Ground Water Protection Rules For Copper Mines

New Mexico Environment Department

Ground Water Quality Bureau

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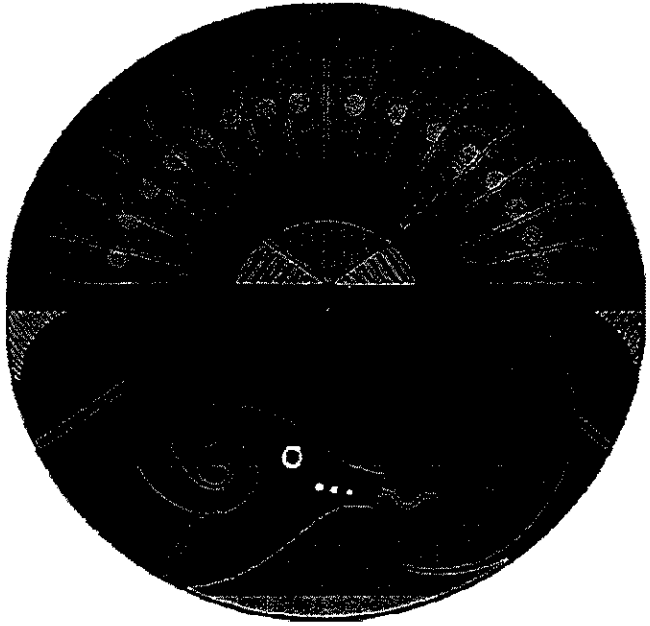
Mission Statement



To preserve, protect, and improve New Mexico's ground water quality for present and future generations.

Presentation Outline

- Background
- Rulemaking Process
- Draft Copper Mine Rule
- Summary
- Submit Comments Until October 12, 2012

Background - Rules

- NMED implements and enforces rules of the Water Quality Control Commission (WQCC) pursuant to the Water Quality Act for the prevention and abatement of water pollution

- WQCC rules require issuance of Discharge Permit to prevent pollution of water quality
  - Current rules require discharger to demonstrate that operations will not cause pollution of water quality in excess of WQCC standards

Background - Permits

- NMED began issuing Discharge Permits for Copper Mines in the late 1970's
- Currently 27 Discharge Permits are in place for Copper Mine facilities in New Mexico.
  - Covers discharges and closure activities at 5 copper mine facilities
  - Separate closure discharge permits issued for 3 copper mines

Background - Discharges

- The major discharges at Copper Mines regulated under Discharge Permits include:
  - Discharge of leach solutions from ore leaching
  - Discharge of tailings to tailing impoundments.
  - Seepage of leachate from waste rock stockpiles
  - Impacted stormwater

Background - Statute Changes

- Senate Bill 206 (SB 206) passed by Legislature, signed by Governor on April 8, 2009

- SB-206 amended the Water Quality Act:
  - Rules shall specify methods for prevention of water pollution and monitoring of water quality
  - WQCC shall adopt specific rules for the dairy and copper mining industries

Rulemaking Process - Approach

- Develop Copper Mine Rules to protect and monitor the quality of the State's ground water resources

- Development of effective rules requires input from many stakeholders:
  - Industry
  - Public
  - State and federal agencies
  - Environmental groups
  - Academics

Rulemaking Process - Schedule

- January 2012: WQCC adopted schedule for development of Copper Mine Rules including timelines for:
  - Technical & Advisory committees
  - Issuance of a draft rule to the public
  - Public meetings
  - Stakeholder negotiations
  - Public hearing

Rulemaking Process - Schedule

- January 2012: NMED created Technical and Advisory Committees to advise the agency on appropriate regulations to be proposed for adoption by the WQCC

- January-July 2012: NMED met monthly with Technical & Advisory Committees to gather input and review proposed rules

Rulemaking Process - Schedule

- September 13, 2012: NMED publically issued a draft of the Copper Mine Rule

- September 25-26, 2012: Conduct public meetings in Albuquerque and Silver City on draft Copper Mine Rule

Rulemaking Process - Schedule

- By October 12, 2012: Conduct stakeholder negotiations on content of the draft Copper Mine Rule

- By October 30, 2012: Submit petition for hearing and proposed rules to WQCC & ask WQCC to set a hearing for January 2012

- On January 8, 2013: Hearing before WQCC on proposed rules

Draft Copper Mine Rules

NMED Ground Water Quality Bureau

Draft Copper Mine Rules

- This presentation is a brief overview of the draft, including key portions of the following:
  - Design, Construction & Operation Requirements
  - Monitoring Requirements
  - Contingency Requirements
  - Closure Requirements
  - Additional Requirements

Design, Construction and Operation Requirements

Design, Construction & Operation Requirements

These requirements describe how the following Copper Mine facilities shall be designed and operated to protect ground water quality:

- Process water and impacted stormwater impoundments
- Leach stockpiles
- Waste rock characterization and management
- Tailing impoundments
- Pipelines and tanks

Design, Construction & Operation Requirements

Engineering

- Design and construction of new facilities regulated under Discharge Permits are required to be engineered by a New Mexico licensed professional engineer consistent with the provisions of the New Mexico Engineering and Surveying Practices Act as applicable

Design, Construction & Operation Requirements

Process water and stormwater impoundments

- New process water impoundments are required to have double synthetic liners with a solution collection system between liners.

