

An Overview of Environmental Review and Permitting of Metallic Metal Mines in Minnesota



SME Lunch and Learn



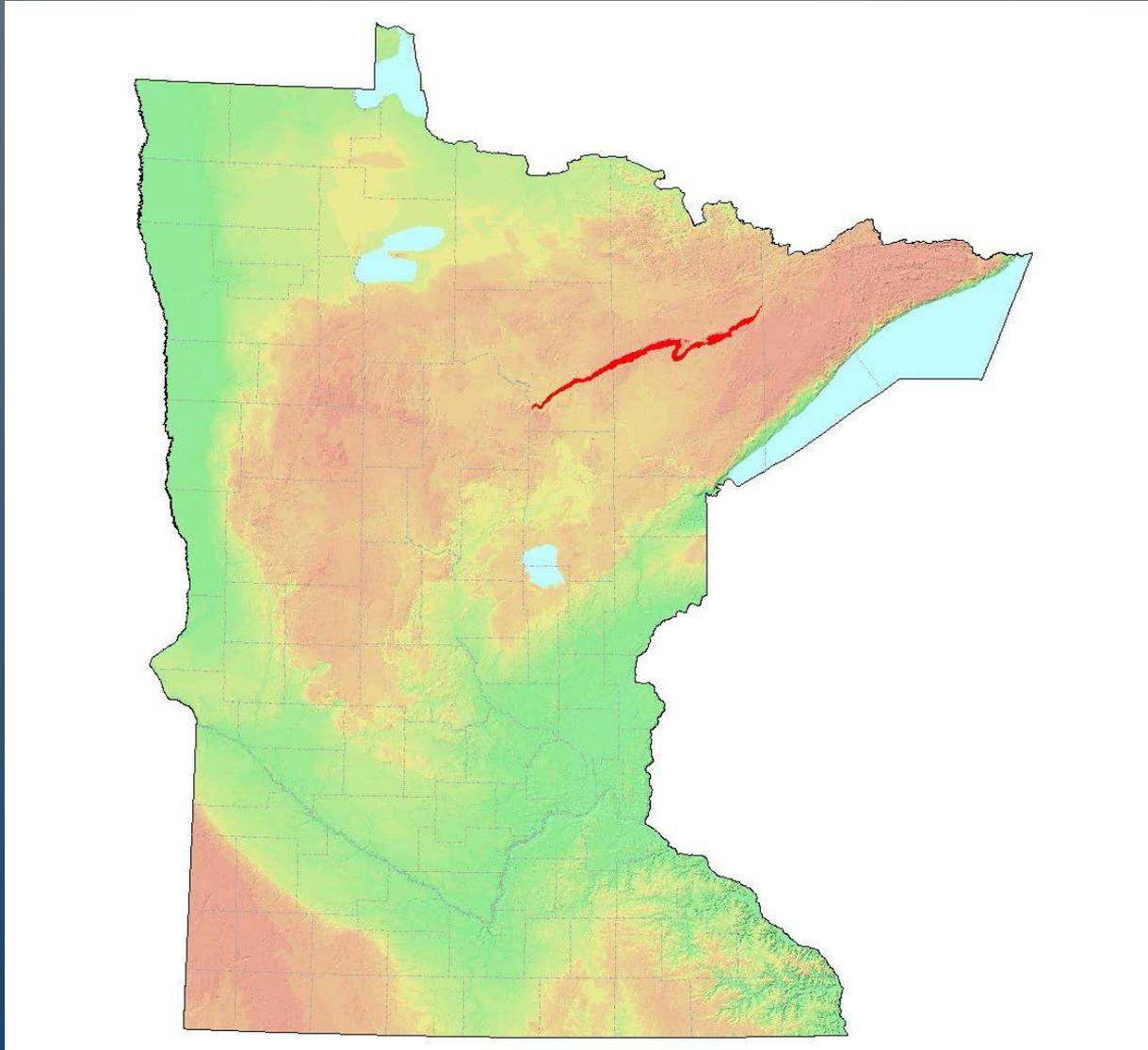
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Overview of Presentation

