on that state's program. Copies of the individual state program reports are found in Appendices B.1 through B.9.
- The individual state program reports were then used to compare Iowa's animal waste control program with the programs of the other states. The major findings of this comparison are presented in the main body of this report.

Major Findings: Comparison of Iowa's animal waste control requirements with the requirements of the other states found the following:

1. **Construction Approval Requirements:** All states were asked if they required certain new or expanding confinement feeding operations to obtain construction permits or other construction approvals and, if so, what criteria an operation had to meet to be covered by these requirements. Table 1 summarizes the states' responses to this question.

TABLE 1 - CONSTRUCTION PERMIT/APPROVAL REQUIREMENTS

<u>STATE</u>	<u>APPROVAL RORD</u>	<u>APPROVAL CRITERIA</u>
Illinois	No	----
Kansas	Yes	300 Animal Units*
Minnesota	Yes	10 Animal Units
Missouri	Yes	1000 Animal Units
Nebraska	No	----
North Carolina	No	----
South Dakota	Yes	1000 Animal Units
Wisconsin	Yes	1000 Animal Units
Iowa	Yes	**

As Table 1 shows, three states do not require any new or expanding confinement feeding operations to obtain state approval prior to constructing livestock buildings or waste control systems. However, it should be noted that North Carolina requires any new or expanding livestock operation with a capacity of over 100 animal units (250 pigs) and constructed after January 1, 1994, to certify to the state that their waste control system complies with applicable Soil Conservation Service (SCS) standards prior to placing animals unto the new or expanded facilities.

Six states (including Iowa) require certain confinement feeding operations to obtain a construction permit or other approval. Considerable variation exists between these states in terms of the specific criteria used in determining when a permit or other approval is required. Five states base their requirements on the animal capacity of the confinement operation, with Minnesota requiring construction approval for all new or expanding operations having a capacity for 10 animal units (25 pigs) or more, Kansas requiring approval for operations of 300 animal units (750 pigs) or more, and Missouri, South Dakota, and Wisconsin requiring approval for capacities of 1000 animal units (2,500 pigs) or more.

Iowa's construction permit requirements are based on a combination of two factors, the operation's capacity and the type of waste control system used. In Iowa, a construction permit must be obtained for a new or expanding livestock operation under the following conditions:

- any size operation using an anaerobic lagoon as part of its waste control system;
- any operation of over 200 animal unit (500 pig) capacity and using an earthen waste storage basin (other than an anaerobic lagoon) as part of its waste control system; or,
- any operation with a capacity of over 2,000 animal unit (5,000 pig) capacity and using formed waste storage tanks (below building pits, outside concrete or steel tanks, etc.) for waste control.

* For purposes of this report, the capacity of an operation in animal units is determined by multiplying the number of animals of a given species by the animal unit equivalency factor for that species, as given below:

<u>Species</u>	<u>Equivalency Factor</u>	<u>Species</u>	<u>Equivalency Factor</u>
Beef cattle	1.0	Sheep or lambs	0.1
Mature dairy cattle	1.4	Turkeys	0.018
Swine (over 55 lb)	0.4	Broiler or Layer Chickens	0.01

2. **Operation Permit Requirements:** The state's responses to the question of whether they required new or expanding confinement operations to obtain an operation permit are shown in Table 2.

TABLE 2 - OPERATION PERMIT REQUIREMENTS

<u>STATE</u>	<u>OPERATION PERMIT RQRD</u>
Illinois	No
Kansas	Yes - 300 Animal Units
Minnesota	Yes - 10 Animal Units
Missouri	Yes - 1000 Animal Units
Nebraska	No
North Carolina	No
South Dakota	No
Wisconsin	Yes - 1000 Animal Units
Iowa	No

As Table 2 shows, 4 states require that certain confinement feeding operations to obtain a state operation permit. All of these states base the requirement for an operation permit on the operation's capacity, with Minnesota requiring that a permit be obtained for any operation of 10 or more animal units (25 pigs), Kansas requiring permits for operations with over 300 animal unit (750 pig) capacity, and Missouri and Wisconsin requiring permits for operations of over 1000 animal unit (2,500 pig) capacity.

Five states, including Iowa, do not require confinement feeding operations to obtain operation permits. In most cases, these states only issue operation permits to animal feeding operations that may have a waste discharge. Since confinement feeding operations are to be operated as no-discharge systems, these states do not issue operation permits to them.

In Iowa, the operating requirements a confinement feeding operation is expected to comply with have been included in IDNR's Chapter 65 Animal Feeding Operation rules. As a consequence, issuing permits to confinement operations is not considered necessary, since the operation of their waste controls is already regulated by rule. Primary operating requirements included in the rules include:

- all wastes produced in the confinement facilities must be collected and stored between periods of waste disposal, and wastes must be disposed of by land application;
- the direct discharge of wastes to state waters is prohibited, including discharge to a publicly owned lake, sinkhole, an agricultural drainage well, or to a tile line that drains to state waters;
- a minimum of 2 feet of freeboard must be maintained at all times in anaerobic lagoons or other earthen waste storage basins;
- land application of wastes must be conducted in a manner that does not cause pollution of surface or ground waters.

3. **Seepage Potential - Lagoons and Basins:** Several questions were asked to determine how states were addressing the concern that seepage from anaerobic lagoons or other earthen waste basins might cause pollution of ground waters.

Four states (including Iowa) require soil borings as part of the site investigation conducted for operations required to obtain state construction permits or other approvals. Two states, Minnesota and Wisconsin, indicated borings are required for all types of waste control systems, including formed tanks, lagoons, and other earthen basins. The other two states, Iowa and South Dakota, only require borings for anaerobic lagoons and other earthen waste storage basins.

States were also asked whether they had set specific seepage limits that new lagoons or earthen waste storage basins were required to meet upon completion of construction. Table 3 presents the state responses to this question.

TABLE 3 - SEEPAGE LIMITS FOR LAGOONS & EARTHEN BASINS

<u>SEEPAGE LIMIT</u>	<u>STATE</u>
No specific limit	Illinois, Wisconsin
0.34 inch/day	North Carolina
1/4 inch/day	Kansas, Nebraska
1/8 inch/day	South Dakota, Missouri
1/16 inch/day	Iowa, South Dakota, Missouri
<1/16 inch/day	Minnesota

Although two states have not set specific seepage limits, they address the seepage problem through other means. Illinois requires that lagoons and basins be constructed to be impermeable, without setting a specific seepage limit. Wisconsin requires that SCS standards be followed in construction of lagoons and earthen basins. Rather than setting seepage limits, the SCS standards provide criteria under which specific types of liners must be used, considering such factors as soils found, depth to bedrock, and depth to ground water.

The two states listed twice in Table 3 (South Dakota and Missouri) have set tighter seepage limits for sites considered to have greater pollution potential.

Iowa requires that lagoons and other earthen waste storage basins be constructed to limit seepage to no more than 1/16 inch/day prior to use. As do most other states, Iowa places responsibility for determining how to meet this limit on the designer (either a registered engineer or SCS). Iowa does require that soil cores be taken from the constructed lagoon or basin and tested to determine if this limit has been met.

Research has shown that seepage rates generally decrease after animal wastes are discharged into a lagoon or other earthen basin. As a consequence, long term seepage rates from such structures would be expected to be less than the rate found at the time of construction.

None of the states indicated monitoring wells are routinely required at all lagoon or earthen basins sites. However, several (including Iowa) require monitoring wells on a case-by-case basis, for sites considered to have a high ground water pollution hazard.

4. **Land Application of Wastes:** Several questions were asked to determine the requirements or restrictions states have placed on land disposal of wastes from confinement feeding operations. The state responses indicated states were generally addressing land disposal of wastes in a similar manner, although some differences were noted. Major findings included:

- Only one state, Minnesota, has adopted specific limits on the rates at which wastes may be disposed of on land. Under Minnesota's rules, waste disposal must be limited to rates which meet the agronomic nitrogen need of the crops grown, with a permit required if an operation intends to dispose of wastes at higher rates.
- The remaining states all address waste application through use of land disposal recommendations or guidelines. Although in some states (including Iowa) these have been officially adopted by the state regulatory agency, in other states they exist only as part of SCS standards which the agency recommends be followed.
- All states except Nebraska and North Carolina recommend that waste applications be based on meeting the agronomic nitrogen needs of the crops grown. Nebraska's recommendations are currently based on hydrologic considerations, although basing applications on nitrogen is being considered. North Carolina bases its recommendations on both nitrogen and phosphorus, with the most limiting nutrient being used to set application rates. In addition, both Minnesota and Wisconsin are considering modifying their recommendations to also consider phosphorus.

Although both Iowa and Missouri recommend waste applications be limited to meeting the agronomic nitrogen needs of the crops grown, both states also allow higher rates of application if the land available for waste disposal is limited. Iowa's land disposal guidelines allow disposal at rates of up to 250 pounds of available nitrogen or 400 pounds of total nitrogen per acre per year, with these rates only being used if high nitrogen use crops are grown.

- Due to having adopted waste disposal limits as part of its rules, it appears Minnesota could take enforcement action against confinement feeding operations which apply wastes in excess of these limits on the basis that such overapplication constitutes a violation of state rules. In the remaining states, it is questionable whether any enforcement action against producers who overapply wastes would be successful unless it could clearly be demonstrated that the overapplication contributed to a specific water quality problem.
- Four states (Minnesota, North Carolina, Missouri, and Wisconsin) reported at least some confinement feeding operations were required to maintain records of waste disposal operations. In most cases, the operations are required to keep the disposal records on-site, although Minnesota requires the records be submitted to the state annually.

