



Regulations For Dairy Wastewater Discharges

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Ground Water Quality Bureau Mission Statement



Our mission is to preserve, protect, and improve New Mexico's ground water quality for present and future generations.



Why Are We Here Today?

- Initiate process for developing regulations specific to dairy industry
- Provide information on
 - Regulatory process
 - Development of initial regulation discussion draft
- Get initial input, thoughts and comments





Presentation Outline

- Rulemaking Process Background, Approach, and Schedule
- Ground Water Contamination at Dairies
- Discussion Draft Dairy Regulations
- Summary
- Submit Comments Until July 2, 2009





Rulemaking Process Background

- Senate Bill 206 (SB 206) passed by Legislature, signed by Governor Richardson on April 8, 2009.
- Amends Water Quality Act: Water Quality Control Commission (WQCC) shall adopt regulations for the dairy and copper mining industries.
- Legislators expressed expectation for the establishment of dairy regulations within one year.





Rulemaking Process Approach

- To initiate development of new regulations:
 - NMED developed “discussion draft” of dairy regulations
 - May 22, 2009
 - Posted on web
 - Notification provided to DFA, DPNM, WQCC mailing list, dairy permittees, and interested parties list
 - Press release





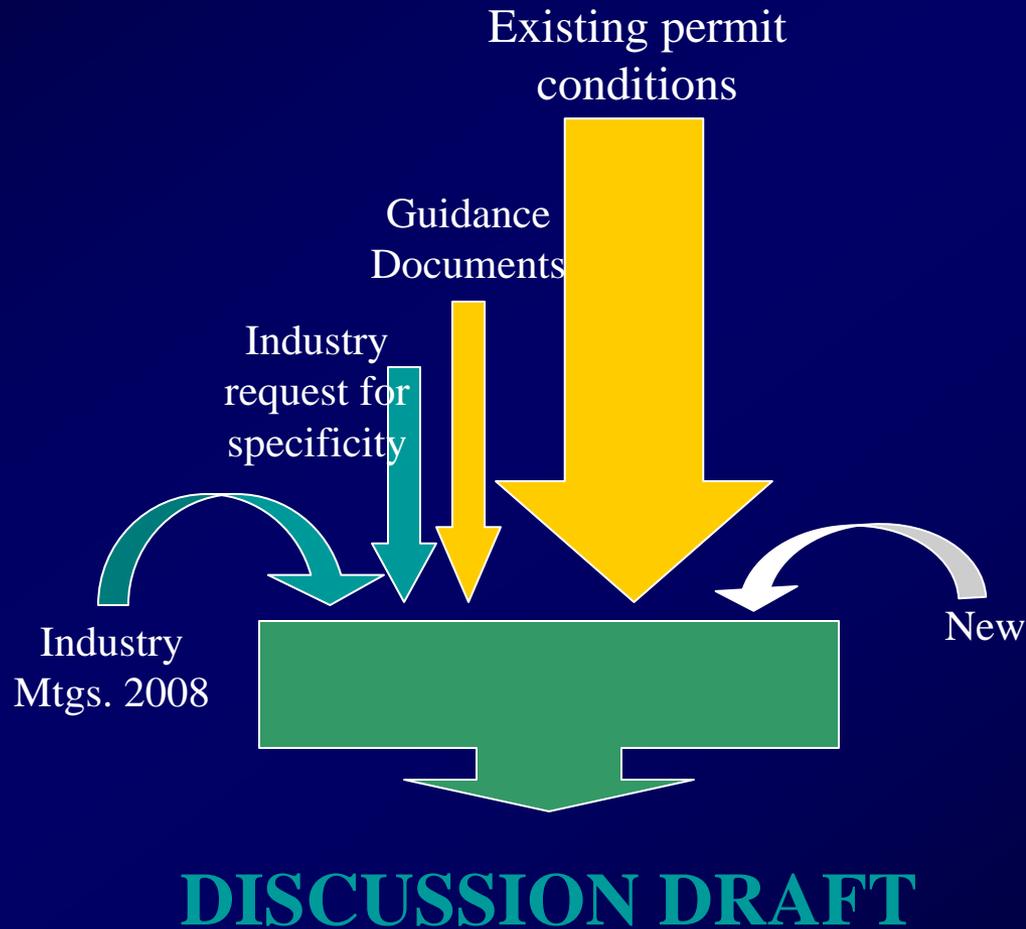
Rulemaking Process Approach: “Discussion Draft”

- Foundation of “discussion draft” = conditions found in recent permitting actions.
- “Discussion draft” also contains other requirements.
- Because industry requested more certainty, consistency, and detail, these regulations are much more specific than conditions of recent permitting actions.