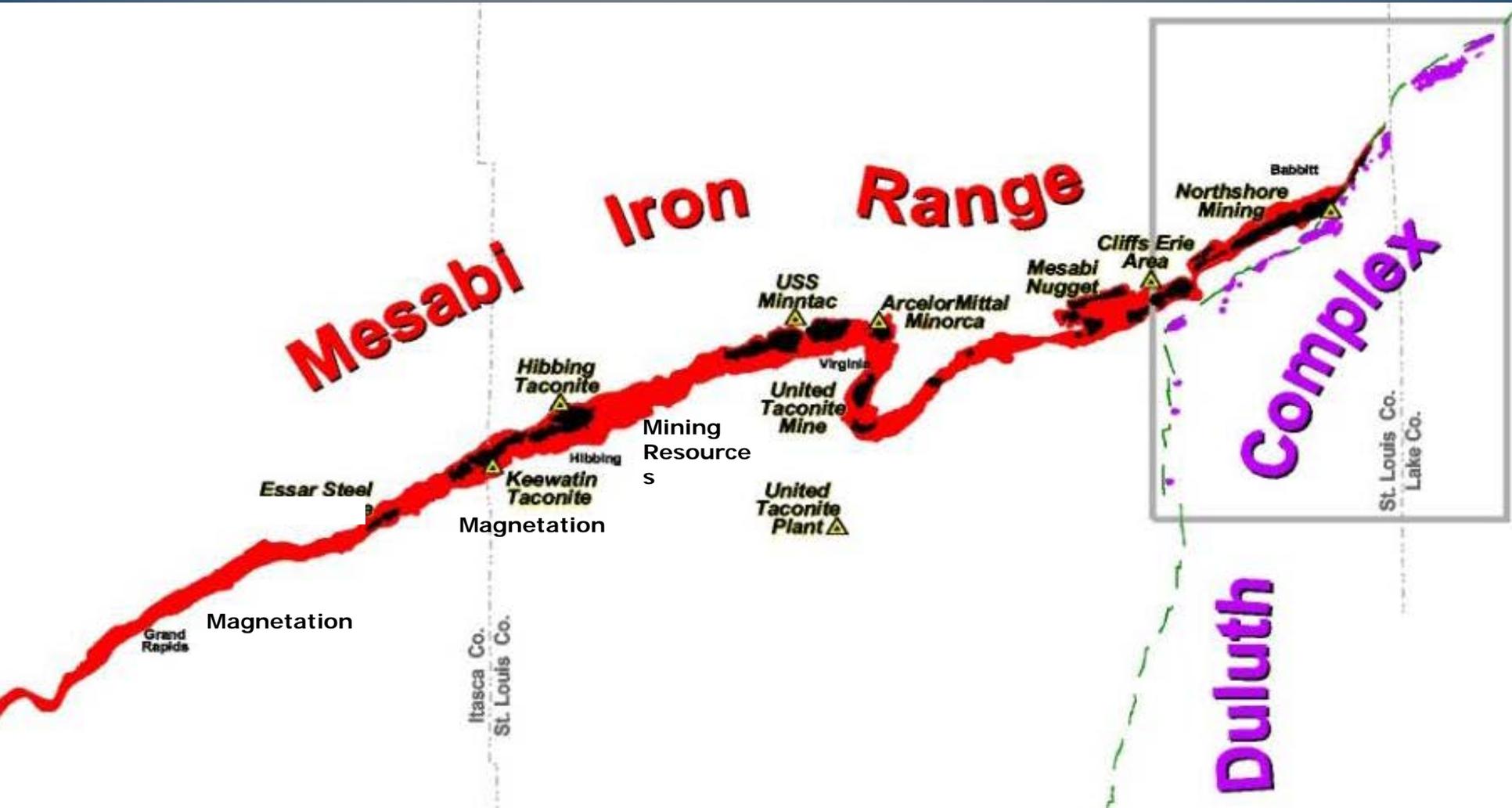
- Location of metallic mining in MN
- Brief description of environmental review
- Permits required by metallic mining operations
 - Federal and state permit listing
 - MPCA Permits
 - MNDNR
 - Waters
 - Permit to Mine

Minnesota's Mesabi Iron Range



Mesabi Iron Range

Active and Prospective Mining Areas



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 (NEPA) depending on specific conditions at the site (land ownership, wetlands, etc.)

