

Manure Management

PRODUCER GUIDELINES FOR CATTLE CONFINEMENT STRUCTURES

By

Becky Sexton

Twin Lakes Environmental Services, LLC



PRODUCER GUIDELINES FOR CATTLE CONFINEMENT STRUCTURES

This is a cattle producer's general guideline when looking to construct new or expand an existing operation. We would suggest using this guideline as a tool to assist in meeting state and federal guidelines in order to move forward with a successful operation. In working with cattle producers, we have found these steps to be the most chronologically appropriate. These steps encompass federal and state law as well as addressing policy issues (EQIP). It is important to remember that state laws may not be in lockstep with federal laws. Neither can they take precedence over federal laws. Instead, you have to be in compliance with both. And, because the laws between the two can be so different, it's not uncommon to miss the fact that even though you might be meeting state standards, you might still be in violation of EPA mandates. Yes, it sounds complicated, because it often is. This is why, as you review the following document, you'll find it emphasize again and again that you seek out a competent consultant to assist you in this process—someone who understands and works with these regulations on a regular basis.

Consultant

As you will see, when you start looking into a project of this magnitude, it is imperative that you partner with people who can guide you through some of these areas to assure you do not misstep and fall into any "cracks." It is in every producer's best interest to interview and assure they have met with a consultant that can work with them and their operation to assure they can assist them to grow in a way that will keep them in compliance with the local laws and still be cost effective for their operation. There are several environmental consultants that will fit this bill, but not the same consultant will be a good fit for each producer. Be sure that you take the time to meet with a few who are recommended to assure you are comfortable with whomever you choose.

In Iowa, there is a listing of environmental consultants that can be obtained through the IMMAG (<http://www.agronext.iastate.edu/immag/spprivl>) website. This is not a recommendation of any one consultant but merely a listing of all consultants who choose to put their names on the website.

If you are receiving NRCS EQIP funds, you MUST have a certified TSP as your consultant. This list of consultants can be found at the NRCS's TechReg web page listing (<http://techreg.usda.gov/findatsp>).

Siting

The following steps should be followed to avoid incurring too much expense prior to establishing that the placement of the proposed structure meets all state and federal standards.

First, you should assure that the placement of your site meets separation distances to all categories of water sources (major water sources, high quality water courses, protected waters, etc., as each has differing separation distances), neighboring residences, incorporated residences, public use areas, private and public wells, designated wetlands, and rights-of-way to public thoroughfares (roads, streets or bridges).

If you do meet these separation distances, you would next look to assure your proposed structure is not to be placed in **alluvial** or **karst** topography.

Alluvial soils are soils deposited by running water and are often located in existing floodplains. Through mapping software, producers can check to determine if a potential animal feeding operation site would be located on alluvial soils, and, thus, possibly in a floodplain.

The law requires anyone wishing to build, modify or expand a confinement or manure storage structure located on alluvial soils to determine if the proposed site will be located in a 100-year floodplain. The law prohibits construction of a confinement in the 100-year floodplain of a major water source. If the proposed location of a confinement with less than 1,000 animal units is located on alluvial soils, the producer must petition for a declaratory order to determine if the site is in a 100-year floodplain.

Karst terrain is characterized by the presence of easily dissolved bedrock (limestone and dolomite) near the ground surface. Because carbonate rocks can be dissolved by groundwater, karst areas are often characterized by sinkholes, springs, and losing streams where some surface flow is lost to groundwater. Groundwaters and surface waters in these areas are highly vulnerable to contamination because contaminants can travel quickly from the surface through open fractures and caves to aquifers, springs, and streams and are not likely to be filtered by soils.

The law prohibits new, expanding and modified confinement operations from constructing unformed manure storage (earthen basins) in karst terrain. It also prohibits new, expanding and modified confinement operations from constructing within 1,000 feet of a sinkhole unless secondary containment is provided. Any new confinements in karst terrain, with more than 500 animal units, must meet upgraded concrete standards, by providing soil borings indicating the depth to bedrock below the proposed formed structures. If there is less than five feet to bedrock below the bottom of a proposed formed structure, the construction plans must be signed and sealed by a professional engineer, and a two-foot clay liner must be installed below the structure. Water monitoring for ammonia-nitrogen may also be required for new confinements in karst terrain.

Alluvial/karst siting maps are necessary for the first steps in all projects to assure you can move forward in construction of your new structure. This will also help to determine if you will be able to expand in the future if the need/desire arises.

As these steps do seem a bit overwhelming, please be aware that there are several competent consultants throughout the industry able and willing to assist you in this process to assure you meet the required criteria to move forward with your project before you incur much expense.

Financing

Once you know your structure can be placed where you desire, your next hurdle is financing. There are always several traditional banks that are able and willing to assist in this process, but be willing to look at other programs as well. Always ask the questions prior to signing any papers to assess the terms that may go with these programs, as we all know that nothing is free and there are always terms.

