

# Compliance Monitoring for Ground Water Protection Beneath Unlined Coalbed Methane Produced Water Impoundments

Wyoming Department of Environmental Quality  
Water Quality Division  
June 14, 2004

---

## Background:

This guideline addresses the need for an approach to protect ground water that may exist beneath unlined coalbed methane (CBM) produced water impoundments. This approach will apply both to "on-channel" and "off-channel" impoundments and will provide a mechanism to allow construction of unlined impoundments until the department determines whether more, or less stringent measures are necessary to afford protection of the state's groundwater resources. This guideline supplements existing siting requirements already established within the department's "Off-channel, Unlined CBM Produced Water Pit Siting Guidelines for the Powder River Basin, Wyoming". All plans, specifications, and reports submitted pursuant to this guideline shall comply with the statutory requirements of W.S. §33-41-101 through 121 ("Wyoming Geologists Practice Act.") and associated regulations, as applicable.

## Section 1: Determine Need for Compliance Monitoring Wells

For all impoundments the operator may provide documentation that the proposed unlined CBM impoundments pose no threat to groundwater. The documentation shall consist of data which demonstrates that:

- Facility construction will not allow a discharge to groundwater by direct or indirect discharge, percolation or filtration (e.g., lining the impoundment); or
- Water infiltrating from the CBM impoundment and through the unsaturated zone will not cause a violation of groundwater standards; (e.g., column leachate or batch leachate study of unsaturated zone); or
- Existing soils or geology will not allow a discharge to groundwater (e.g., impermeable substrate, or depth to groundwater is > 150 feet (200 feet if impoundment is ≥ 50 acre feet)). See Section 2 for required documentation for 'depth to groundwater' option.
- All groundwater within 150 feet of the surface (200 feet if impoundment is ≥ 50 acre feet) is Class IV(B) quality (i.e. > 10,000 mg/l TDS).

Documentation must be submitted and approved by the WQD Groundwater Program prior to discharge into the impoundment. Upon completion of its review the WQD will provide written notice of its determinations to the operator.