

Environmental Review and Permitting for Ferrous and Non-ferrous Mining: Overview and Current Status

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January 20, 2010

Overview of Presentation

- Brief description of environmental review
- Listing of permits required by mining operations
- Permits Required
 - Federal and state permit listing
 - Permit to mine
- [PCA Permitting]
- Individual facility status
- Brief description of current legislation

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).
- Often involves federal government depending on specific conditions at the site (land ownership, wetlands, etc)

Triggers for Environmental Review: Metallic Mineral Mining and Processing

- Mandatory EAW
 - For mineral deposit evaluation of deposits other than natural iron ore or taconite
 - For expansion of a stockpile, tailings basin, or mine by 320 or more acres
 - For 25 % or more expansion of a plant
- Mandatory EIS
 - Mineral deposit evaluation of 1,000 tons or more of radioactive material
 - For construction of a new tailings basin for a metallic mineral mine
 - For construction of a new metallic mineral processing facility
- Discretionary EAW or EIS
 - When governmental unit with approval authority or proposer deems potential for significant impacts

What Environmental Review Does

- Helps permit/approval 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, or 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)
 - Public notice of final EIS
 - Two public meetings (during scoping and for draft EIS)
- Prohibits issuance of final permits until environmental review process is complete

What Environmental Review Does Not Do...

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

Permitting

- US Army Corps of Engineers
 - Section 404 (wetlands under Clean Water Act)
 - Section 106 Consultation (MN Historic Preservation Office)
- US Fish and Wildlife
 - Section 7 Endangered Species Act
- US Forest Service
- MN Department of Health
 - Radioactive Material registration
 - Non-community public water supply system permit
 - Well-head Protection Plan
- Local zoning permits
- Local building permits

(not an all-inclusive list)

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
 - Section 401 Water Quality Certification (wetlands)
 - General Storage Tank Permit (above ground tanks)
 - Solid Waste Facility (Landfill) Permit
 - Hazardous Waste Generator License
 - Waste Tire Storage permit

(not an all-inclusive list)

Permitting

- MN DNR Division of Waters
 - 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
- MN DNR
 - Endangered Species Taking Permit
 - Burning Permit

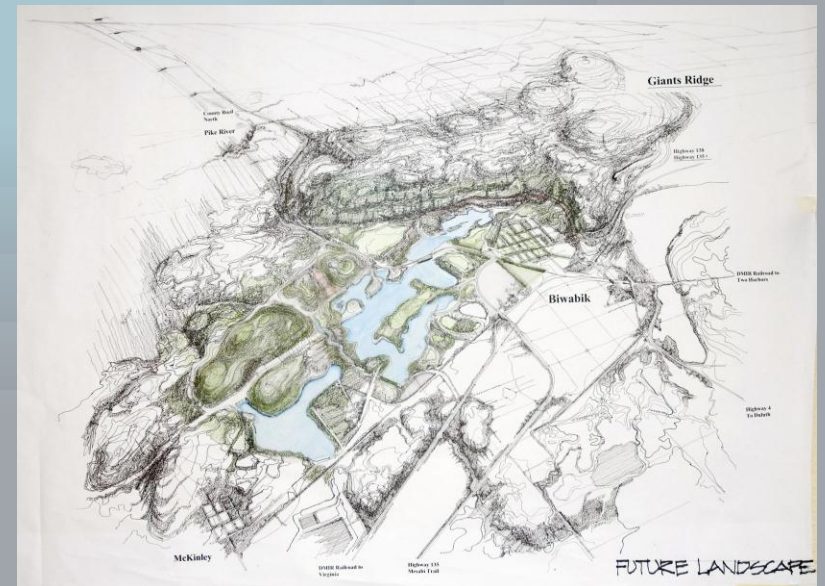
(not an all-inclusive list)

Permitting

- MN DNR Division of Lands and Minerals
 - Permit to Mine
 - ferrous (taconite, iron ore, and scam), non-ferrous, peat
 - control adverse environmental effects of mining and provide for reclamation and good mining practices
 - Wetland Replacement Plan
 - no net loss

