

## So You're a CAFO...Don't Forget, a Permit Doesn't Take Care of Everything

Jessica G. Davis, Extension Soil Specialist

As a CAFO, you know you need to apply for a permit and implement a Nutrient Management Plan, but that's not all! Regulation 81 has CAFO requirements for ground water protection that should not be overlooked and that are not required in the discharge permit.

The primary focus of these additional requirements is seepage from wastewater impoundments (runoff storage ponds or lagoons). First of all, impoundments must be lined to limit the seepage rate to  $\leq 1 \times 10^{-6}$  cm/sec. In some cases the seepage rate can be higher, up to  $7.35 \times 10^{-6}$  cm/sec **IF** approved by the Water Quality Control Division. In order to have the higher seepage rate approved by the Division, three criteria need to be met:

- 1) Only open-lot wastewater enters the impoundment. Open-lot wastewater includes three types of water:
  - a. precipitation that comes into contact with manure,
  - b. spillage or overflow from watering systems in an uncovered production area, and
  - c. spray-cooling water used in open-sided pole sheds that are not flushed.
- 2) The impoundment is not designed as an evaporation impoundment.
- 3) The 10-foot soil depth zone immediately beneath the impoundment has a cation exchange capacity (CEC) of at least 15 meq/100 g. The regulation specifies the soil sampling method, so if you plan to ask the Division for approval of the higher seepage rate, be sure to read over the specific sampling requirements before you soil sample (see section 81.5(2)(a)(ii)).

Regardless of which seepage rate you aim for, CAFOs are required to have documentation from a professional engineer registered in Colorado that verifies the seepage rate and identifies the liner materials. The deadlines for this requirement vary depending on when the impoundment was constructed.

- ✓ If the impoundment was built prior to June 30, 2004, documentation must be available **by April 13, 2006**.
- ✓ If the impoundment is built after June 30, 2004, documentation must be available 30 days prior to wastewater entering the impoundment.

In addition, a CAFO operator must inspect the exposed liner of an earthen impoundment every week and keep records of those inspections. A table is attached for your use for inspection record-keeping. Records must be maintained on-site for five years. If deficiencies are found that could affect the integrity of the liner, corrections must be made within 30 days. Here are some things to look for when doing your weekly inspections:

- |                      |                         |
|----------------------|-------------------------|
| ✓ Cracks             | ✓ Rill or shelf erosion |
| ✓ Rodent burrows     | ✓ Bulges                |
| ✓ Deep-rooted plants | ✓ Sink holes            |

It is important not to damage the certified liner when removing wastewater or manure from an impoundment. Therefore, the regulation requires that each CAFO develop a Standard Operating Procedure (SOP) that describes the method and expected frequency of manure removal. An existing CAFO must submit the SOP by **December 31, 2004**. A new CAFO must submit the SOP within 120 days after placing animals in the production area. The CAFO operator must follow the SOP whenever manure is removed and certify that the SOP was followed. The certifications and approved SOP must be available on-site and submitted to the state upon request. If, for some reason, the SOP is not followed, the CAFO must inform the Division within 30 days. In addition, when depth markers are installed in an impoundment, they must not damage the liner or increase the seepage rate above the required rate.

Earthen wastewater conveyance structures must be maintained to minimize ponding and also have seepage requirements that vary depending on how much gravel is present in the soil:

#### Open-lot Wastewater

- If the soil has <35% gravel, no lining or compaction is required for conveyance structures.
- If the soil has 35-60% gravel, then the conveyance structure must be compacted with at least 2 passes of rubber-tired construction equipment (or 4 passes of track-type equipment), or equivalent, over the entire surface of the conveyance structure.
- If the soil has > 60% gravel or in loamy sand or sandy soils with >35% gravel, a compacted liner is required for conveyance structures. The liner must be 12 inches thick and made of soil with <60% gravel and compacted as described above.

## Process-generated Wastewater

- If the conveyance structures carry process-generated wastewater (such as milking barn or egg wash wastewater) intermittently (>48 hrs between conveyance events), then a compacted liner is required for conveyance structures. The liner must be 12 inches thick and made of soil with <60% gravel and compacted with at least 2 passes of rubber-tired construction equipment (or 4 passes of track-type equipment) over the entire surface of the conveyance structure.
- If the conveyance structures carry process-generated wastewater non-intermittently ( $\leq 48$  hrs between conveyance events), then conveyance structures must be constructed and maintained to have a seepage rate  $\leq 1 \times 10^{-6}$  cm/sec.

When compaction is required, soil moisture should be wet to the touch and leave a stain on the hand when squeezed, in order to achieve sufficient compaction.

For new source CAFOs, location of impoundments is also regulated. An example of a new source is a dairy CAFO that is constructed on a feedlot. Impoundments on new source CAFOs must not be located in areas where the seasonally high groundwater level is within 20 ft of the soil surface, where the seasonally high groundwater level is within 4 ft of an impoundment bottom, and within 150 ft of a private domestic water supply well or within 300 ft of a community domestic water supply well.

When a CAFO closes, its impoundments must also be closed within 120 days. Closure involves removal of manure and wastewater followed by backfilling earthen impoundments with at least 5 ft of soil. Any alternative procedure or timeline must be approved by the state.

Be sure to apply for that NPDES permit and implement your Nutrient Management Plan, by the deadlines described in Regulation 61.17. But don't forget, all CAFO requirements are not included in the permit application or discharge permit; additional requirements are described in Regulation 81, and those additional requirements have been summarized here.