Rulemaking Process Approach: “Discussion Draft”





Rulemaking Process Approach

- Dairy regulations are intended to protect the quality of the State's ground water, a vital public resource.
- Development of effective regulations to protect this public resource requires input from many stakeholders:
 - Industry
 - Public
 - State and federal agencies
 - Environmental groups
 - Academics





Rulemaking Process Schedule

- June 2009: NMED hosts meetings with public and individuals holding dairy Discharge Permits.
- June-July 2009: NMED holds meetings with advisory committee (established by NMED in accordance with SB 206).
 - “...advise the constituent agency on appropriate regulations to be proposed for adoption by the commission.”
- July-August 2009: Negotiations between NMED and stakeholders.





Rulemaking Process Schedule

- September 2009: Submit petition for hearing and proposed regulations to WQCC, ask WQCC to set a hearing for November 2009.
- November 2009: Hearing before WQCC on proposed regulations.
- March 2010: Adoption of regulations by WQCC.





New Mexico Dairies

- The Ground Water Quality Bureau has 200 Discharge Permits for dairies in New Mexico.
 - Approximately 150 dairies are currently operating.
 - Approximately 50 dairies are inactive.
 - A number of these permitted facilities are “paper” dairies; they have been issued a Discharge Permit but have not yet built.





New Mexico Dairies Ground Water Contamination

- Based on ground water quality data from monitoring wells at dairies throughout New Mexico:
 - More than 65% of permitted dairies exceed the standard for nitrate-nitrogen in ground water.
- Need to promptly enact new regulations for dairy discharges.





Potential Sources of Ground Water Contamination at Dairies

- Poorly constructed or damaged wastewater impoundments and liners.
- Over-application of nitrogen (from wastewater, stormwater, etc.) in the land application area.
- Failure to promptly pump out stormwater from an unlined stormwater impoundment.
- Inadequate backflow prevention for irrigation wells.





Generation of Wastewater

- Wastewater is generated from sources such as:
 - Washing, cleaning and flushing barns;
 - Washing of animals; and
 - Cooling or cleaning of feed mills and equipment.





Generation of Stormwater

- Stormwater is generated from:
 - direct precipitation falling on the production area from a storm event which comes in contact with water contaminants.





Discussion Draft Dairy Regulations





Discussion Draft Dairy Regulations

- This presentation is an overview of the discussion draft, including key portions of the following:
 - Operational Requirements
 - Monitoring Requirements
 - Contingency Requirements
 - Closure Requirements
 - Additional Requirements





Operational Requirements





Operational Requirements

Operational requirements describe how the facility shall operate to protect ground water quality, including:

- Wastewater storage or disposal impoundments
- Stormwater collection and management
- Manure solids management and removal
- Application of wastewater/stormwater to cropland
- Backflow prevention for irrigation wells





Operational Requirements

- Typically two types of wastewater management systems at dairies:
 - Wastewater discharged to a lined impoundment, with minimum 60-day storage, and land applied to irrigated cropland under cultivation for treatment; and
 - Wastewater discharged to a synthetically lined lagoon designed for disposal by evaporation.





Operational Requirements

Wastewater Impoundments

- New lagoons required to be engineered in accordance with the requirements of Sections 20.6.2.3212 through 20.6.2.3214.
- New wastewater lagoons are required to be synthetically lined.
 - Where depth to ground water is less than 50 feet, new or improved wastewater impoundments are required to be double synthetically lined with leak detection.





Operational Requirements

Wastewater Impoundments

- Existing clay-lined wastewater impoundments are not required to be replaced with a synthetically lined impoundment unless they have resulted in ground water contamination.





Operational Requirements

Stormwater Impoundments

- Stormwater impoundments to be designed to contain stormwater runoff generated from the production area and direct precipitation from a minimum of a 25-year, 24-hour rainfall event.
 - Stormwater impoundments may be stand alone impoundments or combined as part of the wastewater impoundment.





Operational Requirements

Stormwater Impoundments

- Stormwater in unlined impoundments shall be pumped to the wastewater impoundment or the land application area distribution system as soon as possible after a storm event to minimize the potential for movement to ground water and restore necessary free capacity.
- Synthetic lining required if existing impoundments result in ground water contamination.





Operational Requirements

Leachate Management

- Leachate shall be minimized and ponding prevented from the following areas:
 - manure solids stockpiles
 - compost piles
 - silage storage areas





Operational Requirements

Land Application Area

- Documentation of irrigation water rights from the Office of the State Engineer for all fields within the land application area.
 - Required to demonstrate adequate irrigation water is available to produce and harvest the crops necessary for the removal of nitrogen applied in wastewater and stormwater.





Operational Requirements

Land Application Area

- Nitrogen applications shall be performed according to:
 - A plan demonstrating that nitrogen applied does not exceed by more than 25% the amount reasonably expected to be taken up and removed by a mechanically harvested crop, or
 - An approved nutrient management plan signed and dated by an individual certified by the American Society of Agronomy as a Certified Crop Advisor (CCA) or Certified Professional Agronomist (CPAg).
 - The plan must also be signed and dated by a Nutrient Management Planner certified by the New Mexico Natural Resources Conservation Service.





