Environmental Aspects of Mining and Mineral Law

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

Overview

- Brief overview of environmental review
- Permit to Mine for ferrous operations
- Permit to Mine for non-ferrous operations
- Laboratory research by Division of Lands and Minerals
- Current example of non-ferrous proposal

Environmental Review

- The Minnesota Environmental Policy Act (MEPA) requires that an environmental impact statement (EIS) be conducted for all new mining operations.
- DNR is usually 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 scoping notice and meeting
  - Public notice and meeting 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 a proposed project
- Guarantee that permits can be issued
- Analyze every conceivable impact
- Answer every question

Permitting

- MN DNR Division of Lands and Minerals
  - Permit to Mine
    - taconite (iron ore), non-ferrous, peat
    - control adverse environmental effects of mining and provide for reclamation and good mining practices
    - Wetland Replacement Plan
      - DNR is the LGU for the Wetland Conservation Act (WCA) on mining sites
      - 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
  - Performance bonds (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

(not an all inclusive list)

Permit to Mine – Taconite and Iron Ore

- When application deemed complete, advertised in legal newspaper
- Noticed for 4 weeks, once per week
- Public comment period is 30 days after last publication
- Written objection is cause for evaluating need for hearing
- If no objections, decision to grant, deny, or request more information made by commissioner

Permit to Mine – Non-Ferrous

- Rules promulgated in early 1990's
- Have not been implemented yet
- Similar components as with taconite operations
- Important differences in financial assurance and waste characterization

Permit to Mine – Non-Ferrous Financial Assurance

Subpart 1. **Purpose.** The purpose of financial assurance is to ensure that there is a source of funds to be used by the commissioner if the permittee fails to perform:

A. reclamation activities including closure and postclosure maintenance needed if operations cease; and

B. corrective action as required by the commissioner if noncompliance with design and operating criteria in the permit to mine occurs.

Ch. 6132.1200

Required Components of Financial Assurance

- Contingency reclamation plan
  - Plan to reclaim the site if operations cease within the first year
  - Based on third party costs
  - 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
- Corrective action plan, if needed
  - If non-compliance with approved design and operating criteria

Adequacy Determination of Financial Assurance

- 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?

Manage Financial Assurance

- Permittee must annually estimate costs necessary to conduct contingency reclamation and corrective action plans
- Commissioner may hire individuals with financial assurance expertise to advise
- Reasonable cost for financial assurance expertise shall be paid by the permittee
- No specific type of financial instrument is mandated
- Permittee released only when site fully reclaimed

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, reclamation, or replacement

(not an all-inclusive list)

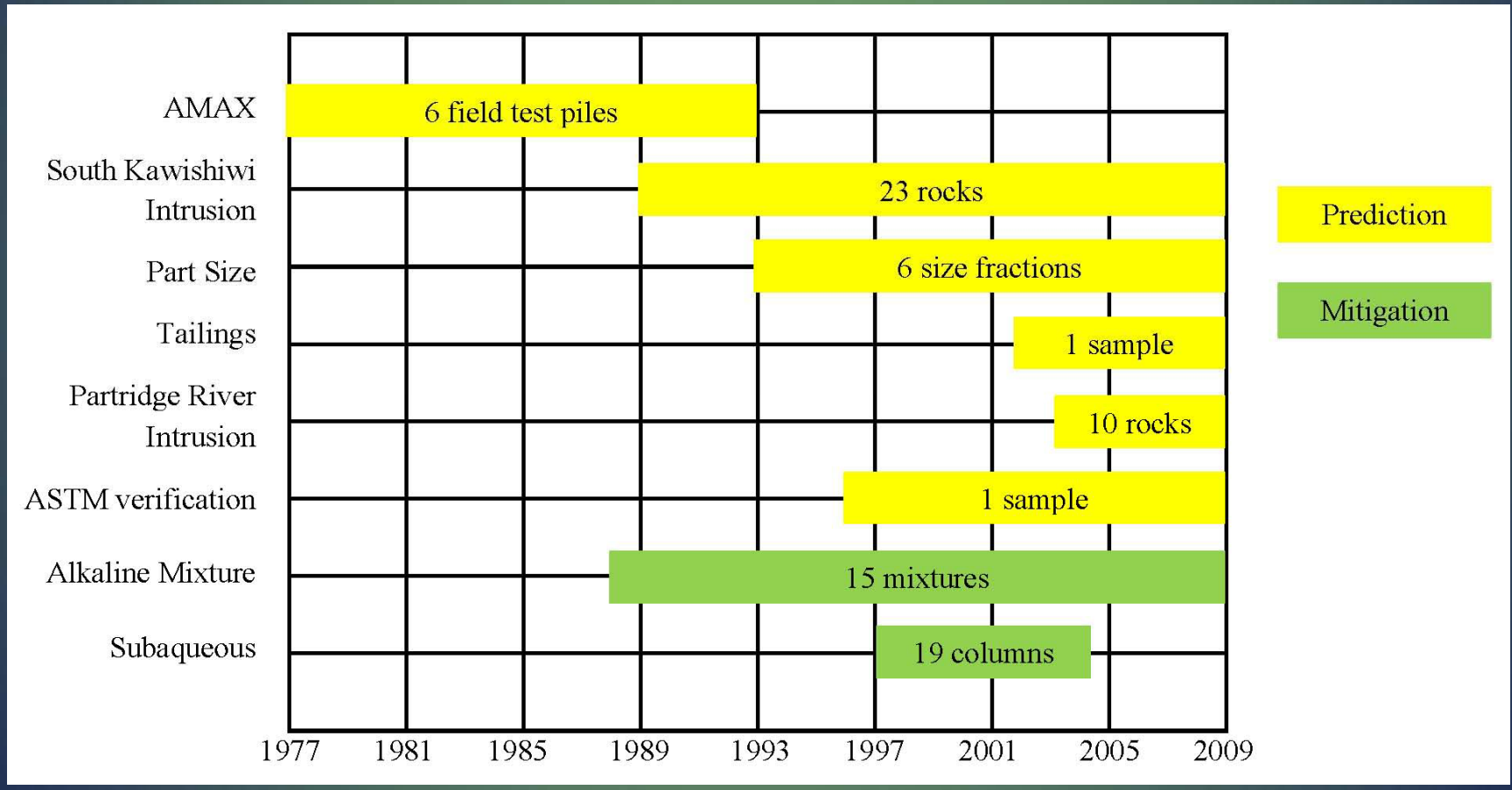
Copper/Nickel Mining in Sulfide-Bearing Rocks (Non-Ferrous)