5. **Separation Distance Requirements:** States were asked if separation distance requirements had been adopted which limited how close confinement feeding operations and their waste controls could be located to neighboring residences or to public use areas. A variety of responses were given, with some states reporting the adoption of specific distance requirements, and others either reporting that no distance requirements had been adopted or that decisions on location were left to local zoning authorities. State responses included:

- Illinois - New or expanded operations must be located at least 1,320 feet from non-farm residences and 2,640 feet from populated areas (defined as an area with 10 or more residences or with a facility used by 50 or more people a week). Some exceptions exist, depending upon whether the operation was there first, is located in a designated "agricultural area", or local zoning ordinances allow the facility's operation.
 - Kansas - New operations with a capacity of from 300 to 999 animal units (750 to 2,499 pigs) must be located at least 1,320 feet from non-owned residences, while operations with a capacity of over 1,000 animal units (2,500 pigs) must be located at least 4,000 feet from non-owned residences.
 - Missouri - Confinement feeding operations must be located at least 50 to 200 feet from a residence.
 - North Carolina - Confinement operations must be located at least 750 feet from non-owned residences or public use areas.
 - Iowa - Confinement feeding operations which use anaerobic lagoons or earthen slurry storage basins must be located at least 1,250 feet from non-owned residences or public use areas if the operation has a capacity of less than 625,000 pounds live animal weight (approximately 5,000 finishing pigs). The distance requirement is 1,875 feet for operations with a capacity of over 625,000 pounds live weight. For beef cattle, the 1,250 feet distance apply for operations of less than 1.6 million pounds live weight, with the 1,875 feet distance applying to larger operations.
 - At least 4 states (Minnesota, Nebraska, South Dakota, and Wisconsin,) indicated counties have authority to restrict the location of animal feeding operations through zoning.
6. **Provisions for Site Clean-up if an Operation Closes:** Due to concerns that the public may be forced to pay for site clean-up at confinement feeding operations which close due to financial difficulties, states were asked if they had any programs to prevent this. The state responses indicated that although several states had experienced problems of this nature, none had adopted bonding or other financial assurance programs to ensure that adequate funds would be available to clean up a site if an operation closed.
- Several states (Nebraska, South Dakota, North Carolina) reported some counties in their states had required certain operations to obtain bonds to cover site clean-up costs. However, they were unable to say how effective the bonding requirements had been.
- There have been several cases in Iowa where operations have closed without adequate site clean-up. In these instances, the properties have eventually reverted back to county ownership due to non-payment of property taxes, and the county has had to pay the costs of site maintenance and clean-up
7. **Odor Control Regulation:** Responses to questions about odor control programs indicated most states have not adopted odor control regulations for animal feeding operations. Instead, these states rely upon zoning, separation distance requirements, or private nuisance lawsuits to address odor problems from animal feeding operations.

Two states (Illinois, Wisconsin) reported state odor control regulations have been adopted. However, both states indicated enforcement of these regulations for animal feeding operations was either extremely difficult or a low priority, and that as a result these regulations were not very effective in dealing with problem odors from animal feeding operations.

8. **Staffing of State Animal Waste Control Programs:** As shown in Table 4, considerable variation exists in the level of staffing being devoted to state animal waste control programs.

TABLE 4 - PROGRAM STAFFING

<u>STATE</u>	<u>STAFFING LEVEL - FTE'S</u>
Illinois	4 1/4
Kansas	9
Minnesota	8 *
Missouri	6 to 7
Nebraska	4
North Carolina	10
South Dakota	1 3/4
Wisconsin	5 *
Iowa	2 1/4

* Minnesota and Wisconsin will be adding 10 and 2 new positions, respectively, to their animal waste control programs.

9. **Role of Local Governmental Agencies in Program:** Responses to questions about the role that counties or other local governmental units have in animal waste control programs indicated most programs were entirely state administered, with local governments having no direct role in carrying out these programs. Only Minnesota provides local governments the opportunity to be directly involved in carrying out the state's program, in that it allows counties to be delegated authority to administer the program for animal feeding operations of under 1000 animal unit capacity.

Although a number of states have laws which prohibit counties to adopt zoning ordinances that regulate agricultural operations, at least 4 states (Minnesota, Nebraska, South Dakota, and Wisconsin) reported that counties can adopt zoning ordinances that regulate the location of animal feeding operations.

APPENDIX A

QUESTIONS USED TO OBTAIN INFORMATION ON STATE PROGRAMS

The following questions have been developed for use in obtaining information on the animal waste control programs of other states. As the intent of this study is to focus on confinement feeding operations, rather than to cover both open feedlots and confinement operations, the interview process with staff of the other states will include explaining that the questions are intended to address issues dealing with roofed animal feeding facilities, generally with liquid or semi-liquid waste handling (although poultry operations may use dry litter systems).

1. What agency in your state administers the state's animal waste control program?
2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc)?
3. Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?
4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?
 - formed waste storage tanks or pits - concrete tank below building or outside of building, slurrystore, other formed storage pit or tank
 - anaerobic lagoon
 - earthen waste storage basins (other than anaerobic lagoon)
5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:
 - basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)
 - detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures
 - soil borings or other geological information - if required, what level of detail is required?

- waste management plan - if required, what information must be provided?
- land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, etc.)
- proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
- schedule and equipment for conducting disposal operations

6. Does your state permitting process include provisions for:

- issuing public notice prior to permit issuance
- holding public hearings if significant comment/interest exists

Does your state charge fees for permits? If so, what are they?

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposal of on land? If so, what are these limits?

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

Has your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells is required? What level of monitoring is required?

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:
- pre-construction site inspection
 - construction or post-construction investigation
 - periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
 - complaint investigations
11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?
12. How much staffing is devoted to your state's animal waste control program annually (in FTE's)?
13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?
14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?
15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF IOWA

This report provides information on specific aspects of the animal waste control program of the State of Iowa, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources.

This report is not intended to represent a comprehensive overview of Iowa's animal waste control program. Instead, the report focuses on those aspects of Iowa's program that pertain to confinement feeding operations, and covers the same topics for which information was obtained from the other states included in the multi-state review. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on the programs of other states.

1. What agency in your state administers the state's animal waste control program?

Iowa Department of Natural Resources (IDNR)

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

IDNR rules require certain new or expanding confinement feeding operations to obtain construction permits. The need for a permit is determined by the capacity of the operation and the type of waste control system used. Construction permits are required for: a) any confinement feeding operation using an anaerobic lagoon as part of its waste control system; b) any confinement feeding operation using an earthen waste storage basin and having a capacity of 200 animal units (500 hogs) or more; and, c) any confinement feeding using a formed tank waste storage system and having an animal capacity of 2000 animal units (5000 hogs) or more.

3. Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?

No. The requirements that confinement feeding operations are expected to comply with in the operation of their waste control systems are included in IDNR's rules. As a result, confinement feeding operations are generally exempt from having to obtain an operation permit. However, IDNR rules allow the agency to require individual operations, on a case-by-case basis, to obtain permits.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?

- formed waste storage tanks or pits - concrete tank below building or outside of building, slurry store, other formed storage pit or tank
- anaerobic lagoon
- earthen waste storage basins (other than anaerobic lagoon)

Iowa does not restrict type of waste control systems that can be used. However, anaerobic lagoons and earthen waste storage basins must comply with applicable design and construction standards. No minimum storage requirements exist for formed tanks or pits, but earthen waste storage basins are restricted to having a capacity to store between 180 and 240 days waste production.

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)

Yes, all of basic information outlined above is required.

- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures

Detailed design plans are required for anaerobic lagoons and other earthen waste storage structures. Plans must be prepared by a registered engineer or SCS.

- soil borings or other geological information - if required, what level of detail is required?

At least 2 soil borings are required for anaerobic lagoons or earthen waste storage basins, with an additional boring required per acre for all sites above 2 acres in size. All borings must be to a depth at least 10 feet below the bottom of the lagoon or basin, and at least 1 boring must be to a depth of 25 feet below the bottom of the lagoon or basin, or to bedrock, whichever is less. A minimum separation distance of 2 feet is required between the bottom of the lagoon or basin and the maximum groundwater level, unless a synthetic liner is used.

- waste management plan - if required, what information must be provided?
 - land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, etc.)
 - proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown

- schedule and equipment for conducting disposal operations

Detailed waste management plans are not required. Amount of land available for disposal and general location of this land is generally all that needs to be identified. Written disposal agreements are required if the amount of land needed for disposal (based on a waste application rate of 250 lb/ac available nitrogen) exceeds the amount the operation controls (owns or rents) by at least 640 acres.

6. Does your state permitting process include provisions for:

- issuing public notice prior to permit issuance
- holding public hearings if significant comment/interest exists

No.

Does your state charge fees for permits? If so, what are they?

No fees are charged.

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

Iowa law requires a minimum separation distance of 1,250 feet from neighboring residences or public use areas for anaerobic lagoons or earthen waste slurry storage basins used in conjunction with confinement feeding operations with an animal capacity of less than 625,000 lb live animal weight (for all species except beef). A separation distance of 1,875 feet is required if the animal capacity exceeds 625,000 live animal weight. Public use areas are defined as not including roads.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are these limits?

IDNR rules include land disposal guidelines. These guidelines recommend that waste disposal be conducted at rates meeting the agronomic nutrient needs of the crops being grown. The guidelines also recommend that if disposal at higher rates is necessary, annual waste applications should be limited to no more than 250 lbs per acre available nitrogen, and in no case should applications exceed 400 lbs per acre total nitrogen. Compliance with the guidelines is not required, but land disposal must be conducted so as not to cause surface or ground water pollution.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

IDNR's waste disposal guidelines include recommendations regarding all of these situations. For example, the guidelines include a recommendation that waste disposal on snow-covered or frozen

ground be avoided, but also state that if such disposal is necessary, it should be done on land where slopes are 4 percent or less or on land with adequate erosion control practices.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

No.

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

IDNR rules and design standards govern various aspects of the design and construction of both lagoons and earthen basins. Other design aspects of these systems are covered by SCS standards or other technical standards.

Does your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

IDNR design standards require that percolation rates not exceed 1/16 inch per day. Compliance is determined based on design information, with post-construction soil percolation testing required.

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells are required? What level of monitoring is required?

IDNR normally does not require installation of monitoring wells, but may require wells on a case-by-case basis if site conditions warrant.

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

Pre-construction site inspection is conducted to verify that separation distance requirements are met for all operations using anaerobic lagoons and for those operations using earthen slurry storage basins and having a capacity of 200 or more animal units (500 hogs). IDNR does not conduct post-construction inspections or periodic site visits. Complaints of water pollution are investigated as they are received.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

Iowa does not require bonding or other financial assurance to ensure site clean-up if an operation closes. Several instances of closure without site clean-up have occurred in Iowa.

12. How much staffing is devoted to your state's animal waste control program annually (in FTE's)?

IDNR has the equivalent of 1.75 staff positions devoted full time to the program, plus some time of supervisory staff. This includes 1.0 FTE of field staff and 0.75 FTE of central staff devoted to plan review and permitting.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

Iowa does not have state odor control regulations - actions to abate odors would have to be taken under state nuisance laws.