MEPA Mining Triggers for ER: 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

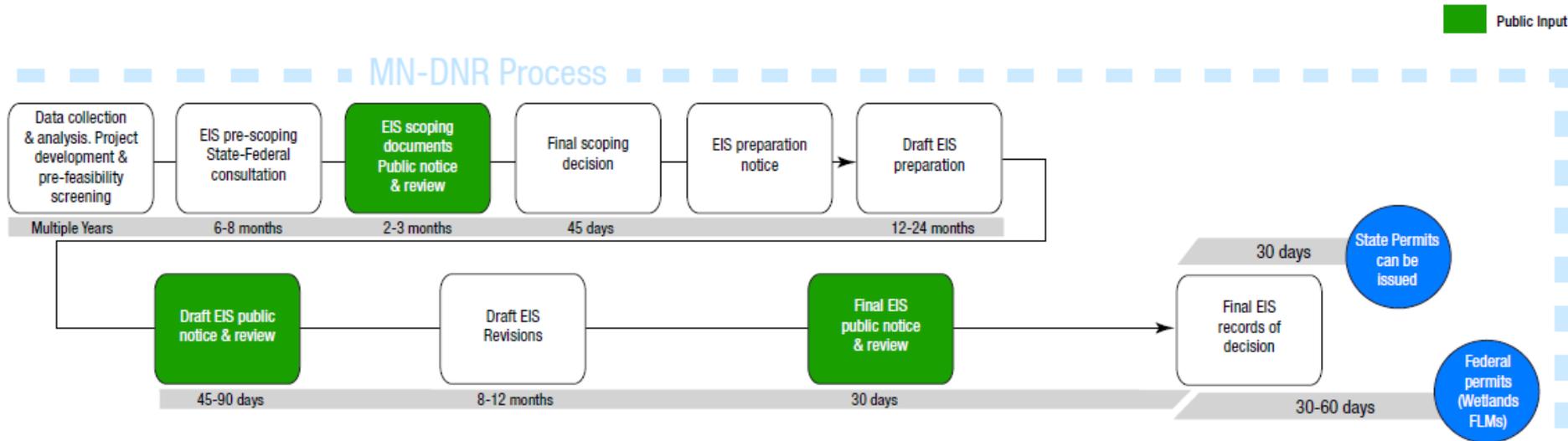
What Environmental Review Does

- 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
- [EIS] 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
 - Comment period for EAW
 - Public notice and meeting during scoping EAW
 - Public notice and meeting(s) of draft environmental impact statement (EIS)
 - Public notice of final EIS (with comment period)
- Prohibits issuance of final permits until environmental review process is complete

Public Input/Comment Opportunities



Conceptual Environmental Review (EIS) Timeline

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
- 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
 - 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
 - Endangered Species Taking Permit
 - Burning Permit

(not an all-inclusive list)

Permitting

- MN DNR
 - Permit to Mine
 - ferrous (taconite, iron ore, and scam), non-ferrous, [and peat]
 - control adverse environmental effects of mining and provide for reclamation and good mining practices
 - waste characterization
 - wetland replacement plan (WCA)
 - no net loss
 - annual reports and operating plans for life of mine