Operational Requirements

Land Application Area

- Backflow prevention is required to protect all wells used in the land application distribution system from contamination by wastewater backflow.
 - Achieved by a total disconnect (physical air gap) between the fresh irrigation water and wastewater delivery systems.





Monitoring Requirements





Monitoring Requirements

Meters

- Meters shall be installed to:
 - Measure monthly wastewater flows to the impoundment.
 - Measure wastewater and stormwater applications to each field within the land application area.





Monitoring Requirements

Monitoring wells

- Monitoring wells shall be installed hydrologically downgradient of each potential source of ground water contamination, including but not limited to:
 - Wastewater and/or stormwater impoundments
 - Fields within the land application area.
- At least one monitoring well shall be installed hydrologically upgradient of all potential ground water contamination sources.





Monitoring Requirements

Ground Water Quality

- Sample ground water on quarterly basis for:
 - nitrate as nitrogen
 - total Kjeldahl nitrogen
 - chloride
 - sulfate
 - total dissolved solids
 - other constituents required by the department





Monitoring Requirements

Ground Water Flow

- Measure depth to water quarterly from all monitoring wells at the dairy
- Develop quarterly ground water flow direction maps





Monitoring Requirements

Wastewater/Stormwater Quality

- Sample wastewater and storm water on a quarterly basis and analyze for:
 - nitrate as nitrogen
 - total Kjeldahl nitrogen
 - chloride
 - sulfate
 - total dissolved solids
 - other constituents required by the department





Monitoring Requirements

- Document yield and nitrogen concentration of each harvested crop.
- Sample surface and sub-surface soil annually in each field within the land application area.
- Track nitrogen loading from wastewater, manure solids, composted material and chemical fertilizer to each field within the land application area.





Contingency Requirements





Contingency Requirements

- Ground water exceedances:
 - Submit and implement a corrective action plan that proposes source control measures, and
 - Submit and implement an abatement plan in accordance with Sections 20.6.2.4000 through 20.6.2.4115 NMAC.
- Replacement and abandonment of incorrectly installed or located monitoring wells.





Contingency Requirements

Contingency requirements also address:

- Exceedances of the maximum daily discharge volume
- Damaged or incorrectly sized impoundments
- Spills
- Additional soil sampling requirements including deep soil sampling





Closure Requirements





Closure Requirements

- Requirements for permanent closure of dairy facilities includes:
 - Removal of wastewater, stormwater and manure solids from the facility.
 - Closure of impoundments.
 - Ground water monitoring for a minimum of eight consecutive sampling events to confirm the absence of ground water contamination.





Additional Requirements





Additional Requirements

Setback Requirements For New Facilities

- Wastewater and stormwater impoundments or any other part of the production area shall be located:
 - greater than 200 feet from a continuously flowing watercourse;
 - greater than 200 feet from the 100-year flood zone of any other significant watercourse;
 - greater than 200 feet from a lakebed, sinkhole or playa lake (measured from the ordinary high-water mark);
 - greater than 350 feet from a private domestic water well or spring that supplies water for human consumption; or
 - greater than 1000 feet from any water well or spring that supplies water for a public water system.





Additional Requirements

Setback Requirements For New Facilities

- Any field within a land application area shall be located:
 - greater than 100 feet from a continuously flowing watercourse;
 - greater than 100 feet from the a 100-year flood zone of any other significant watercourse, lakebed, sinkhole or playa lake (measured from the ordinary high-water mark);
 - greater than 100 feet from a private domestic water well or spring that supplies water for human consumption; or
 - greater than 200 feet from any water well or spring that supplies water for a public water system.





Additional Requirements Continued

- The discussion draft incorporates guidance previously attached to individual discharge permits including:
 - Engineering requirements for plans, specifications and record drawings, and
 - Monitoring well installation and abandonment specifications.
- The discussion draft includes requirements for a comprehensive application submittal.





Discharge Permit Terms

- Discharge Permits are issued for terms not to exceed five years.
- A Discharge Permit can be modified during the permit term.





Summary

- NMED is required to propose regulations for dairies.
 - Goal: To propose draft regulations in a public hearing before the WQCC in November 2009.
- More than 65% of permitted dairies have ground water contamination in the form of nitrate-nitrogen.
- Regulations are designed to protect ground water quality.
 - Operational, monitoring, contingency, closure and other requirements have been included.
- **We want to hear from YOU!**





Information & Additional Comments

The dairy regulations can be viewed online at www.nmenv.state.nm.us/gwb.

You may contact NMED or submit comments to:

Email: dairy.regs@state.nm.us

Mail: **New Mexico Environment Department
Ground Water Quality Bureau
P.O. Box 5469
Santa Fe, NM 87502-5469
Attn: Comments on Dairy Regulations**

Phone: **(505) 827-2900**

Please provide comments no later than **July 2, 2009**.