14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

IDNR can require a higher level of waste control, but probably lacks adequate legal authority to deny a permit.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

Although Iowa law generally exempts agricultural operations from county zoning, some counties have adopted regulations that require animal feeding operations meeting specific criteria to obtain zoning approval.

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF ILLINOIS

This report provides information on specific aspects of the animal waste control program of the State of Illinois, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources. The information contained in this report is based mainly on information obtained through telephone interview of staff of the Illinois Environmental Protection Agency, although in some areas supplemental information from agency rules or other reports may also have been used.

This report is not intended to represent a comprehensive overview of Illinois' animal waste control program. Instead, the report focuses on certain aspects of Illinois' program that pertain to confinement feeding operations, since these program aspects were of specific interest to Iowa. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on Illinois' program. Although this report was prepared by the Iowa Department of Natural Resources, staff of the Illinois Environmental Protection Agency were provided a draft for review prior to the report being finalized.

1. What agency in your state administers the state's animal waste control program?

Illinois Environmental Protection Agency (IEPA)

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

No. IEPA rules only require those animal feeding operations which are required to obtain NPDES permits to apply for and obtain IEPA construction approval. As new confinement swine and poultry operations are required to collect, store, and land apply all wastes, these operations are considered to be no-discharge systems and thus are exempt from NPDES permit requirements. As such, these confinement operations are also exempt from having to obtain construction approval from IEPA.

3. Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?

No. IEPA's operation permit rules are patterned after the NPDES rules adopted by the USEPA, and only require certain larger animal feeding operations which discharge wastes to state waters to obtain operation permits. As confinement feeding operations are considered to be no-discharge systems, they are exempt from having to obtain operation permits from IEPA.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?

- formed waste storage tanks or pits - concrete tank below building or outside of building, slurrystore, other formed storage pit or tank
- anaerobic lagoon
- earthen waste storage basins (other than anaerobic lagoon)

IEPA does not restrict the type of waste control system that can be used. However, the waste controls must meet applicable construction requirements. For formed tanks and earthen waste storage basins, adequate storage capacity to retain a minimum of 120 days waste production is required.

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)
- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures
- soil borings or other geological information - if required, what level of detail is required?
- waste management plan - if required, what information must be provided?
 - land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, etc.)
 - proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
 - schedule and equipment for conducting disposal operations

As confinement feeding operations are not required to obtain construction approval from IEPA, these operations are not required to provide any of the listed information to IEPA.

6. Does your state permitting process include provisions for:

- issuing public notice prior to permit issuance
- holding public hearings if significant comment/interest exists

Does your state charge fees for permits? If so, what are they?

As confinement feeding operations are not required to obtain permits from IEPA, IEPA's permitting procedures and permit fees do not apply to these operations.

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

IEPA's rules require that after July 15, 1991 new or expanded animal feeding operations must be located at least 1/2 mile from a populated area and at least 1/4 mile from a non-farm residence. For purposes of the rules, a populated area is an area where at least 10 inhabited non-farm residences exist or at least 50 persons frequent a common place of assembly or a non-farm business at least once a week

The IEPA rules also provide that these separation distance requirements do not apply if: the livestock facility is located in a designated "agricultural area"; the facility is undergoing expansion and the owner certifies to IEPA that the facility was operating for at least one year prior to the existence of any non-farm residence within 1/4 mile of the facility or a populated area within 1/2 mile of the facility; or, local zoning ordinances allow use of the facility.

IEPA rules require that a new livestock facility located within 1/4 mile of a neighboring residence or within 1/2 mile of a populated area, even if exempt from the space separation distance requirements, must be located at the "maximum feasible location" from the neighboring residence or populated area. The IEPA rules also define the specific conditions under which a new operation is considered to be in compliance with the "maximum feasible location" requirements.

In addition to these separation distance requirements, IEPA rules require that new and expanding animal feeding operations utilize adequate odor control methods and technology so as not to cause air pollution in both new and existing facilities.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are these limits?

IEPA rules include guidelines on land disposal of animal waste. Compliance with the guidelines is not mandatory, but all operations must dispose of all waste in a manner that does not cause pollution of surface or groundwater.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

IEPA's land disposal guidelines recommend that waste application rates be based on not exceeding the agronomic nitrogen needs of the crops grown. The guidelines also recognize that basing waste applications on meeting crop nitrogen needs may result in phosphorus applications in excess of crop needs, and suggest it may be more advisable to base applications on phosphorus.

IEPA's land disposal guidelines also make recommendations regarding waste application on frozen or snow-covered ground, on land subject to flooding or during rainfall, on land adjacent to bodies of water, and on sloping or eroding land.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

IEPA rules do not require that records of disposal operations be maintained.

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

IEPA has not adopted specific design standards for animal waste control systems. IEPA recommends that waste control systems be designed and constructed in accordance with applicable SCS standards, Midwest Plan Service criteria, or other applicable standards.

Has your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

IEPA rules require that anaerobic lagoons and earthen waste storage basins be constructed to be impermeable, but do not establish a maximum acceptable seepage rate. It is the responsibility of the livestock producer to ensure that lagoons and waste storage basins are designed and constructed to be impermeable.

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells is required? What level of monitoring is required?

IEPA does not require that monitoring wells be installed at sites using lagoons or earthen basins.

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

As IEPA does not require either construction approvals or operation permits for confinement feeding operations, IEPA also does not conduct pre-construction, post-construction or periodic site inspections. IEPA investigates complaints received, and may also investigate operations suspected of causing water pollution even if a complaint has not been received.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

Illinois does not require bonding or other financial assurance to assure site clean-up if an operation closes. Closure of operations without site clean-up has been a problem in Illinois.

12. How much staffing is devoted to your state's animal waste control program annually (in FTE's)?

IEPA devotes an estimated 4.3 FTE to its animal waste control program annually. Of this, 3.0 FTE is time devoted to the program by engineering staff in IEPA's regional offices, and the remainder is time of central office staff.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

IEPA's rules include general odor control requirements, and problem odors can be considered as violations of Illinois air quality rules. As such, IEPA can seek action to abate the odors under the state's air quality statutes. Alternatively, an individual impacted by such odors can seek action to abate the odors under the air quality statutes or file a nuisance suit.

14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

No.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

Illinois law prohibits counties and townships from regulating agriculture through zoning regulations (not clear if this also applies to zoning by municipalities), and animal feeding operations are also generally exempt from regulation by other local agencies.

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF KANSAS

This report provides information on specific aspects of the animal waste control program of the State of Kansas, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources. The information contained in this report is based mainly on information obtained through telephone interview of staff of the Kansas Department of Health and Environment, although in some areas supplemental information from agency rules or other reports may also have been used.

This report is not intended to represent a comprehensive overview of the Kansas animal waste control program. Instead, the report focuses on certain aspects of the Kansas program that pertain to confinement feeding operations, since these program aspects were of specific interest to Iowa. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on Kansas' program. Although this report was prepared by the Iowa Department of Natural Resources, staff of the Kansas Department of Health and Environment were provided a draft for review prior to the report being finalized.

1. Which agency in your state administers the state's animal waste control program?

Kansas Department of Health and Environment

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

Yes, any operation with over 300 animal units (750 hogs) and having significant water pollution potential must register with KDHE and obtain a pollution control permit. KDHE considers an operation to have pollution potential if it uses lagoons or other waste storage pit or if it is unable to control waste discharges from the property. Pollution control permits issued by KDHE cover both construction and operation of the waste control system.

3. Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?

Yes - see answer to #2.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?

- formed waste storage tanks or pits - concrete tank below building or outside of building, slurrystore, other formed storage pit or tank

- anaerobic lagoon
- earthen waste storage basins (other than anaerobic lagoon)

State does not restrict type of waste control systems that can be used.

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)

Yes, all of basic information outlined above is required.

- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures

Detailed design plans are encouraged, but not required. Plans do not have to be done by engineer, many are done by SCS and some by producer. KDHE requires that plan provide basic information on size and dimensions of control structure, type of soils found, etc.

- soil borings or other geological information - if required, what level of detail is required?

No soil borings or other geological information required, except that average annual depth to ground water must be provided - KDHE rules require 10 feet separation between bottom of lagoon or earthen basin and average annual ground water elevation.

- waste management plan - if required, what information must be provided?
 - land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, , etc.)
 - proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
 - schedule and equipment for conducting disposal operations

Detailed waste management plans are not normally required. Amount of land available for disposal and general location of this land is normally all that needs to be identified, if waste application will be limited to a maximum nitrogen application of 100 lb/acre/year. Rates of up to 200 lb/acre/year of nitrogen are allowed if adequate justification is provided (such as high nitrogen use crop, such as irrigated corn production, is being grown on land receiving waste). KDHE rules limit maximum application rate allowed to 250 lb/acre nitrogen, with additional information required if disposal at this rate is proposed.

Disposal schedule is not required, but KDHE does require that sufficient disposal be conducted prior to December 1 to provide adequate storage for 120 days waste production plus precipitation, to avoid having to dispose on frozen ground.

6. Does your state permitting process include provisions for:

- issuing public notice prior to permit issuance
- holding public hearings if significant comment/interest exists

All proposed permits go out on public notice. Hearings are held if comments received indicate hearing might provide additional relevant information, or if high level of public interest is shown. Decision on issuing permit is based on water quality considerations only.

Does your state charge fees for permits? If so, what are they?

All operations pay a \$25 registration fee, and annual fees based on operation capacity. Annual fees are:

- \$25 for operations up to 999 animal unit capacity**
- \$100 for operations of 1,000 to 5,000 animal unit capacity**
- \$200 for operations of 5,000 to 10,000 animal unit capacity**
- \$400 for operations of over 10,000 animal unit capacity**

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

Kansas law sets separation distance requirements. Separation of 1,320 feet required for operations of from 300 to 999 animal units (750 to 2499 hogs), and 4,000 feet for operations of over 1,000 animal units (2,500 hogs). No separation distance specified for operations of under 300 animal units. Separation distance applies to habitable structure, such as dwelling, church, public office building, or other building used on frequent basis. Distances do not currently apply to parks, lakes, etc.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are these limits?

See #5.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbeds, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

Disposal on frozen ground prohibited.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

Records of disposal are not required.

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

Does your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells are required? What level of monitoring is required?