- New impacted stormwater impoundments are required to have single synthetic liners and be designed to contain stormwater runoff generated from a 100-year, 24-hour rainfall event

Design, Construction & Operation Requirements

Existing Impoundments

- Existing impoundments are not required to be replaced as long as the impoundment:
  - Has integrity and is not causing ground water contamination

    or

  - It is covered by a variance

Design, Construction & Operation Requirements

New Leach Stockpile Facilities

- New leach stockpile facilities are required to be placed in an engineered liner system consisting of:
  - Compacted subbase
  - Synthetic liner
  - Solution Collection System

Design, Construction & Operation Requirements

New Waste Rock Stockpiles

- All waste rock must be characterized for potential to generate acid and release water contaminants and be managed under a material handling plan
- Stormwater must be diverted around stockpiles
- Drainage must be collected from base of piles
- Interceptor wells must be installed to collect ground water impacted by leachate
- NMED may require liner system

Design, Construction & Operation Requirements

New Tailings Impoundments

- Designed according to plans of a qualified New Mexico licensed professional engineer
- Drainage must be collected
- Interceptor wells must be installed to collect ground water impacted by drainage
- NMED may require liner system

Design, Construction & Operation Requirements

New Pipelines and Tanks

- Designed of impermeable materials
- Pipeline integrity monitoring system required
- Containment berms around tanks
- Secondary containment system for buried below-grade tanks

Monitoring Requirements

Monitoring Requirements
Meters

- Meters shall be installed to measure monthly volumes of:
  - Process Water
  - Leach solutions applied
  - Tailing discharges
  - Fluids collected in solution collection systems

Monitoring Requirements

Monitoring wells

- Monitoring wells shall be installed to monitor ground water quality around open pits and hydrologically downgradient of:
  - Leach stockpiles
  - Waste rock stockpiles
  - Tailing impoundments
  - Process water impoundments
  - Impacted stormwater impoundments

Monitoring Requirements

Ground Water Quality

- Ground water shall be sampled from monitor wells on a quarterly basis
- Samples shall be analyzed for water contaminants related to Copper Mines
- Develop ground water flow direction maps on a quarterly basis using data associated with all monitoring wells

Monitoring Requirements

Surface Water & Stormwater Quality

- Surface water samples shall be collected from perennial streams on a quarterly basis
- Impacted stormwater impoundments shall be sampled on an annual basis
- Samples shall be analyzed for water contaminants related to Copper Mines

Contingency Requirements

Contingency Requirements

- Ground water exceedances:
  - Submit and implement a corrective action plan that proposes source control measures
  - May be required to implement an abatement plan in accordance with WQCC Abatement Rules
- Replacement of inadequately located monitoring wells.

Contingency Requirements

Contingency requirements also address operational issues including:

- Exceedance of permitted maximum daily discharge volume
- Damaged or incorrectly sized impoundments
- Spills
- Unstable slopes of leach stockpiles, tailing impoundments & waste rock stockpiles

Contingency Requirements

Contingency requirements also address closure issues including:

- Erosion of a cover system, ponding of water on covers and compromised stormwater conveyance structures
- Water management and treatment system failures
- Interim emergency water management

Closure Requirements

Closure Requirements

- A Copper Mine must submit a closure plan that addresses:
  - 100 yr. design storm events for stormwater conveyance structures
  - Long term slope stability of tailing impoundments, leach stockpiles & waste rock stockpiles
  - Surface regrading of tailing impoundments, leach stockpiles & waste rock stockpiles

Closure Requirements (continued)

- Ground water criteria for open pits
- Surface water management
- Cover systems for tailing impoundments, leach stockpiles & waste rock stockpiles
- Process solution reduction plans
- Closure water management & treatment plan
- Closure of impoundments

Closure Requirements (continued)

- Closure of pipelines, tanks & sumps
- Closure of milling, concentrating and smelting areas
- Post-closure ground water and surface water monitoring
- Notification of closure actions
- Post-closure monitoring and maintenance

Additional Requirements

Additional Requirements

- Setbacks for new impoundments, leach stockpiles, waste rock stockpiles, tailing impoundments:
  - Greater than 500 feet from a private domestic water well or spring that supplies water for human consumption; or
  - greater than 1000 feet of any water well or spring that supplies water for a public water system as defined by Part 20.7.10 NMAC
- Comprehensive application submittals

Additional Requirements – Financial Assurance (FA)

- FA required to guarantee copper mines are closed in a manner to prevent and abate water pollution
  - FA amount is based upon the cost for a third party to conduct closure acitivies

- Mirrors Mining and Minerals Division Rules to streamline and avoid conflicts in FA requirements

Summary

- NMED is required to develop rules for copper mines
  - Goal: Submit rule petition to WQCC in October 2012.
- Draft regulations are designed to protect ground water quality.
  - Design, operational, monitoring, contingency, closure and other requirements have been included.
- **We want to hear from YOU!**

Information & Comments

Draft copper mine rule can be viewed online at **www.nmenv.state.nm.us/gwb**.

You may contact NMED or submit comments to:

Email: **coppermine.reg@state.nm.us**

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

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

Please provide comments no later than **October 12, 2012**.