Mineland Reclamation Act

- Passed in 1969
- Statutes 93.44 to 93.51
- Authorized commissioner to adopt rules providing for reclamation of lands disturbed by metallic mining



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/Iron Ore and Non-Ferrous

- Examples of components in application
 - Corporation organizational data and certificates
 - Geology and location of ore body
 - Forest and soil inventories
 - Management of runoff
 - Mining and reclamation maps and plans
 - Stockpile design and siting
 - In pit disposal
 - Tailings basin design and operation plans

(not an all inclusive list)

Permit to Mine Non-Ferrous

- Currently no non-ferrous mine in Minnesota
- Similar components as with taconite operations
- Important differences in waste characterization and financial assurance

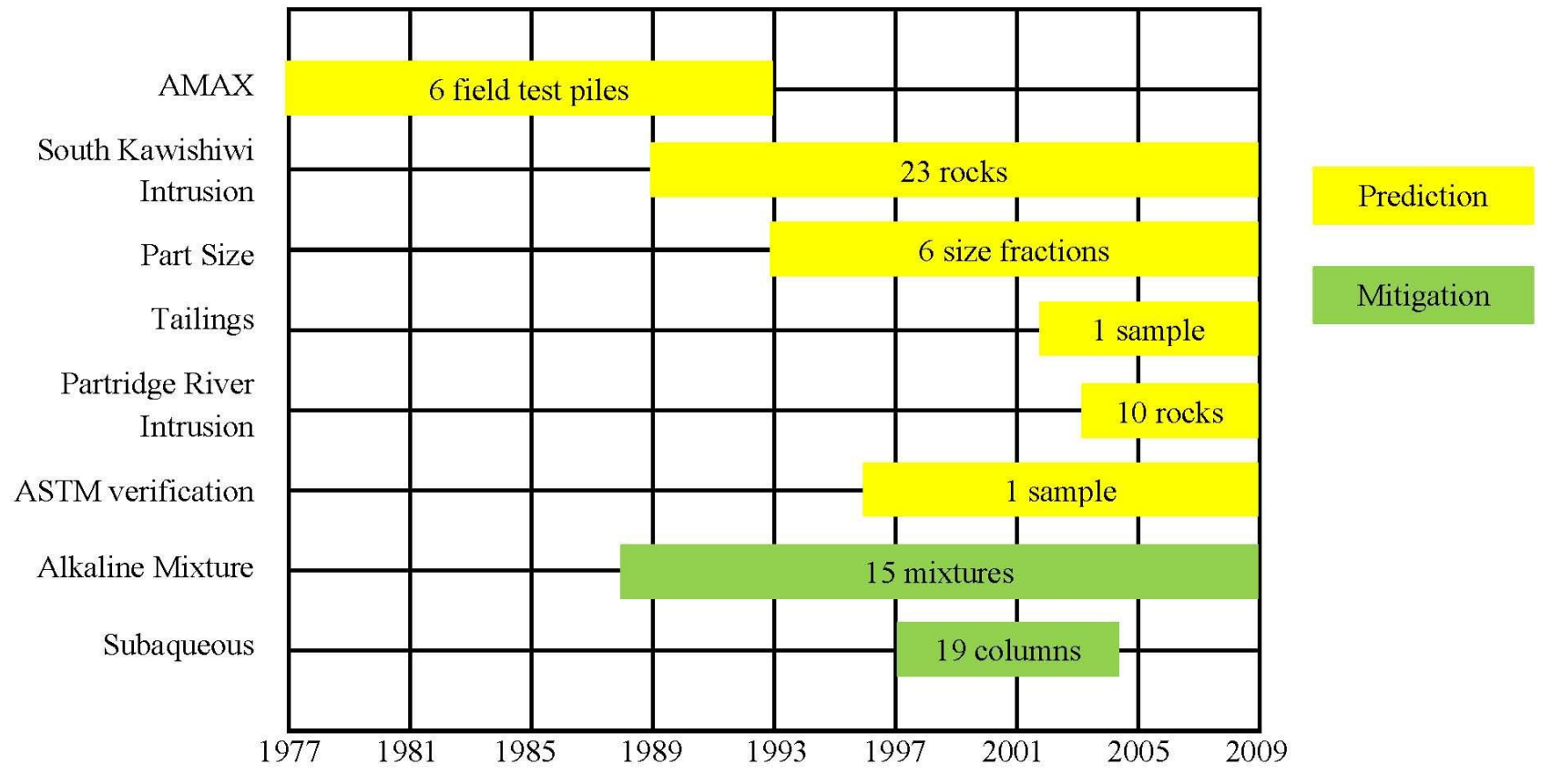
Permit to Mine: Non-Ferrous Waste Characterization

