MPCA Permitting for Metallic Mining Facilities

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Overview

- Background
- MPCA Role
- Air Quality Issues
- Water Quality Issues
- Summary
Mesabi Iron Range
Scale

Minntac Tailings Basin
Downtown Minneapolis
Iron Range Mining Projects

- Facility Expansions, Modifications
  - Keetac – Line 1 Restart, Mine Expansion
  - United Taconite – Alternate Fuels
- New Processes
  - Mesabi Nugget – Mining and Processing
  - Magnetation – Iron Recovery
  - Essar Steel – Integrated Steelmaking
- Metallic Nonferrous Development
  - Polymet – Copper, Nickel, Others
MPCA Role: Permitting

- Air Emissions (PSD/Title V)
- Water Discharge (NPDES/SDS)
- Construction Stormwater
- Industrial Stormwater
- Section 401 Certification (wetlands)
- Storage Tanks
- Solid Waste
- Hazardous Waste
Public Involvement

- Public Comment Period Required for MPCA Air, Water Permits
  - 30 Days for Review and Comment
  - Public Informational Meetings
  - MPCA Responds to Comments

- MPCA Citizens Board
Major Air Issues

- Regional Haze / Visibility
- Fine Particulate Matter (PM2.5)
- Climate Change/Greenhouse Gases
- Mercury
- Fibers
Mercury

- **Current Conditions**
  - 2/3 of Lakes, Rivers Impaired Due to Mercury
  - Most (>95%) Mercury Contamination From Air Sources

- **Mining Facilities Release Mercury from Fuels, Ore**
  - No Proven Controls
Projected Mercury Emissions 2005-2025

Based on reduction targets established by the Strategy Work Group

- Difficult to Categorize
- Emissions Incidental to Material Processing (mostly mining)
- Largely Resulting from the Purposeful Use of Mercury
- Incidental to Energy Production

Hypothetical actual emissions. Emission may rise temporarily between goals. Reductions may occur earlier than target date.

TMDL goal of 789 lb
Mercury: Next Steps

- Total Maximum Daily Load (TMDL) Implementation Plan
  - New & Expanding Sources
  - Mercury Control Technology Development

- Regional, National, International Reductions Needed
Major Water Issues

- Sulfate Discharges
- Acid Mine Drainage
- Inter-Basin Water Transfer
- Mercury
Sulfate

► Sources
  • Wet Air Pollution Control Equipment
  • Mine Pit Dewatering, Basin Seeps

► Issues
  • Wild Rice
  • Mercury Interaction
Mercury Methylation

$\text{SO}_4^- = \text{CH}_3\text{Hg}^+ $

Sulfate-reducing bacteria

$\text{C}_{\text{organic}}$
Acid Mine Drainage

- Nonferrous Mining Extracts Sulfide Minerals
- Metals and Acid Created From Sulfide, Water, Oxygen
- Dissolved Metals and Acid May Impair Watersheds
Acid Mine Drainage Prevention

- Thorough Environmental Review & Permittting
- Possible Preventative Measures
  - Waste Rock Processing to Remove Sulfur
  - Sub-aqueous Waste Rock Disposal (Reduce Oxygen Exposure)
  - Chemical Additions to Stockpiles
Inter-Basin Water Transfer

- Great Lakes Basin Compact Precludes Transfer of Water Between Basins
- Several Basins Meet on Iron Range
- Mining Facilities Must Watch Potential Transfers
Summary

- Existing Rules, Regulations Make Permitting (Appropriately) Rigorous
- New Regulations, Issues Continue
- New Projects Proposed
- MPCA Working on Creative Solutions