Ground Water Protection Rules

For Copper Mines

New Mexico Environment Department

Ground Water Quality Bureau
Ground Water Quality Bureau
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

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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
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

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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
  - 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

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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 activities

- 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
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      Attn: Comments on Copper Mine Rules

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Please provide comments no later than October 12, 2012.

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