

Overview of Environmental Review and Permitting for Metallic Mines in Minnesota

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Jennifer Engstrom
Division of Lands and Minerals
MN Department of Natural Resources

Overview

- Overview of environmental review
- Permit to Mine for ferrous (iron ore and taconite) operations
- Permit to Mine for non-ferrous
- Project highlights and recent permitting

Environmental Review

- The Minnesota Environmental Policy Act (MEPA) requires that an environmental impact statement (EIS) be conducted for all new mining operations.
- DNR is often the Responsible Government Unit (RGU).
- Can also involve federal government depending on specific conditions at the site (land ownership, wetlands, etc.)

What Environmental Review Does

- Helps decision makers understand the environmental and socioeconomic impacts of a proposed project
- Takes a hard look at the project for potentially significant impacts using the best available data
- Explores ways to avoid, minimize, or mitigate potential environmental impacts through alternate designs, technologies, and practices

What Environmental Review Does

- Gives the public early access to decisions makers with multiple opportunities for public input
 - Public notice during scoping
 - Public notice of draft environmental impact statement (EIS)
 - Two public meetings (during scoping and for draft EIS)
 - Public notice of final EIS
- Prohibits issuance of final permits until environmental review process is complete

What Environmental Review Does Not Do...

- Approve or deny proposed project
- Guarantee that permits can be issued
- Analyze every conceivable impact
- Answer every question

Permitting

- MN Pollution Control Agency
 - National Pollution Discharge Elimination System / State Discharge System Permit ('Water Quality Permit')
 - Permit authorizing the treatment and disposal of wastewaters, including mine dewatering, process wastewater, stockpile drainage, sewage, and storm water
 - Air Emission Permit ('Air Quality Permit')
 - Permit authorizing construction, modification, and/or operation of an air emission facility
 - Other Permits (selected)
 - Liquid Storage Tank Permit
 - Solid Waste Facility (Landfill) Permit
 - Hazardous Waste Generator License

Permitting

- MN DNR Division of Ecological and Water Resources
 - Water Appropriation Permit
 - conserve and utilize the water resources of the state in the public interest
 - Public Waters Permit
 - minimize adverse environmental effects, preserve water resources, and provide for future water use
 - Dam Safety Permit
 - ensure safe construction of tailing basin dams

Permitting

- MN DNR Division of Lands and Minerals
 - Permit to Mine
 - Taconite (iron ore/scram), non-ferrous, [peat]
 - Control adverse environmental effects of mining and provide for reclamation and good mining practices
 - Wetland Replacement Plan
 - no net loss

Minnesota Statute

RECLAMATION OF LANDS

93.44 DECLARATION OF POLICY

In recognition of the effects of mining upon the environment, it is hereby declared to be the policy of this state to provide for the reclamation of certain lands hereafter subjected to the mining of metallic minerals or peat where such reclamation is necessary, both in the interest of the general welfare and as an exercise of the police power of the state, to **control possible adverse environmental effects of mining**, to **preserve the natural resources**, and to encourage the **planning of future land utilization**, while at the same time **promoting the orderly development of mining**, the encouragement of good mining practices, and the recognition and identification of the beneficial aspects of mining.

Permit to Mine Taconite and Iron Ore

- Permit to Mine application
 - Corporation organizational data and certificates
 - Environmental setting maps
 - Environmental setting analysis
 - Mining and reclamation maps
 - Mining and reclamation plans
 - Financial assurance

Permit to Mine Taconite and Iron Ore

- Examples of components in application
 - Geology and location of ore body
 - Forest and soil inventories
 - Management of runoff
 - Stockpile design and siting
 - In pit disposal
 - Tailings basin design and operation plans
- Noticed to the public

(not an all inclusive list)

What is being reclaimed?

- Open pits
- Waste rock and surface material stockpiles
- Tailings basins
- Buildings and equipment
- Infrastructure no longer needed for any other use
- Revegetation of disturbed ground
- Wetlands by restoration or replacement

(not an all-inclusive list)

Permit to Mine Non-Ferrous

- Rules promulgated in early 1990's
- No non-ferrous mine in MN
- Similar components as with taconite operations
- Important differences in financial assurance and waste characterization

Financial Assurance Required Components

- Contingency reclamation plan
 - Plan to reclaim the site if operations cease within the first year
 - Based on third party costs
 - No salvage value included for sale of wastes, property, land or other assets
 - Updated annually based on size of project each year
 - Becomes therefore the plan to close and financially assure the site at any point in time

Financial Assurance Adequacy Determination

- Is amount sufficient to cover reclamation costs, including closure and post-closure maintenance, and any commissioner-ordered corrective action?
- Are funds payable to commissioner and available when needed?
- Is the assurance valid, binding, and enforceable under law?
- Are funds free from impact by bankruptcy?