KDHE has adopted design criteria for animal waste storage systems, including lagoons and earthen basins. Criteria include limiting seepage to maximum of 1/4 inch/day, operation can either do soil testing prior to construction to determine sealing requirements, or do in-situ (standing water) testing after construction to determine compliance. Monitoring wells normally not required, although KDHE can require if site conditions warrant (such as high water table, marginal soils). Specific monitoring schedule set on case-by-case basis, normally must sample at least once per year, analyze for such parameters as nitrate, ammonia, salts, and bacteria.

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

Pre-construction inspection done on all registered sites, within 30 days of registration. Post-construction investigations are normally conducted, in some instances engineer's certification that construction was done in accordance with plans is accepted in lieu of site visit. Periodic inspections of permitted sites are made, with frequency based on operation size and compliance history - frequency ranges from once every 6 months to once in 5 years.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

No bonding or financial assurance program has been established. Site clean-up has not been a problem - one instance where site clean-up was not done prior to closure, new owner (bank) paid for clean-up.

12. How much staffing is devoted to your state's animal waste control program annually? (in FTE's)

KDHE has 9 staff positions devoted full time to the program, plus some time of supervisory staff.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

Kansas does not have state odor control regulations - actions to abate odors would have to be taken under state nuisance laws.

14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

No.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

Not sure if county zoning applies to animal feeding operations, only some counties are zoned.

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF MINNESOTA

This report provides information on specific aspects of the animal waste control program of the State of Minnesota, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources. The information contained in this report is based mainly on information obtained through telephone interview of staff of the Minnesota Pollution Control Agency, although in some areas supplemental information from agency rules or other reports may also have been used.

This report is not intended to represent a comprehensive overview of Minnesota's animal waste control program. Instead, the report focuses on certain aspects of Minnesota's program that pertain to confinement feeding operations, since these program aspects were of specific interest to Iowa. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on Minnesota's program. Although this report was prepared by the Iowa Department of Natural Resources, staff of the Minnesota Pollution Control Agency were provided a draft for review prior to the report being finalized. Specific questions asked include:

1. Which agency in your state administers the state's animal waste control program?

Minnesota Pollution Control Agency

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

Yes, any operation with over 10 animal units (25 hogs) must apply for a permit from the MPCA.

Upon approval of design plans for confinement operations using an anaerobic lagoon or other earthen waste storage basin, MPCA issues an interim permit to these operations. This permit is issued for a 10-month period, approves construction of the waste controls, and includes requirements for carrying out post-construction inspections (and if necessary, testing) of the controls. Assuming no problems are found with the constructed waste controls, at the end of the 10-month period MPCA issues a certificate of compliance to the operation.

Interim permits are not issued for confinement operations using formed waste storage tanks or other systems not utilizing lagoons or other earthen waste storage structures. Instead, for these operations MPCA issues a certificate of compliance upon approval of the design plans.

3. Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?

All confinement feeding operations of over 10 animal unit capacity are required to apply for a permit from MPCA at the time of investment in facilities. For most operations, MPCA will issue a certificate of compliance, in lieu of a permit, to the operation. However, if special conditions justify doing so, MPCA can require that an operation permit be obtained. For confinement operations of over 1000 animal unit capacity, the permit issued will probably be an NPDES, rather than a state, operation permit.

Minnesota law also requires that an Environmental Assessment Worksheet be prepared for proposed confinement feeding operations of over 2000 animal unit capacity (5000 hogs) and existing operations proposing expansion by 2000 animal units or more.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?

- formed waste storage tanks or pits - concrete tank below building or outside of building, slurrystore, other formed storage pit or tank
- anaerobic lagoon
- earthen waste storage basins (other than anaerobic lagoon)

State does not restrict type of waste control system that can be used. However, the waste controls must meet applicable design and construction requirements.

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)

Yes, all of basic information outlined above is required.

- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures
- Detailed design plans are required for all lagoons and other earthen waste storage structures, as well as for formed tanks and other waste storage structures with greater than 500,000 gallon capacity unless these are already covered by a pre-approved standard design plan. Plans must be prepared by an engineer or SCS.

- soil borings or other geological information - if required, what level of detail is required?

MPCA requires that the soils investigation for anaerobic lagoons or other earthen waste storage basins include a minimum of 2 soil borings or test pits. For areas outside the karst region, the borings must go to a depth 5 feet below the bottom of the lagoon or basin, or to bedrock, whichever is less. In the karst region, borings must be at least 10 feet below the bottom of the lagoon or basin, or to bedrock, whichever is less. MPCA may require additional borings or boring to greater depths if the planned waste storage capacity exceeds 1,000,000 gallons or site conditions justify more intensive investigation of site soils/geology. These borings must detail soil types and structures, depth to seasonal saturation, and depth to bedrock (if encountered).

MPCA requires that the bottom of anaerobic lagoons or earthen waste storage basins be at least 2 feet above the seasonal high water table or saturated soils. In addition, the bottom must be at least 10 feet above fractured bedrock or all bedrock in the Karst region.

- waste management plan - if required, what information must be provided?
 - land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, , etc.)
 - proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
 - schedule and equipment for conducting disposal operations

Although a general waste management plan is required of all operations, the level of detail required by MPCA varies somewhat depending upon the type and size of the animal feeding operation, and generally increases as operation size increases. General information on the land areas available for waste disposal is required for all operations, with written (but not necessarily legally enforceable) agreements required if wastes are being disposed on land not under the direct control of the animal feeding operation.

MPCA rules require that waste application rates be based on not exceeding the agronomic nitrogen needs of the crops grown, unless a special permit authorizing disposal at rates in excess of agronomic nitrogen needs has been obtained from MPCA. For confinement operations proposing to apply waste in excess of agronomic nitrogen needs, MPCA will require that a detailed waste management plan be submitted.

6. Does your state permitting process include provisions for:

- issuing public notice prior to permit issuance
- holding public hearings if significant comment/interest exists

MPCA does not issue public notices or hold hearings as part of issuing certificates of compliance to confinement operations. Public notice is required for issuance of 5-year feedlot or NPDES permits.

Does your state charge fees for permits? If so, what are they?

MPCA does not charge fees for issuing certificates of compliance to confinement feeding operations. (However, a \$85 permit application fee and annual fees of from \$260 to \$1,230 are charged for animal feeding operations issued NPDES permits.)

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

MPCA rules do not establish any minimum separation distances which confinement feeding operations must meet. However, Minnesota law allows counties to adopt separation distance requirements as part of zoning ordinances, and many counties have done so.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are these limits?

MPCA rules require that waste application rates be based on not exceeding the agronomic nitrogen needs of the crops being grown, unless a special permit has been obtained from MPCA which authorizes land disposal in excess of the agronomic nitrogen application rate. Although MPCA rules now use nitrogen as the basis for determining maximum application rates, a task force is currently considering whether application rates should be based on phosphorus, rather than nitrogen.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

No rules or guidelines on land disposal have been adopted - recommend disposal be done following recommended Best Management Practices. Enforcement actions for failing to use proper land disposal practices would have to be based on showing that improper land disposal caused a specific water quality problem.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

Records of disposal are required for many permitted operations, must be kept on site for a 3 to 4 year period.

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

Does your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells are required? What level of monitoring is required?

MPCA has developed, but not formally adopted, agency standards for certain types of waste control systems. Where agency standards do not exist, SCS standards or other engineering standards are used, as applicable. MPCA has established a maximum seepage limit for anaerobic lagoons or other earthen basins of 500 gallons/acre/day. Compliance with this standard may require use of soil density and permeability testing, etc. The design engineer or SCS is required to certify that construction was completed in accordance with the approved plans, including certification that the seepage limit is being met.

Groundwater monitoring wells may be required, based on operation size and the soil and geologic conditions found at the site. The number of wells and level of monitoring are dependent on site and operating conditions.

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

MPCA attempts to conduct pre and post-construction site inspections, but limited staffing is currently only allowing it to conduct pre-construction inspections on about 10% and post-construction inspections on about 20% of the sites. MPCA investigates all complaints, but does not conduct periodic site visits of permitted sites.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

No bonding or financial assurance program has been established, although site clean-up has been a problem at several sites. Some counties have required some type of financial assurance as part of their zoning or building permit programs - in at least one instance producer experienced difficulty in finding a financial institution willing to issue such a bond.

12. How much staffing is devoted to your state's animal waste control program annually? (in FTE's)

MPCA devotes an estimated 8 FTE in staffing to the program - estimate about half of this is field office and other half is central office staff. New funding will expand this to 18 FTE in future years.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

Minnesota does have state odor control rules. However, no specific standards have been set, and therefore the rules are not enforced. Land application of waste is exempt from the odor rules, but manure storage is not. At this time, actions to abate odors would have to be taken under state nuisance laws.

Minnesota law requires that an Environmental Assessment Worksheet be completed for any new confinement feeding operation of over 2000 animal units (or expansion of 2000 animal units or more in an existing operation). In some cases, this assessment may result in the operation being required to develop an odor contingency plan. If the operation subsequently causes odor problems and fails to implement the developed plan, MPCA could take enforcement action. This program has only been in effect for about 1 1/2 years, and thus its effectiveness has not been tested.

14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

MPCA may be able to require a higher level of control, and probably could deny a permit.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

In Minnesota, counties have considerable authority to control animal feeding operations through county zoning programs, and many counties have adopted zoning ordinances and other regulations that do so. Examples of actions taken by counties include establishing specific setback requirements from lake shorelines, adopting a moratorium on new operation construction, and establishing land disposal restrictions.

Minnesota law allows counties to be delegated authority to administer the state animal waste control program for smaller (under 1000 animal unit) animal feeding operations, provided such operations do not have to obtain an NPDES permit. To be delegated program authority, counties must meet certain requirements, including adopting regulations that are at least equivalent to those of MPCA and hiring a county feedlot officer.

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF MISSOURI

This report provides information on specific aspects of the animal waste control program of the State of Missouri, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources. The information contained in this report is based mainly on information obtained through telephone interview of staff of the Missouri Department of Natural Resources, although in some areas supplemental information from agency rules or other reports may also have been used.

This report is not intended to represent a comprehensive overview of Missouri's animal waste control program. Instead, the report focuses on certain aspects of Missouri's program that pertain to confinement feeding operations, since these program aspects were of interest in Iowa. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on Missouri's program. Although this report was prepared by the Iowa Department of Natural Resources, staff of the Missouri Department of Natural Resources were provided a draft for review prior to the report being finalized.