EQIP: Discuss with your local NRCS agency the availability or your eligibility for Environmental Quality Incentives Program (EQIP) Funds and what the terms of these programs would be to you as each office has different amounts available and can set their standards for these as they see fit. The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years in length. These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land. In addition, a purpose of EQIP is to help producers meet federal, state, tribal and local environmental regulations. Owners of land in agricultural or persons who are engaged in livestock or agriculture on eligible land and that have a natural resource concern on the land may participate in EQIP.

EQIP provides financial assistance payments to eligible producers based on a portion of the average cost associated with practice implementation. Additional payments may be available to help producers develop conservation plans which are required to obtain financial assistance.

Historically underserved producers (limited resource farmers/ranchers, beginning farmers/ranchers, socially disadvantaged producers, tribes) may be eligible for a higher practice payment rate for the implementation for conservation practices and conservation plans.

Producers may use a certified Technical Service Provider (TSP) for technical assistance needed for certain eligible activities, services and the development of conservation plans. Historically underserved producers may also be eligible for advance payments up to 30 percent of the cost needed to purchase materials or contracting services to begin installation of approved conservation practices.

NRCS or the TSP will work with the producer to develop a plan of operation that:

1. Identifies the appropriate conservation practice or measures needed to address identified natural resource concerns
2. Implements conservation practices and activities according to an EQIP plan of operations developed in conjunction with the producer that identifies the appropriate conservation practice or measures needed to address identified natural resource concerns. The practices are subject to NRCS technical standards adapted for local conditions.

Participants may not receive, directly or indirectly, payments that, in the aggregate, exceed \$300,000 for all EQIP contracts entered into during any six-year period. Participants whose projects NRCS determines to have special environmental significance may petition the NRCS Chief for the payment limitation to be waived to a maximum of \$450,000. Additional payment limitations apply to producers enrolled in the EQIP Organic Initiative.

Livestock Water Quality Program

The Livestock Water Quality Program (LWQ) offers low-interest loans through participating lenders to Iowa livestock producers for projects to prevent, minimize or eliminate non-point source pollution of Iowa's rivers and streams from animal feeding operations.

The types of eligible projects include lagoons, manure management structures, equipment, vegetative filters and the development of manure management plans. Assistance is limited to existing facilities for animal feeding operations with less than 1,000 total animal unit capacity (AUC).

This program is administered by the Division of Soil Conservation (DSC) of the Iowa Department of Agriculture and Land Stewardship through its local Soil and Water Conservation Districts (SWCD) with Iowa Finance Authority (IFA) acting as the financial agent.

Prior to receiving a loan, the landowner must receive project approval from the local SWCD. This step is very important as it could jeopardize your LWQ loan qualifications.

The IFA deposits funds in an account at the local lending institution in an amount equal to the loan amount. This linked deposit allows the lender to make a loan to an eligible borrower at a low interest rate.

How Does It Work?

- Local lender originates loans of \$10,000 to \$500,000 with a maximum term of 15 years, depending on the useful life of the project.
- Total outstanding balance for a borrower is not to exceed \$500,000.
- The interest rate charged the borrower will not exceed 3%.
- The IFA will deposit funds equal to the principal amount of the loan at 0% interest.
- The deposit does not guarantee the loan nor is it collateral for the loan. The deposit is only to reduce the interest rate charged to the borrower.
- Annually, IFA will withdraw from the deposit account an amount equal to the principal repayment of the outstanding loan. As a result, the amount in the deposit account will equal the principal outstanding on the loan.
- All costs directly related to the design, permitting, construction and financing of the water pollution control facilities are eligible. Costs for development of a manure management plan, nutrient management plan or comprehensive nutrient management plan are also eligible.

Manure Management/Nutrient Management Plans

In the state of Iowa there are manure management and nutrient management plans. For the purpose of this paper, I will refer to both of these documents as MMPs as they are very similar in nature.

In moving forward with your project, if you are required to have an MMP, you need to provide the consultant writing your plan with the following:

1. Site Name
2. Owner of the site (will you own this site personally, as an LLC, LLP, etc?)
3. Will you grow for an integrator?
4. Is this a confinement expansion? If so, when was the first confinement structure built?
5. How many head is this site going to contain?
6. What phase of production?
7. What type of facility?
8. How many turns per year?
9. Do you have manure analysis (if an existing facility)?
 - a. If a new facility, make sure you understand how to take manure analysis
 - b. When you take your first manure analysis, do you know where to send it for analysis?

Then we start working with the ground that will receive the manure. We must address the following items:

1. Do you own or farm the ground?
 - a. If you do not, you need an agreement signed by the landowner allowing manure to be applied to said acres.
2. Are the acres available classified as HEL or NHEL?
 - a. Is there a conservation plan available?
3. Have the acres been soil sampled to meet state criteria? (Copy of said samples must be supplied to the plan writer)
 - a. Plan writer/consultant will need to speak with whomever farms these acres to establish the following information in order to correctly formulate the required RUSLE2 (Revised Universal Soil Loss Equation) and Phosphorus Indexes:
 - i. Name of field
 - ii. Crop rotation
 - iii. Farming practices
 - iv. Any commercial nutrients applied in addition to the animal nutrients
4. If you are selling the manure, discuss with your consultant the state criteria for sales of manure to assure you stay in compliance.