- Conference to outline analyses and tests to characterize waste materials
- Chemical, mineralogical, petrologic, and leaching characteristic results provided
- Results provided
 - At time of permit application
 - To agencies establishing water quality and monitoring standards
 - Throughout life of mine

Waste Characterization

- Combination of laboratory testing, modeling, and prediction to evaluate potential impact of operation
- Lands and Minerals has been conducting research on sulfur containing rocks for 30 years
- Anticipation of mining in the Duluth Complex (DC) rock in Minnesota

DNR Duluth Complex Rock Prediction Research



Other rock types have also been tested.

Waste Characterization



In the lab and in the field

Permit to Mine: Non-Ferrous Financial Assurance

- Ensure that there is a source of funds to be used by the commissioner if the permittee fails to perform:
 - reclamation activities including closure and postclosure maintenance needed if operations cease
 - corrective action if noncompliance with design and operating criteria occurs
- Bankruptcy proof, evaluated by third party, available when needed, sufficient amount



Project Updates

Essar Steel MN

- Install different (larger) furnace than originally permitted
- Requires Supplemental EIS
- Requires amended permits
 - Air quality
 - Permit to Mine

Keewatin Taconite

- Proposed restart of idled furnace, increased mining rate
- Voluntary EIS conducted
- EIS deemed adequate on Dec. 20, 2010
- Amended permits required (noticing to start soon)
 - Air quality
 - NPDES
 - Permit to Mine

Hibbing Taconite

- Needed hydroseparator to expand life of tailings basin
- Recently amended Permit to Mine for hydroseparator
- Hydroseparator constructed and coming online

Magnetation

- Process old tailings to remove iron units
- Currently have two facilities
 - Mesabi Chief Basin 3
 - Holman Basin/Trout Lake
- See potential at numerous basins along the iron range
 - Next one at Mesabi Chief 2
 - Need new permits

Minntac

- Proposed pit expansions
- Expected to require EAW
- Amended permits (to be determined)
 - Permit to Mine

United Taconite

- Longer term will want to expand pits across Highway 53
- Currently working on road relocation with MNDOT
 - EIS understood to be underway
- Would eventually lead to amended permits

Mesabi Nugget

- Constructed and operating Nugget plant
 - Did not require permit to mine
 - Needs renewed air and water quality permits
- Portion of old LTV site assigned to Nugget in 2007
- Want to mine from existing pits
- Requires EIS which is underway
- Water quality concerns discovered in process of EIS
- Currently adjusting mine plan to accommodate
- Will require amended permits

Northshore

- Proposed pit expansions that require moving Virginia Formation “Type II” waste rock
- Stockpile plans being reviewed
- Requires amended Permit to Mine

PolyMet

- DEIS released in Oct 2009; numerous comments
- Changes in project lead to requiring Supplemental DEIS
 - Mine site
 - Tailings basin
 - Plant site and processing
 - Land exchange with USFS
- Updated facility descriptions, modeling, impact prediction underway
- Moving ahead with financial assurance review on “legacy” components to facility related to plant site

Current Legislation

- Primarily aimed at reducing time for ER and permitting
 - HF1, SF1, SF42 essentially the same
- HF20 focuses more on EIS process modifications
 - Potentially remove socio-economic impacts
 - Remove public request for EAW option
 - Shorten time frames for completing various steps (with consequences)
- Each has authority for rulemaking where needed



Questions?