1. Which agency in your state administers the state's animal waste control program?

Missouri Department of Natural Resources

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

Until recently, MDNR rules required all new or expanding confinement feeding operations with a capacity in excess of 1000 animal units (2,500 hogs; 30,000 layers; 100,000 broilers; or 250,000 lbs of turkeys) to obtain a construction letter of approval. As a result of a recent federal court decision, MDNR is now changing its requirements such that in the future letters of approval will still be issued for new or expanding operations whose capacity exceeds 1000 animal units but is less than 7000 animal units (17,500 hogs; 210,000 laying hens), while operations with a capacity of 7000 or more animal units will be required to obtain a construction permit. Operations having a capacity of less than 1000 animal units are not required to, but may on a voluntary basis apply for and obtain a letter of approval from MDNR.

MDNR also requires new or expanding confinement feeding operations of over 1000 animal unit capacity obtain coverage under a MDNR general storm water permit for construction activities if construction for the entire project will disturb 5 acres or more.

3. Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?

Until recently, MDNR required that operation letters of approval be obtained by new or expanding confinement feeding operations with a capacity of 1000 animal units or more, while smaller operations were not required to but could voluntarily obtain a letter of approval. As a result of recent program changes, MDNR is now requiring that new or expanding confinement feeding operations with a capacity of 7000 animal units or more apply for and obtain a site-specific NPDES operating permit, and that operations with a capacity of from 1000 to 7000 animal units obtain coverage under a general permit issued by MDNR. MDNR will continue to issue operating letters of approval to operations of less than 1000 animal unit capacity who voluntarily apply for them.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?
- formed waste storage tanks or pits - concrete tank below building or outside of building, slurrystore, other formed storage pit or tank
 - anaerobic lagoon
 - earthen waste storage basins (other than anaerobic lagoon)

State does not restrict type of waste control systems that can be used, but system must conform to published design guidelines of MDNR. Guidelines recommend that basins and formed tanks have capacity for at least 180 days waste production.

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)

Yes, all of basic information outlined above is required.

- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures

Detailed design plans are required by MDNR. Plans must be prepared by engineer or SCS staff. MDNR requires that plan cover the waste collection, storage, and disposal system, provide detailed drawings and construction specifications, location maps, soils and geologic information on building site and disposal areas, and include waste management plan.

- soil borings or other geological information - if required, what level of detail is required?

MDNR's Division of Geology and Land Survey investigates and prepares reports on proposed sites for all anaerobic lagoons and other earthen waste storage basins, as well as all waste disposal sites. If that Division's reports indicate site conditions may not be suitable, additional geologic investigations (including soil borings) may be required by MDNR. Normally, MDNR requires at least 4 feet separation between bottom of lagoon or earthen basin and seasonal high ground water elevation.

- waste management plan - if required, what information must be provided?
- land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, , etc.)
- proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
- schedule and equipment for conducting disposal operations

Detailed waste management plans are normally required, including all of the information listed above. MDNR guidelines establish 3 alternative disposal options (see #8 for details).

Written agreements are required if disposal areas are not under operation's control (owned or rented). For dry litter poultry operations using contract haulers to conduct disposal operations, written agreements are not required.

6. Does your state permitting process include provisions for:

- issuing public notice prior to permit issuance
- holding public hearings if significant comment/interest exists

MDNR is not required to issue public notice or hold hearings prior to issuing letters of approval. However, as MDNR changes to issuing construction permits and site-specific and general operating permits to larger confinement feeding operations, MDNR will be required to issue public notices and, if comments warrant, hold public meetings or hearings.

Does your state charge fees for permits? If so, what are they?

Fees charged by MDNR include:

construction permit.....	\$ 500
site-specific operating permit.....	3,500 (annual fee)
general operating permit.....	150 (valid for 5 years)
storm water permit (construction).....	150

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

MDNR rules require that confinement feeding operations be located as far as practical from any built up area or area which may be developed in the reasonable future. In no case can an operation be

located closer than from 50 to 200 feet of a dwelling or other establishment not owned by the operation, 300 feet from a well or water supply structure, or 100 feet from a creek.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are the limits?

MDNR has adopted guidelines on waste disposal, including establishing 3 alternative approaches for land applying wastes. These approaches all are based on controlling annual nitrogen applications, and include:

* *conservative management approach* - limits annual nitrogen applications to no more than 100 lb/acre;

* *intensive management approach* - considers total nitrogen content of wastes, assumes application losses of

25%, and limits applications to rate equal to annual nutrient uptake of crops grown;

* *plant available nitrogen approach* - predicts optimum nitrogen application for specific crops, based on testing of soils and waste for nutrient content and considering application losses, leaching, and potential for surface runoff from disposal site.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

MDNR rules prohibit waste disposal within 150 feet of non-owned dwellings or of public use areas (excluding roads); within 300 feet of a sinkhole, losing stream, or other geologic feature providing a direct conduit to ground water; or within 50 feet of a road or property line. Disposal on frozen ground is prohibited, and restrictions are placed on disposal on land greater than 10 % slope.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

Records of disposal operations are required, and must be maintained on site.

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

MDNR has adopted design guidelines for animal waste control systems. These guidelines are found in Manual 121, *Design Guidelines for Animal Waste Management for Concentrated Animal Feeding Operations*, published by MDNR. In addition to the criteria in Manual 121, MDNR regulations for design of small sewage works also apply.

Does your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

MDNR requires that percolation rates not exceed 3,500 gallons/acre/day (approximately 1/8 inch per day) for sites considered to have slight geological limitations, and that sites with moderate geological limitations have percolation rates not exceeding 1,700 gallons/acre/day (about 1/16 inch/day). The design engineer (or SCS, if that agency did the design) is required to certify compliance with the percolation requirements. It is the designer's responsibility to determine if post-construction percolation tests or in-situ seepage tests are required in order to certify compliance.

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells are required? What level of monitoring is required?

Monitoring wells can be required at both the lagoon/basin site and at waste disposal areas, if located in areas of poor geologic conditions (karst, losing streams).

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

Pre-construction inspection reports are prepared by MDNR's Division of Geology and Land Survey for all building and waste disposal sites. Post-construction investigations are normally not done, with MDNR relying instead upon the designer's certification that construction was completed in accordance with the design plans - investigations may be conducted if problems were noted during construction. MDNR attempts to conduct annual inspections of the larger (over 1000 animal unit) operations, but due to staffing shortages are able to do so for only about 70% of these operations yearly. All complaints involving water pollution are investigated by MDNR.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

No bonding or financial assurance program has been established. Site clean-up has not been a problem, but due to the growth of large operations it is an issue under discussion.

12. How much staffing is devoted to your state's animal waste control program annually? (in FTE's)

MDNR has an estimated 6 to 7 FTE devoted to the program, involving 1.5 FTE in the central office involved in reviewing plans and issuing letters of approval/permits, from 2.5 to 3.5 FTE in field offices involved in investigating complaints and conducting field inspections of approved facilities, and about 2 FTE of Division of Geology and Land Survey staff conducting geologic investigations of building and land disposal sites.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

Agricultural sources are exempt from Missouri odor regulations - actions to abate odors would have to be taken under state nuisance laws.

14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

Higher levels of waste control can be required. However, it is not clear whether MDNR can deny a permit based on a past history of violations.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

Agricultural operations are generally exempt from county zoning requirements in Missouri. One township has attempted to control the location of animal feeding operations through zoning - case is now in court.

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF NEBRASKA

This report provides information on specific aspects of the animal waste control program of the State of Nebraska, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources. The information contained in this report is based mainly on information obtained through telephone interview of staff of the Nebraska Department of Environmental Quality, although in some areas supplemental information from agency rules or other reports may also have been used.

This report is not intended to represent a comprehensive overview of Nebraska's animal waste control program. Instead, the report focuses on certain aspects of Nebraska's program that pertain to confinement feeding operations, since these program aspects were of specific interest to Iowa. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on Nebraska's program. Although this report was prepared by the Iowa Department of Natural Resources, staff of the Nebraska Department of Environmental Quality were provided a draft for review prior to the report being finalized.

1. What agency in your state administers the state's animal waste control program?

Nebraska Department of Environmental Quality

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

NDEQ rules provide for voluntary compliance, permit not required unless NDEQ requires permit be obtained as result of past waste discharges or potential for discharge by operation. Many operations voluntarily apply for permit, either because they want one or because they are required to obtain it by county zoning or as result of SCS doing design or environmental audit.

3. Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?

Voluntary - if operation receives construction permit, operation permit will also be issued.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?

- formed waste storage tanks or pits - concrete tank below building or outside of building, slurrystore, other formed storage pit or tank
- anaerobic lagoon
- earthen waste storage basins (other than anaerobic lagoon)

State does not restrict type of waste control systems that can be used. Basins and formed tanks must have capacity for at least 120 days waste production - are proposing increase to 180 days.

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)

Yes, all of basic information outlined above is required.

- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures

Detailed design plans are encouraged, but not required. Plans do not have to be done by engineer, many are done by SCS and some by producer. NDEQ requires that plan provide basic information on size and dimensions of control structure, type of soils found, etc.

- soil borings or other geological information - if required, what level of detail is required?

No soil borings or other geological information required, except that depth to ground water is required and percolation tests may be required where site conditions warrant - NDEQ usually requires at least 1 foot separation between bottom of lagoon or earthen basin and seasonal high ground water elevation.

- waste management plan - if required, what information must be provided?
 - land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, etc.)
 - proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
 - schedule and equipment for conducting disposal operations

Detailed waste management plans are not required. Amount of land available for disposal and general location of this land is generally all that needs to be identified. NDEQ rules do not establish specific limits on waste application rates, review is generally based on having adequate land available for disposal based on hydrologic considerations - for eastern Nebraska, allow up to 3 to 5 inches waste disposal, higher rates in western part of state. Do not limit based on nutrient loading, or impose other restrictions on disposal. NDEQ anticipates the waste disposal guidelines will be changed in the near future to require that waste application be conducted at agronomic nutrient utilization rates.

Written agreements may be required if disposal areas are not under operation's control (owned or rented) - generally do not require written agreements for poultry operations disposing of waste on land not under their direct control.

6. Does your state permitting process include provisions for:

- issuing public notice prior to permit issuance
- holding public hearings if significant comment/interest exists

No public notice or hearing requirements.

Does your state charge fees for permits? If so, what are they?

No fees are charged.

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

NDEQ rules set minimum separation distances of 100 feet from domestic wells and 1,000 feet from public wells. No other separation distance requirements exist.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are these limits?