5. Discuss with your consultant how you dispose of your mortalities. If choosing an option other than rendering, there may be additional regulations that they will need to apprise you of prior to you incorporating these methods into your day to day operation.

An MMP is a working document. Your crop rotations will likely change, you may even add fields throughout the course of this plan, but you need to work with your consultant to keep it current to assure you stay compliant with the laws. It does make things much simpler and is a very friendly document if your consultant can sit down and explain the processes to you. Just keep it current so you can keep the records, which are required, and you won't have issues later. A plan must be updated with the local offices on a regular basis with fees paid accordingly, so be aware of this and assure you have worked your annual updates into your calendar as well.

Permitting

In Iowa, less than 500 animal units (499 head or less) do not require a permit for confinement structures. However, an alluvial/karst determination is required to assure you are constructing in an area that meets criteria. This will just need to be kept on site, as you will not need a manure management plan for this size of structure. This is considered a SAFO (Small Animal Feeding Operation).

A site with over 500 animal units (500 head) but less than 1,000 animal units (1,000 head) in confinement will require a manure management plan and construction design statement with attached alluvial/karst determination to assure you are constructing in an area that meets criteria. In this situation, you must receive construction authorization from the Iowa DNR prior to starting construction. There is generally a 30-day wait from the time the paperwork is submitted to the Iowa DNR. If you intend to tear up more than a ½ acre of ground, you will also be required to file a Storm Water Discharge Permit for this construction event.

If your site is greater than 1,000 animal units, you will be required to obtain a construction permit. For this you must file a construction permit application with all required maps and a construction design statement with attached alluvial/karst determination to assure you are constructing in an area that meets criteria, as well as your manure management plan and a master matrix if you are located in a county that has adopted the matrix. There is, generally up to a 60-day wait from the day you file with the DNR. With a site of this size, you can have a county hearing, and there could be more public scrutiny, so it is imperative that you confirm you have met all required separation distances to ensure you have no issues. No construction can begin on a site of this size until authorized by the DNR, and again, if you will be disturbing more than a ½ acre of ground, you will also need a Storm Water Discharge Permit prior to starting your building project.

In Nebraska, confined livestock operations exceeding 300 animal units (300 feeder cattle) are required to either have a permit or letter of exemption from the Department of Environmental Quality (DEQ). Likewise, most all counties in Nebraska have now adopted zoning regulations, which you should make yourself aware of prior to starting any project. Operations of less than 300 animal units must also be permitted if they have previously had a discharge of livestock waste to waters or if the DEQ determines a high potential of discharge exists. If a permit is required, it must be submitted by a licensed Nebraska professional engineer.

NPDES Permitting – (Federal) Anytime a combination of animals in confinement and open feedlot reaches 1,000 animal units (1,000 head) and you believe it reasonable that you could have a discharge from any manure source, you must file for an NPDES permit before any new or expanding projects can be started. This is a lengthy process and, at minimum, requires 180 days.

Manure Application

If applying manure from your personal site, dependent upon the size of your site, you may need to go through a certification process prior to manure application. Becoming certified is a fairly simple process but must be done to stay in compliance with state and federal laws.

Likewise, anytime there is a manure spill, it must be reported to authorities within 6 hours of discovery. A spill is defined as “any amount of manure not contained in the production area or properly applied on an application field.”

The certification process and the spill reporting are both areas that should be taken very seriously.

Record Keeping

Manure application record keeping is likely the least likeable of all the tasks that the producers are required to do. They don't appreciate the reasons behind keeping track of this menial task. However, with the rainfalls and record snows we have had in the past few years, we need to be mindful of all the runoff events that could happen and be attributed directly to farmers if we don't keep good records of just exactly what we are doing.

If you utilize a good record keeping system, it is a fairly simple task and can actually make everything a little easier down the road. You must keep five years of records of your manure application on site for review. These records must include:

- The date manure was applied
- Name of field applied to
- Weather conditions at the time of application and 24 hours before and after application
- Test methods used to sample and analyze manure
- Explanation of the basis for determining the manure application rates (i.e. from MMP)
- The calculations showing the total N and P to be applied to each field
- Total amount of N and P actually applied to each field
- The method used to apply manure
- Dates that manure application equipment was inspected

In summary and closing, here is a guideline for you to follow if you believe you would wish to expand or start an operation:

1. Find a site
2. Investigate funding
3. Interview and hire a consultant:
 - a. Verify site meets state/federal guidelines;
 - b. Determine if a permit will be required for this site;
 - i. If required, compile permit;
 - c. Develop a manure management plan;
 - d. File the permit and/or related paperwork.

It is very important that you remember that the timeframe of these steps vary greatly dependent upon the size of your operation. Some of the above steps could take 2 days, 2 weeks or even 2 years. It is imperative that you plan for these events and have patience. You also need to remember that you must stay involved in the process in order to make this work. Your involvement, input and help are required to make it a smooth process.