

MEMORANDUM FOR WATER AND WASTEWATER SECTION POLICY MANUAL

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SUBJECT: Policy 13.29.4, Groundwater and Design Requirements for Livestock Waste Management Facilities

This policy is meant to supplement and assist in the understanding of the requirements of Chapter 3, Section 17, Environmental Monitoring Program for Protection of Waters of the State; Permit Application Requirements; and Chapter 11, Section 29, Feedlots.

1. **Situations Requiring a WDEQ/WQD Chapter 3 Permit to Construct**
 - a. Construction of wastewater retention systems, wastewater collection ditches, and temporary runoff-retention structures at AFOs where NRCS is **not** involved.
 - b. Construction of wastewater retention systems, wastewater collection ditches, and temporary runoff-retention structures at all CAFOs.
 - c. Construction of GW Monitoring Wells whether for an AFO or for a CAFO, with or without NRCS involvement in the design process.

2. **Temporary Runoff-Retention Structure**
 - a. Any structure that retains water to a depth of greater than 2 inches for a period of more than 12 hours. Temporary runoff structures must be emptied to a maximum water depth of less than 2 inches in less than 10 days. Temporary retention structures will normally not have any standing water. If in areas not accessible to livestock, temporary retention structures shall support perennial vegetation that is harvested or grazed annually. If within the pen areas, the livestock should be able to normally occupy the floor area.
 - b. The manure pack, permanent vegetation root mass, restricted water depth and limited time of submersion can be protective of the ground water by reducing infiltration of liquid livestock waste beyond the root zone or the bottom of the manure pack.
 - c. The temporary runoff retention structure must discharge to a vegetated area at or below agronomic rates for nutrient application. Livestock waste solids must not be discharged to waters of the State during storm events that do not exceed the 24hr/25 yr storm event.
 - d. Requirements for, and review of Type I and Type II groundwater studies shall be coordinated with the WQD groundwater program staff.

Policy 13.29.4 Table 1
Requirements If Use of Temporary Runoff-Retention Structures is Proposed at CAFOs or AFOs

	Groundwater > 20' and Not Used for, nor Suitable for Domestic Use¹	Groundwater ≤ 20' and Not Used for, nor Suitable for Domestic Use¹	Groundwater > 20' and Is Used for, or is Suitable for Domestic Use¹	Groundwater ≤ 20' and Is Used for, or is Suitable for Domestic Use¹
Geologic Evaluation Required?	No	No	Yes (Type I) ²	Yes (Type II) ²
Groundwater Monitoring Wells?	No	No	Possibly ³	Probably ³
Liner Required?	No	No	Possibly ³	Possibly ³

- 1 Groundwater 'use' is determined from a record search of water wells permits filed with the State Engineer's Office. Permitted 'use' (i.e. domestic, livestock, etc.) is identified on Statement of Completion forms for the well. Only those wells within one (1) mile of the facility and completed within the uppermost aquifer are considered. If there are no water wells that meet these criteria an evaluation of groundwater 'suitability' must be completed. Groundwater 'suitability' (i.e. for domestic use, livestock use, etc.) is determined from Table I of Chapter 8, Water Quality Rules and Regulations. 'Suitability' is established by laboratory analysis of a groundwater sample collected from the uppermost aquifer. The sample must be collected from a point sufficiently close enough to the facility to be considered representative of groundwater quality at the facility. Samples collected immediately adjacent to, and on the up-gradient side of the facility are preferred.

- 2 Type I studies provide information on the uppermost aquifer and the types of materials overlying the uppermost aquifer. Type I studies determine the potential for leachate to reach the uppermost aquifer. Type II studies provide information on: the predicted effects that leachate will have on the quality and suitability of groundwater; where contaminants in groundwater may migrate, and; whether groundwater wells, adjacent properties, or surface waters may be adversely impaired by contaminants in groundwater.

- 3 If the Type I study indicates that leaching contaminants (e.g. nitrates, ammonia, etc.) will, reach the water table, groundwater monitoring and liners should be employed unless a Type II groundwater study is undertaken. If the Type II study indicates that leaching of contaminants (e.g. nitrates, ammonia, etc.) will, or might exceed either the Class of Use 'suitability' (Table I, Chapter 8, Water Quality Rules) concentration (where groundwater is not being used) or the greater of the 'background' concentration v. Class of Use 'suitability' (where groundwater is being used) for any constituent, monitoring wells and liners will likely be required.

Policy 13.29.4 Table 2
WDEQ/WQD Chapter 3 Permit Requirements
When Wastewater Ponds are Used
at CAFOs or AFOs

	Unlined or Clay Liner (Native or Bentonite)	Synthetic Liner	Synthetic Liner w/Leak Collection and Recovery System (LCRS)
Geologic Evaluation Required?	Yes (Type I)	Yes (Type I)	No
Post- Construction Monitoring?	Yes, if monitor wells are installed	Yes, if monitor wells are installed	Yes, inspection, monitoring and operation of the LCRS
Groundwater Monitoring Wells?	Probably	Possibly	No

Type I studies provide information on the uppermost aquifer and the types of materials overlying the uppermost aquifer. Type I studies determine the potential for leachate to reach the uppermost aquifer. Type II studies provide information on: the predicted effects that leachate will have on the quality and suitability of groundwater; where contaminants in groundwater may migrate, and; whether groundwater wells or adjacent properties may be adversely impaired by contaminants in groundwater. Requirements for, and review of Type I and Type II studies shall be coordinated with the WQD groundwater program staff.

If the Type I study indicates that leaching contaminants (e.g. nitrates, ammonia, etc.) will, reach the water table, groundwater monitoring and liners should be employed unless a Type II groundwater study is undertaken. If the Type II study indicates that leaching of contaminants (e.g. nitrates, ammonia, etc.) will, or might exceed either the Class of Use 'suitability' (Table I, Chapter 8, Water Quality Rules) concentration (where groundwater is not being used) or the greater of the 'background' concentration v. Class of Use 'suitability' (where groundwater is being used) for any constituent, monitoring wells and liners will likely be required. Upon review of Type I and Type II studies the WQD groundwater program staff shall provide recommendations concerning the need for monitoring wells and liners.