See #5.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

NDEQ recommends waste not be applied within 100 feet of any surface water. See also #5.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

Records of disposal are not required by NDEQ. However, some Natural Resource Districts in Nebraska are requiring such records be maintained.

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

NDEQ has not adopted specific design standards - rules refer to use of SCS design criteria.

Does your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

NDEQ requires percolation rate not exceed 1/4 inch per day. Compliance determined based on design information, with post-construction soil percolation test or in-situ (standing water) testing required only if NDEQ identifies specific concerns that justify such testing (marginal soil conditions, etc.).

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells are required? What level of monitoring is required?

Monitoring wells are never required.

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

Pre-construction inspection is done for all operations applying for permits. Post-construction investigations are normally not conducted, unless NDEQ engineering staff request one. Periodic

inspections of permitted sites are made, with frequency based on operation size and compliance history - frequency ranges from once or twice a year for very large operations to once in 5 to 7 years for small operations. Complaints of water pollution are investigated as they are received.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

Nebraska law requires NDEQ to establish proof of financial responsibility by livestock operations that will provide funds for site clean-up in the event of closure, default, or abandonment of a pollution source; but this law also allows NDEQ to exempt certain classes of operations from this requirement. NDEQ is currently planning to exempt animal feeding operations from this requirement and instead to adopt site closure and clean-up regulations which focus on reducing any immediate pollution problems, such as cleaning pens to prevent runoff of accumulated wastes or pumping of lagoons to safe operating levels to avoid overflow to streams (such actions may not provide overall long term site clean-up).

12. How much staffing is devoted to your state's animal waste control program annually? (in FTE's)

NDEQ has the equivalent of 4 staff positions devoted full time to the program, plus some time of supervisory staff. This includes 2.5 FTE of field staff, 0.5 FTE engineering, and 1.0 FTE central staff devoted to permitting and field investigations.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

Nebraska does not have state odor control regulations - actions to abate odors would have to be taken under state nuisance laws.

14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

No.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

County zoning applies to animal feeding operations. Some counties require operations to obtain special use permits or NDEQ permits, and some counties have adopted regulations more restrictive than those of NDEQ.

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF NORTH CAROLINA

This report provides information on specific aspects of the animal waste control program of the State of North Carolina, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources. The information contained in this report is based mainly on information obtained through telephone interview of staff of the North Carolina Department of Environment, Health, and Natural Resources, although in some areas supplemental information from agency rules or other reports may also have been used.

This report is not intended to represent a comprehensive overview of North Carolina's animal waste control program. Instead, the report focuses on certain aspects of North Carolina's program that pertain to confinement feeding operations, since these program aspects were of specific interest to Iowa. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on North Carolina's program. Although this report was prepared by the Iowa Department of Natural Resources, staff of the North Carolina Department of Environment, Health, and Natural Resources were provided a draft for review prior to the report being finalized.

1. What agency in your state administers the state's animal waste control program?

North Carolina Department of Environment, Health, and Natural Resources, Division of Environmental Management (DEM)

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

No. However, larger confinement feeding operations in North Carolina are required to provide to DEM a certification that their waste control system meets applicable state standards.

For regulatory purposes, animal feeding operations in North Carolina are divided into 3 categories:

1) those that are automatically considered to be permitted; 2) those that must register and certify their waste control system to DEM; and 3) those that require individual permits from DEM.

New and expanding confinement feeding operations of less than 250 hogs (or 30,000 poultry) are automatically considered to be permitted and do not have to register or certify their waste management systems to DEM. However, if an operation in this size category is found to have a waste discharge or otherwise cause water pollution, DEM can require the operation to develop an acceptable waste management plan and certify their waste management system.

New or expanding confinement feeding operations of 250 hogs or more are required to register with DEM and submit a signed certification that their waste management system meets applicable standards before animals are placed into the new or expanded facilities. Existing confinement operations (built before January 1, 1994) have until December 31, 1997, to certify their waste management system to DEM.

Confinement operations failing to register or certify their waste management systems to DEM can be required to obtain an individual no-discharge permit from DEM. In addition, any operation, regardless of size, can be required to obtain an individual permit if it is found to have waste discharge or to otherwise be causing pollution.

Registration of an operation serves mainly as a means of letting DEM know that the operation exists, and involves submitting basic information on the operation to DEM, including: names of owner and manager, location, type of operation and animal capacity, waste management system used, and amount of land available for waste disposal.

Under North Carolina law, certification of an animal waste management system can only be done by individuals who have demonstrated the ability to develop a technical waste management system plan and have been designated as technical specialists by the State Soil and Water Commission. Although registered engineers automatically qualify for designation as technical specialists and many SCS staff have been given at least limited designation, any person having the required technical capabilities can be designated as a technical specialist.

In determining whether to certify an animal waste management system, the specialist considers whether:

- **the system can properly collect, store, and dispose of the waste without discharge to surface waters;**
- **the waste control structures and disposal practices included in the waste management plan meet applicable standards of the SCS or State Soil and Water Commission;**
- **the plan includes appropriate buffers between storage and disposal areas and surface waters;**
- **land disposal will be at agronomic rates; and,**
- **an adequate plan for system inspection and recordkeeping exists.**

3. **Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?**

Operation permits are generally not required. However, DEM can require individual operations to obtain a permit if the operation is required to register or certify its waste management system to DEM but fails to do so, or if the operation is found to be discharging wastes to state waters or otherwise causing water pollution.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?

- formed waste storage tanks or pits - concrete tank below building or outside of building, slurry store, other formed storage pit or tank
- anaerobic lagoon
- earthen waste storage basins (other than anaerobic lagoon)

State does not restrict type of waste control systems that can be used. However, systems must meet applicable criteria contained in SCS standards and specifications.

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)
- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures
- soil borings or other geological information - if required, what level of detail is required?
- waste management plan - if required, what information must be provided?
 - land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, etc.)
 - proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
 - schedule and equipment for conducting disposal operations

Other than general information required as part of registering and certifying their waste management systems, most confinement feeding operations are not required to provide the information listed above to DEM. However, operations required to obtain individual permits may be required to submit detailed information, including design plans, to DEM.

Although submittal to the state is not required, the information listed above will generally have to be provided to and considered by a technical specialist in determining whether a waste management system can be certified (see #2 for a general discussion of the certification process).

DEM has not adopted departmental standards for animal waste management systems, but instead requires that systems comply with applicable SCS standards. These include:

- **the level of soils and geologic investigation required must be determined on a case-by-case basis, depending upon the conditions found at the site. Soil borings are not required for all sites, but may be if site conditions warrant.**
- **waste application rates are to be determined on a field-by-field basis, considering such factors as soil types and depths, current soil nutrient levels (as determined by soil tests), crops grown, and nutrient content of the wastes. Waste disposal should not result in nutrient applications in excess of the agronomic nutrient needs of the crops grown, considering both nitrogen and phosphorus (using the more limiting nutrient to set the rates).**
- **although written disposal agreements are encouraged, they are not required.**
- **operations must either own or have access to disposal equipment.**

In addition to the requirements contained in SCS standards, DEM rules require that animal feeding operations maintain records of their waste disposal operations. These records need not be submitted to DEM, but be available on-site.

6. Does your state permitting process include provisions for:

- **issuing public notice prior to permit issuance**
- **holding public hearings if significant comment/interest exists**

DEM is currently developing the procedures for issuing individual permits, and anticipates public notice and hearing requirements will be included.

Does your state charge fees for permits? If so, what are they?

No. State law exempts agricultural operations from fees.

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

Separation distance requirements are found in the SCS standards. A minimum of 750 feet separation is required between a confinement feeding operation or its waste control structures and public use areas or residences not owned by the operation. Any exception to this distance requirement must be approved by both the SCS Area Conservationist and the SCS State Conservationist. Some counties have adopted greater separation distance requirements.

DEM rules require confinement feeding operations and their waste controls be located a minimum of 100 feet from surface waters and wells.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are these limits?

North Carolina requires that waste disposal operations be carried out in accordance with applicable SCS standards. The SCS standards require that waste disposal be limited to those rates which do not result in applications of either nitrogen or phosphorus in excess of the amounts required to meet the agronomic needs of the crops grown.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

DEM requires that a minimum 25 feet separation be maintained between land disposal areas and streams or other surface waters.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

Waste disposal records are required, and must be maintained on-site.

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

DEM requires that animal waste control systems comply with the requirements contained in applicable SCS design standards.

Does your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

The SCS standards require that percolation rate not exceed 1×10^{-5} cm/sec (approximately 0.34 inches per day). It is the responsibility of the technical specialist certifying a waste control system to determine how this requirement will be met.

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells is required? What level of monitoring is required?

DEM does not normally require installation of monitoring wells, although wells could be required on a case-by-case basis for operations having to obtain individual permits. Some operations may be required by local ordinances to install monitoring wells.

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

Currently, DEM does not conduct pre-construction, post-construction, or periodic inspections of confinement operations. However, it anticipates periodic inspections may be conducted in the future, if staffing allows. Complaints of water pollution are investigated as they are received.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

No state bonding or other financial assurance requirements have been adopted. However, some local governments have required bonds be obtained to ensure that the funds needed for site clean-up are available if the operation closes.

12. How much staffing is devoted to your state's animal waste control program annually? (in FTE's)

DEM estimates that the equivalent of 10 staff positions are devoted annually to the program, with about 3/4 of this staffing being in regional offices and the remainder in DEM's central office.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

North Carolina does not have state odor control regulations - actions to abate odors would have to be taken under state private nuisance laws, or in some cases by county health departments under public nuisance laws. One county is currently attempting to develop air quality rules that would impose restrictions on the concentration of air-borne ammonia, as a means of controlling odors.

14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

Yes. North Carolina law gives the director of DEM authority to deny permits on a case-by-case basis, with the past performance of the permit applicant being one of the factors the director can consider in determining whether to deny a permit.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

Although state law generally limits the ability of local governmental units to restrict agricultural operations, some have attempted to do so by adopting siting restrictions, etc. In several instances, these actions are now being challenged in the courts.

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF SOUTH DAKOTA

This report provides information on specific aspects of the animal waste control program of the State of South Dakota, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources. The information contained in this report is based mainly on information obtained through telephone interview of staff of the South Dakota Department of Environment and Natural Resources, although in some areas supplemental information from agency rules or other reports may also have been used.