Waste Characterization

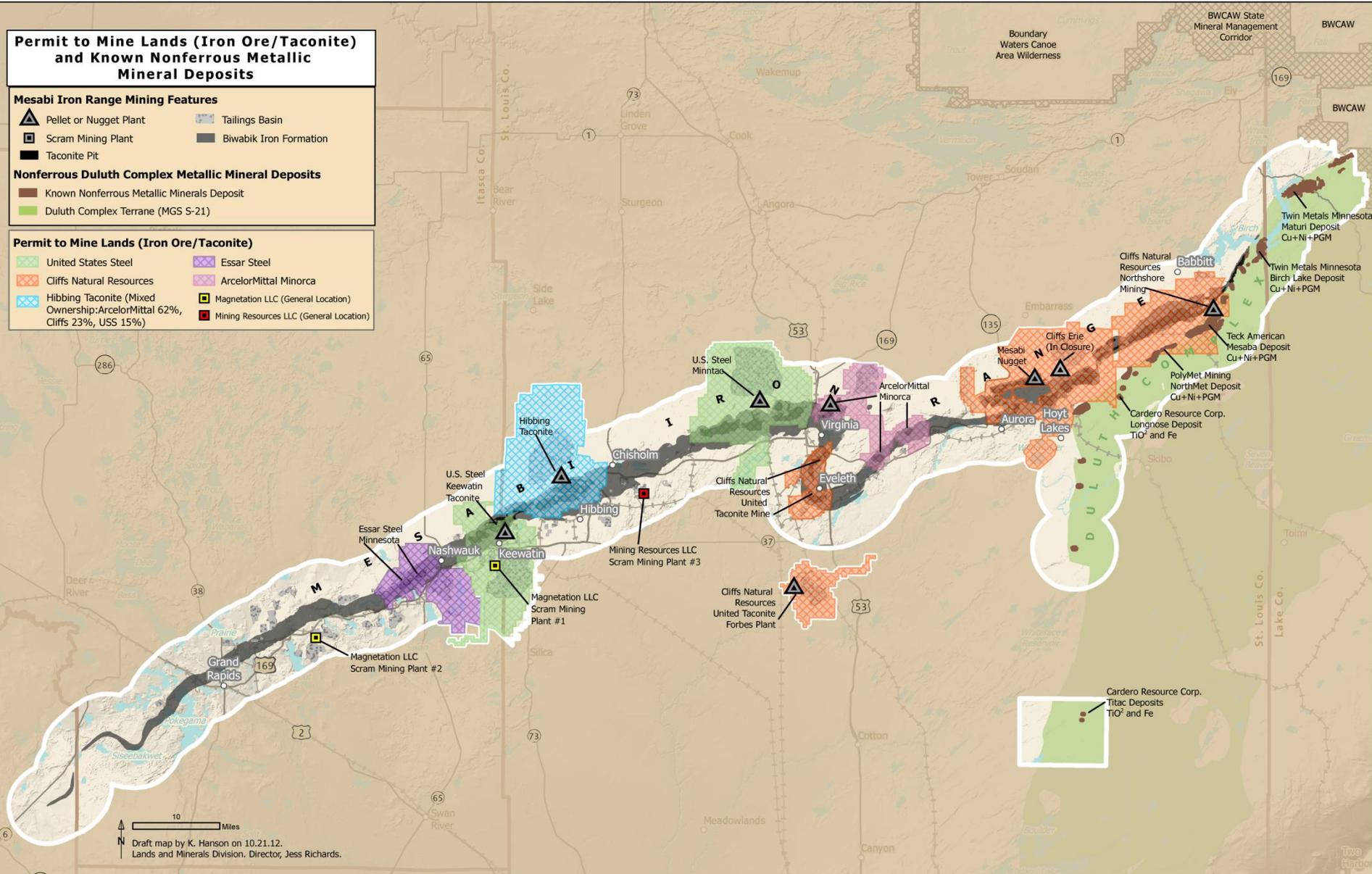
- Poses some environmental challenges that must be dealt with carefully
- Diligent evaluation during ER and permitting
- Permitting projects that comply with our rules
 - Reduce impacts, mitigate unavoidable impacts, ensure that area is left in a condition to protect natural resources & minimize need for maintenance
- Combination of laboratory testing, modeling, and prediction to evaluate potential impact of operation

Mesabi Iron Range and Duluth Complex Mineral Deposits Permit to Mine Lands (Iron Ore/Taconite)

Permit to Mine Lands (Iron Ore/Taconite) and Known Nonferrous Metallic Mineral Deposits

- Mesabi Iron Range Mining Features**
- ▲ Pellet or Nugget Plant
 - Scram Mining Plant
 - Taconite Pit
 - Tailings Basin
 - Bwabik Iron Formation
- Nonferrous Duluth Complex Metallic Mineral Deposits**
- Known Nonferrous Metallic Minerals Deposit
 - Duluth Complex Terrane (MGS S-21)

- Permit to Mine Lands (Iron Ore/Taconite)**
- United States Steel
 - Cliffs Natural Resources
 - Hibbing Taconite (Mixed Ownership: ArcelorMittal 62%, Cliffs 23%, USS 15%)
 - Essar Steel
 - ArcelorMittal Minorca
 - Magnetation LLC (General Location)
 - Mining Resources LLC (General Location)



Potential Connections to Forestry Planning

- Large areas stripped prior to construction and mining
- Large areas held in “reserve” pending mine expansion or development
- Long term land use plans created at early stages and as operations change
- Smaller areas cleared for exploration or bulk samples
- Reclaimed areas sometimes managed for crop or biomass
- Reclaimed areas could be more available to tree planting (IRRRB)
- Mines seem to be more open to creative end use and future planning (Laurentian Vision Partnership)
- Some taconite plants planning for multiple fuel usage

Summary

- System in place to conduct environmental review
- Series of permits in rule to regulate both ferrous and non-ferrous mines
- Increased activity lately in permitting taconite expansions, scam, and non-ferrous