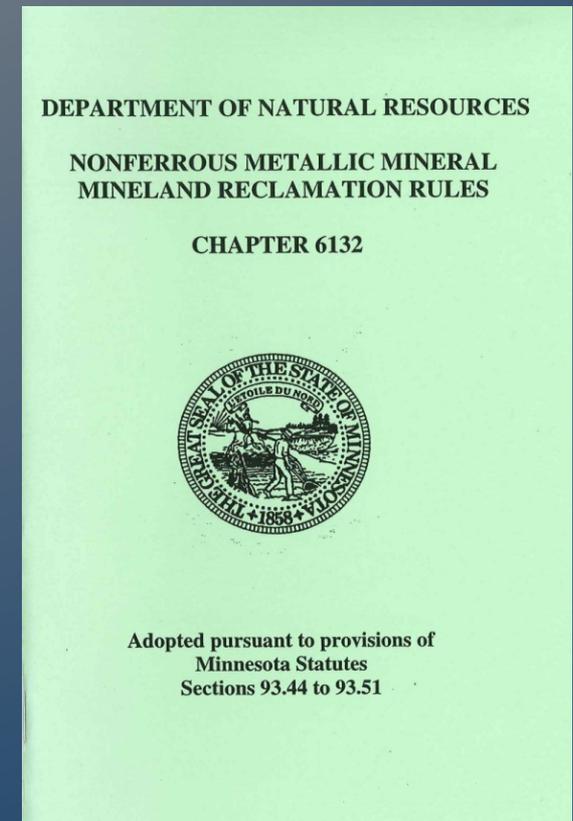
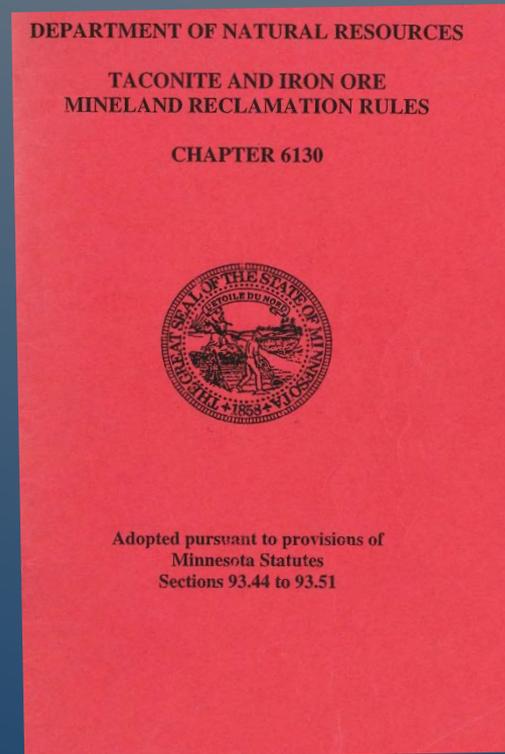
Mineland Reclamation Act

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



Rules to Implement the Laws

- Iron ore and taconite in 1980
- Non-ferrous (copper, nickel, etc.) in 1993



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)

Mineland Reclamation Act

What is being reclaimed?

- Open pits
- Stockpiles
- Tailings basin
- Buildings and equipment
- Rail and power lines
- Vegetation of disturbed ground
- Wetlands