This report is not intended to represent a comprehensive overview of South Dakota's animal waste control program. Instead, the report focuses on certain aspects of South Dakota's program that pertain to confinement feeding operations, since these program aspects were of specific interest to Iowa. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on South Dakota's program. Although this report was prepared by the Iowa Department of Natural Resources, staff of the South Dakota Department of Environment and Natural Resources were provided a draft for review prior to the report being finalized.

1. Which agency in your state administers the state's animal waste control program?

South Dakota Department of Environment and Natural Resources (DENR)

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

Yes, any operation with over 1000 animal units (2,500 hogs) must submit design plans to DENR for approval. Upon completion of construction, a certificate of compliance is issued to the operation (some South Dakota counties have adopted zoning ordinances that require livestock operations to obtain construction permits from them). Existing operations with from 300 to 999 animal unit capacity (750 to 2,499 hogs) investigated by DENR and found to be causing water pollution can also be required to submit plans for DENR review and approval.

3. Are new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?

South Dakota has only recently been delegated authority to administer the NPDES permit program within the state, and is currently developing its permit program. As part of that program, DENR is proposing to issue a general permit covering animal feeding operations - permit has been drafted and is currently under review. Until this permit is finalized, the specific operating conditions that it will contain are not known. Similarly, at this time the specific procedures that operations will have to follow to be covered by the general permit are unclear.

DENR staff currently do not expect that new confinement operations will be required to obtain an operation permit. However, they anticipate that confinement operations will have the option of voluntarily applying for coverage under the general permit.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?

- formed waste storage tanks or pits - concrete tank below building or outside of building, slurrystore, other formed storage pit or tank
- anaerobic lagoon
- earthen waste storage basins (other than anaerobic lagoon)

State does not restrict type of waste control systems that can be used, but waste control systems are expected to meet applicable SCS design criteria. Basins and formed tanks are expected to provide adequate storage for a minimum of 180 days waste production (365 days if disposal will only be done once a year).

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)

Yes, all of basic information outlined above is required.

- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures

Detailed design plans are required. Plans must be prepared by an engineer or SCS.

- soil borings or other geological information - if required, what level of detail is required?

A minimum of 2 soil borings per site are required for all waste storage systems (including formed tanks, lagoons, and other earthen basins), with at least 1 additional boring per acre for all sites greater than 2 acres in size. One boring must be to a depth at least 20 feet below the bottom of the waste control system or to unweathered till or bedrock or an aquifer. All other borings must be to a depth at least 6 feet below the bottom of the waste storage system. DENR rules require a minimum of 4 feet separation between the bottom of a lagoon or earthen basin and ground water, unless it can be shown that the ground water found is localized and will not reach an aquifer.

- waste management plan - if required, what information must be provided?
 - + land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, , etc.)
 - + proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
 - + schedule and equipment for conducting disposal operations

DENR requires that detailed waste management plans be submitted, developed in accordance with SCS's nutrient management planning standards and specifications. Plans would generally include all of the items listed above, and be based on making use of the nutrient content of the waste for crop production (using Nitrogen as the basis for establishing maximum application rates). Written land disposal agreements are required if the operation has insufficient land under its direct control (owned or rented) to allow disposal in accordance with the developed waste management plan.

6. Does your state permitting process include provisions for:

- issuing public notice prior to permit issuance
- holding public hearings if significant comment/interest exists

Current DENR permitting procedures do not include issuing public notices or holding hearings. A public notice will be issued when the general NPDES permit for animal feeding operations is proposed for adoption, and a hearing held if comments warrant. However, DENR does not anticipate that public notices or hearings will be required when individual confinement feeding operations apply for coverage under the general permit.

Some South Dakota counties have held public hearings on proposed animal feeding facilities when local opposition developed, and as a result of these hearings have imposed additional conditions on the construction and/or operation of these facilities or their waste management systems.

Does your state charge fees for permits? If so, what are they?

No.

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

DENR rules require that the waste control system for a confinement feeding operation be located at least 1000 feet from a public water supply well, 150 feet from a shallow and 100 feet from a deep private well, and that the high water line of the waste controls be at least 50 feet from a neighbor's property line. DENR also recommends, but does not require, that confinement feeding operations and associated waste control systems be located at least 300 feet from any dwelling (both owner's and neighbors) and at least 1/2 mile from a city or town.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are these limits?

DENR utilizes SCS's nutrient management planning standards and specifications, which recommend that waste applications not exceed those rates which provide the nutrient levels needed for crop growth (using Nitrogen as the basis for determining waste application rates). To date, DENR has not encountered the problem of livestock operations proposing to dispose of wastes in excess of crop needs, and thus is unsure how such a proposal would be handled.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

DENR recommends that wastes not be applied on frozen or snow-covered ground.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

Records of disposal are not required.

9. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

DENR has not adopted design standards, but instead utilizes applicable SCS Standards and Specifications.

Does your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells are required? What level of monitoring is required?

DENR generally requires that seepage from lagoons or other earthen basins be limited to a maximum of 1/16 inch per day. However, DENR can allow seepage of up to 1/8 inch per day, provided the design engineer (or SCS) can show that no shallow ground water aquifer could potentially be contaminated as a result of such seepage. The design engineer is responsible for determining how compliance with the seepage rate will be achieved, and upon completion must certify that construction was completed in accordance with the approved plans. DENR does not require that post-construction percolation tests or in-situ (standing water) testing to determine compliance be done. Monitoring wells can be required on a case-by-case basis, and would most frequently be required if the site is located above a shallow ground water aquifer.

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

Pre-construction inspection is only done if complaints are received. Although DENR attempts to conduct post-construction inspections, staffing limitations prevent all sites from being inspected. No periodic inspections of permitted sites are conducted. All complaints of water pollution are investigated.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

No state bonding or financial assurance program has been established. However, at a local level there have been instances where counties, as part of their zoning requirements, required that a site closure bond be obtained.

12. How much staffing is devoted to your state's animal waste control program annually (in FTE's)?

DENR devotes an estimated 1 3/4 FTE to the animal waste control program - 1 FTE of central office staffing, remainder in field offices.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

South Dakota does not have state odor control regulations - actions to abate odors would have to be taken under state nuisance laws.

14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

DENR staff do not believe the agency has the authority to impose additional requirements or deny a permit to a habitual violator.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

As part of their zoning authority, counties can issue construction permits for and can impose additional requirements (over and above DENR requirements) on an animal feeding operation, and some have done so. However, not all counties are zoned, and the ability of these counties to impose additional controls is unknown.

REVIEW OF ANIMAL WASTE CONTROL PROGRAM

STATE OF WISCONSIN

This report provides information on specific aspects of the animal waste control program of the State of Wisconsin, and is part of a multi-state review of state animal waste control programs conducted by the Iowa Department of Natural Resources. The information contained in this report is based mainly on information obtained through telephone interview of staff of the Wisconsin Department of Natural Resources, although in some areas supplemental information from agency rules or other reports may also have been used.

This report is not intended to represent a comprehensive overview of Wisconsin's animal waste control program. Instead, the report focuses on certain aspects of Wisconsin's program that pertain to confinement feeding operations, since these program aspects were of specific interest to Iowa. For purposes of this report, a confinement feeding operation is considered to be one in which animals are fed and maintained in totally roofed facilities, with wastes normally being handled and disposed of in a liquid or semi-liquid form (although dry litter systems may be used for poultry facilities).

This report has been prepared using the same question and answer format that was used in obtaining information on Wisconsin's program. Although this report was prepared by the Iowa Department of Natural Resources, staff of the Wisconsin Department of Natural Resources were provided a draft for review prior to the report being finalized.

1. What agency in your state administers the state's animal waste control program?

Wisconsin Department of Natural Resources (WDNR)

2. Are certain new confinement swine and poultry operations in your state required to obtain construction permits or other construction approvals from your agency? If yes, what criteria must an operation meet to be covered by the construction permit/approval requirements (size, type of waste control system, etc.)?

Any confinement feeding operation which has been issued a Wisconsin Pollutant Discharge Elimination System (WPDES) permit (see #3 for details on permitting requirements) is required to submit detailed plans of any proposed new construction or modification of an existing waste control system for WDNR review and approval. In addition, confinement feeding operations which have been issued a Notice of Discharge order by WDNR may be required to submit detailed plans for review and approval.

In some areas of Wisconsin, livestock operations may also be required to submit plans and obtain construction approval from county or township governmental agencies.

3. Are certain new confinement swine and poultry operations required to obtain operation permits from your agency? If yes, what criteria must the operation meet to be covered by the operation permit?

Confinement feeding operations in Wisconsin having a capacity of 1000 animal units or more (swine operations with 2500 or more pigs weighing over 55 lb or with 10,000 or more pigs weighing under 55 lb; turkey operations with 55,000 or more birds; and broiler or layer chicken operations with 200,000 or more birds) are required to obtain WPDES operation permits from the WDNR.

In addition, operations with an animal capacity below these numbers can be required to obtain an WPDES permit if the operation has previously been ordered by WDNR (through a Notice of Discharge order) to correct a water pollution problem but has failed to do so within the timetable set in the order.

4. Does your state place any restrictions on use of the following waste control systems by new confinement swine and poultry operations? If so, what are these restrictions?

- formed waste storage tanks or pits - concrete tank below building or outside of building, slurrystore, other formed storage pit or tank
- anaerobic lagoon
- earthen waste storage basins (other than anaerobic lagoon)

State does not restrict type of waste control systems that can be used. However, WDNR requires that the waste control system used by any operation issued a WPDES permit comply with applicable SCS standards. Operations not covered by a WPDES permit are not required to comply with the SCS standards unless they are receiving cost share funding for the control system, in which case the SCS standards would apply.

At present, nearly half of Wisconsin's counties have adopted manure management ordinances. As part of these ordinances, the waste control systems of livestock operations located in these counties are required to comply with applicable SCS standards.

5. What information must be provided to the state to obtain a construction permit/approval for a new confinement swine or poultry operation:

- basic information on proposed facility (size, location, ownership, design basis and capacity of waste storage system, amount of land area available for waste disposal)
- detailed design plans - required for all types of waste controls, or only for operations using anaerobic lagoons or other earthen waste storage structures
- soil borings or other geological information - if required, what level of detail is required?

- waste management plan - if required, what information must be provided?
- land areas available for waste disposal - legal description, crop rotation, soil types, slopes, legal arrangements by which land is available for disposal (ownership, lease or other agreement, etc.)
- proposed waste application rates/volumes - volume & nutrient content of wastes produced, nutrient losses anticipated in waste storage/disposal system, proposed waste volume & nutrient application rates on land, nutrient needs of crops grown
- schedule and equipment for conducting disposal operations

All of the information listed above is generally required from confinement feeding operations which have been issued a WPDES permit and are proposing to construct or modify their waste control systems, and may be required of operations issued a Notice of Discharge order. Operations which completed construction of their waste controls prior to being issued a WPDES permit may be required to provide information showing that their waste controls comply with applicable SCS standards.

Soil borings are required by WDNR for any confinement feeding operation which must submit design plans to WDNR for review and approval, and may be required by SCS for operations which are receiving cost share funding. The soil boring requirement applies to all types of waste control systems, including formed tanks, anaerobic lagoons, and other earthen waste storage basins. As a general rule, a minimum of 3 borings per acre are required, although some deviation from this requirement may be allowed depending upon site soil and geologic conditions. Borings must be to a depth at least 5 feet below the bottom of the waste control facilities, although boring to the depth of bedrock or groundwater is encouraged.

A written waste utilization plan is required of all operations issued a WPDES permit. A written plan is also required of operations issued a Notice of Discharge order if the operation is receiving cost share funding or if the order identified over-application of wastes as a problem. To be acceptable, the plan must be in compliance with the requirements of SCS's waste management standards, and must consider such factors as erosion rates on disposal areas, waste application rates based on meeting the agronomic nitrogen needs of the crops grown, and disposal restrictions on environmentally sensitive areas. Written disposal agreements are encouraged, but not required, for land areas not under the operation's direct control (owned or rented).

WDNR requires that confinement animal feeding operations issued WPDES permits maintain records of their waste disposal operations and submit a copy of these records to WDNR annually.

6. Does your state permitting process include provisions for:
 - issuing public notice prior to permit issuance
 - holding public hearings if significant comment/interest exists

WDNR's permitting procedures include requirements for issuing a public notice and, if warranted, holding a public hearing prior to issuing a WPDES permit. These requirements do not apply to the Notice of Discharge order.

Does your state charge fees for permits? If so, what are they?

Yes. Beginning in 1994, animal feeding operations issued a WPDES permit will be required to pay a \$250 annual permit fee.

7. Has your state adopted any minimum separation distance requirements between confinement swine and poultry operations (and/or their waste control systems) and neighboring residences not owned by the operations? If so, what are they and to which operations do they apply?

Do separation distances also apply to public use areas, such as parks, or have other locations restrictions been adopted?

In Wisconsin, the location requirements for animal feeding operations and waste control facilities are controlled at the local (county and township) level, through county and township zoning and land conservation departments. No state separation distance requirements have been established, in terms of minimum distances from neighboring residences or public use area.

SCS standards include minimum separation distance requirements for animal waste control systems from dwellings and wells.

8. Has your state adopted any laws or regulations that limit the rate at which wastes can be disposed of on land? If so, what are these limits?

No. At this time WDNR has not adopted regulations that control waste application rates from animal feeding operations. However, operations which have been issued a WPDES permit are required to develop and implement a manure management plan that complies with applicable SCS standards. These standards include provisions for basing waste application rates on the agronomic nitrogen needs of the crops grown (for corn the annual agronomic nitrogen need is considered to be about 165 pounds per acre).

WDNR staff believes some modification of Wisconsin's animal waste control rules may occur within the next year, including updating the rules to adopt new SCS waste disposal standards which require that both nitrogen and phosphorus be considered in determining maximum waste application rates.

Do your laws or regulations place other restrictions on waste disposal - such as on land close to streams or other waterbodies, on frozen or snow covered ground, etc.? If so, what are these restrictions? Is injection or incorporation of wastes required?

The SCS standards place additional restrictions on waste disposal, including maintaining at least a 200 foot setback from streams or other surface waters (unless wastes are injected), avoiding disposal within 200 feet upslope of wells or sinkholes, and avoiding disposal on areas with shallow bedrock or on land with slopes exceeding 12%.

Does your state require records be kept of waste disposal operations? Must these be submitted to your agency annually?

Waste disposal records are required of operations issued WPDES permits, and must be submitted to WDNR annually. In addition, WDNR requires some operations issued a Notice of Discharge order to maintain disposal records.

8. Has your state adopted design standards for anaerobic lagoons or earthen waste storage basins? If not, what criteria are used to guide the design and construction of these facilities?

WDNR uses the applicable SCS design standards for anaerobic lagoons and earthen waste storage basins.

Has your state set specific percolation limits that anaerobic lagoons or other earthen waste storage structures must meet? If so, what are these limits and how is compliance with them determined?

The SCS standards do not set maximum percolation limits. Instead, they provide criteria under which specific types of liners must be used, considering such factors as soils found, depth to bedrock, and depth to groundwater. It is the responsibility of the person or agency providing design assistance to ensure these requirements are met.

Does your state require installation of groundwater monitoring wells at sites using anaerobic lagoons or earthen waste storage basins? If so, what number of wells is required? What level of monitoring is required?

WDNR does not normally require installation of monitoring wells, although wells could be required on a case-by-case basis for operations having to obtain WPDES permits.

10. Which of the following on-site activities does your agency normally carry out for new confinement swine and poultry operations:

- pre-construction site inspection
- construction or post-construction investigation
- periodic (such as annual) site visits to determine compliance with state requirements - if yes, with what frequency are visits made
- complaint investigations

For operations being issued WPDES permits, WDNR normally conducts a site inspection prior to issuing the permit. However, this inspection is not necessarily either a pre-construction or a post-construction inspection. Although WDNR attempts to conduct annual or semi-annual inspections of all permitted operations, in recent years staffing limitations have prevented them from doing so for all operations. Complaints of water pollution are investigated as they are received.

11. Does your state require bonding or other financial assurance to ensure that waste removal and site clean-up will occur if an operation closes due to financial difficulties? If so, what are these provisions and how are they administered?

No state bonding or other financial assurance requirements have been adopted, although site clean-up has been a problem at several closed operations.

12. How much staffing is devoted to your state's animal waste control program annually? (in FTE's)

WDNR estimates that about 5 FTE's annually have been devoted to Wisconsin's animal waste control program, including about 3.5 FTE in field offices and the remainder in WDNR's central office. With the addition of 2 positions this year, long term prospects are that at least 7 FTE's will be devoted to the program annually in the future.

13. Does your state have odor control regulations that apply to confinement swine and poultry operations? If so, what are the basic requirements and how is the program conducted?

WDNR's air management program has adopted regulations that attempt to control odors from livestock facilities. Generally, these regulations state that no person may cause emissions into the air of any substance or combination of substances that will result in an objectionable odor, and require that preventive measures be taken to abate or control odorous emissions. An odor is considered objectionable when, in the WDNR's judgment, the nature, intensity, frequency, or duration of the odor renders it objectionable, or when a 60% random sample of persons exposed in their residences or places of employment claim the odor is objectionable.

As Wisconsin's air management program places low priority on dealing with odor problems from livestock operations, the success of these rules in controlling odors from livestock operations is unclear.

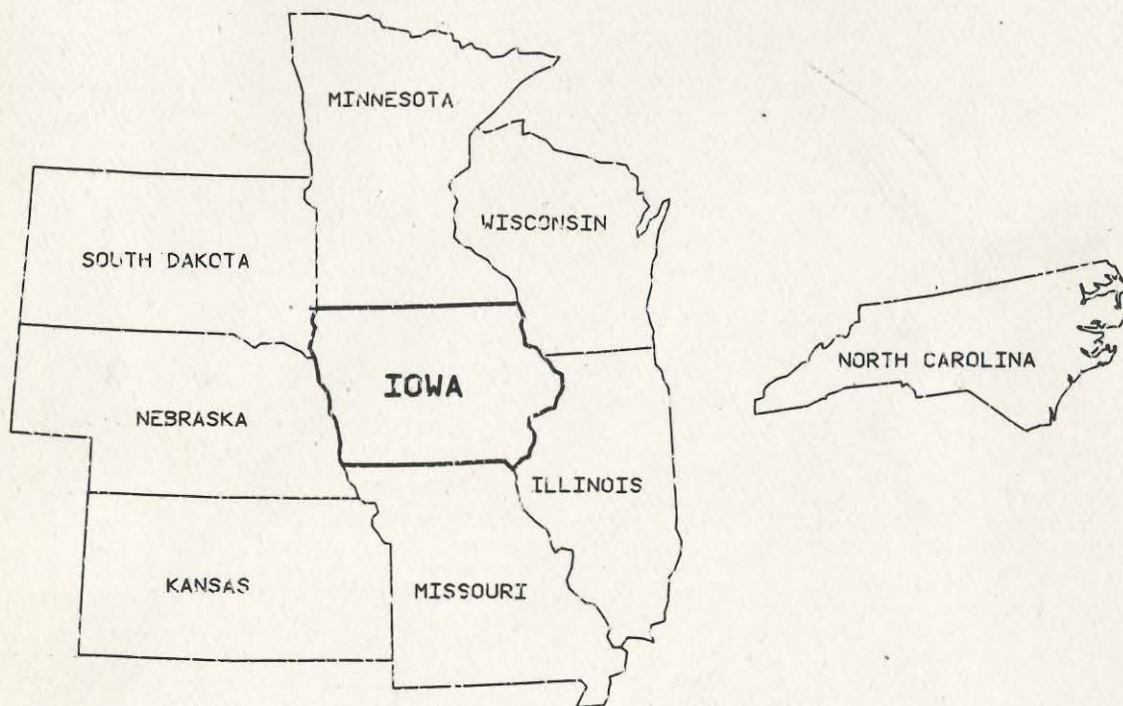
14. If a livestock producer or a livestock operation has a history of causing environmental problems, can your agency deny a permit or require a higher level of waste control for new facilities proposed by the producer or operation (i.e. - habitual violator provisions)?

Yes. WDNR has imposed additional waste control requirements on some livestock operations with a history of problems. To date, none of the producers involved has challenged WDNR's authority to do so.

15. Do local governmental agencies (counties, other) in your state have authority to adopt rules governing animal feeding operations located within their jurisdictions? If so, have any done so?

Yes. Under Wisconsin law, counties and townships have the authority to control the location of livestock production facilities through zoning ordinances, and many have done so, including requiring building permits for new construction. In addition, some counties and townships have adopted ordinances regulating the land disposal of animal wastes.

Animal Waste Control Programs of Iowa and Eight Other States



**Iowa Department of Natural Resources
Larry J. Wilson, Director
October, 1994**