Permit to Mine Non-Ferrous

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

Permit to Mine: Non-Ferrous Waste Characterization

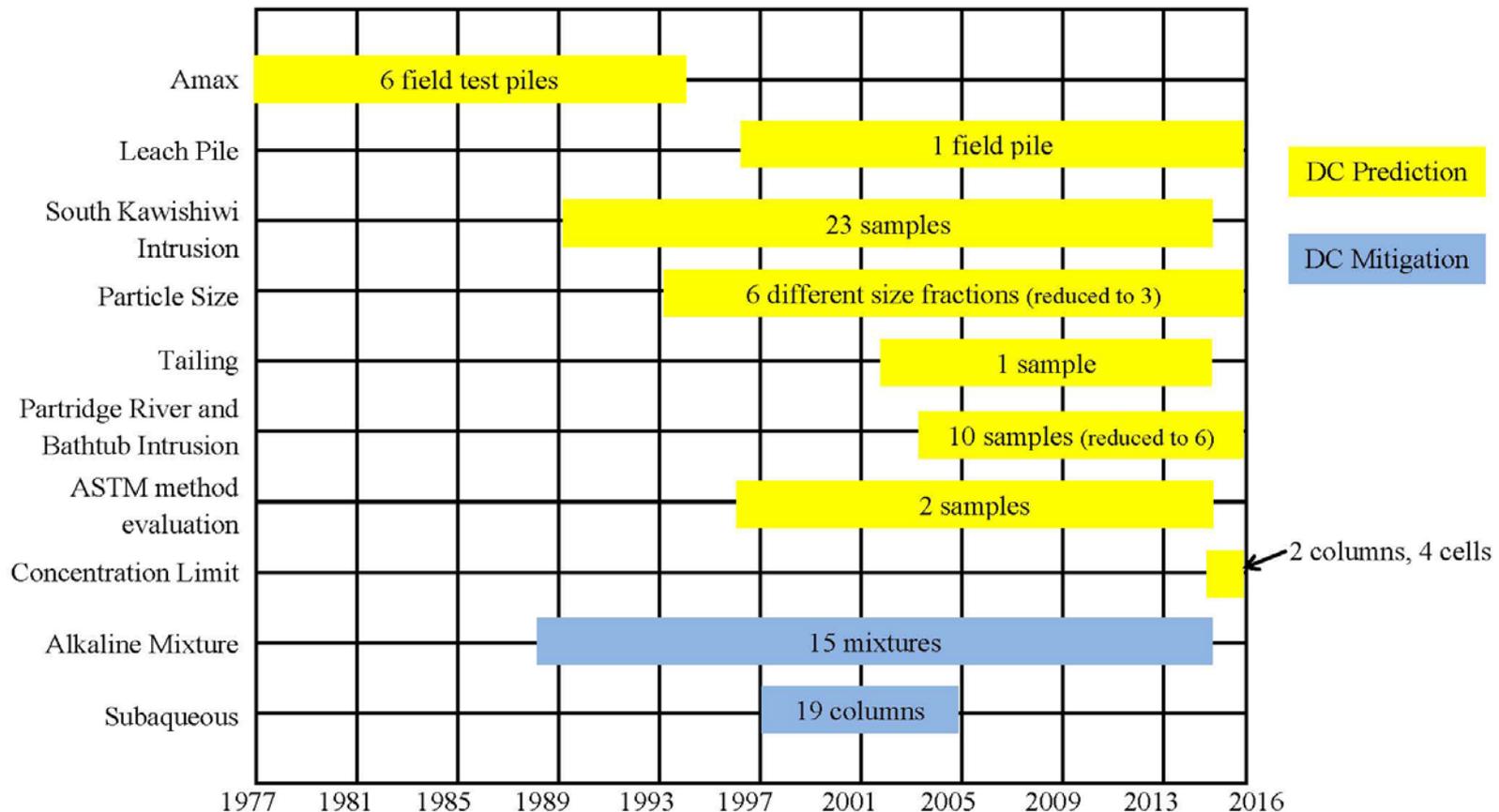
- Conference to outline analyses and tests to characterize waste materials
- Chemical, mineralogical, petrologic, and leaching characteristic results provided
- Results provided
 - At time of permit application
 - To agencies establishing water quality and monitoring standards
 - Throughout life of mine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

Waste Characterization

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

DNR Duluth Complex Rock Prediction Research

DNR Duluth Complex Rock Weathering Research



Other rock types have also been tested.

Waste Characterization

in the lab and
in the field



Continues today:

- cooperative applied research
- by the facilities

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
- *Can and do request similar assurance for ferrous*

Summary

- System in place to conduct environmental review to inform permitting decisions
- Series of permits in rule to regulate metallic metal mines
- Have a robust set of statutes and rules that require reclamation and closure
- Those statutes and rules have flexibility built in that allow for site specific influence over reclamation and ultimate land use

Thank you...

Questions?