- Poses some environmental challenges that must be dealt with carefully
- Diligent evaluation during environmental review and permitting
- Permit projects that comply with rules
  - Reduce impacts, mitigate unavoidable impacts, ensure that area is left in a condition to protect natural resources & minimize need for maintenance

Waste Characterization

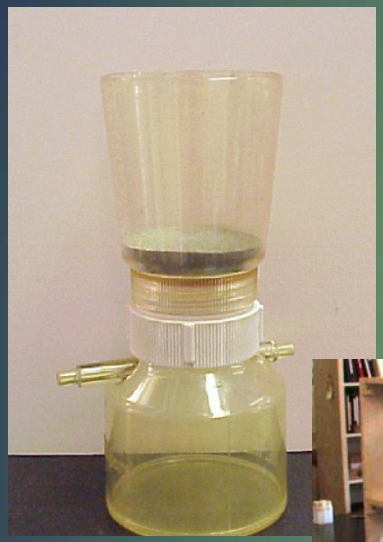
- Combination of laboratory testing, modeling, and prediction to evaluate potential impact of operation
- Lands and Minerals has been conducting research on sulfur containing rocks for 30 years
- Anticipation of mining in the Duluth Complex (DC) rock in Minnesota

DNR DC Prediction Research



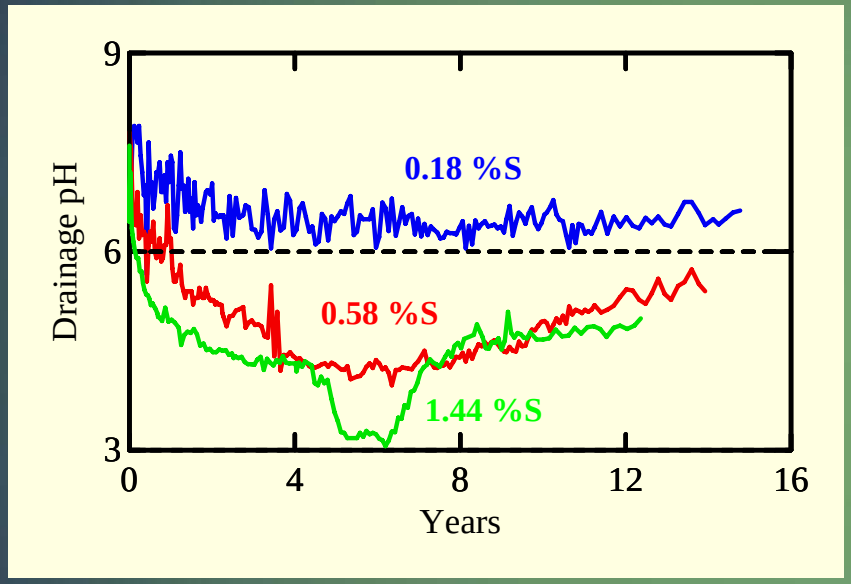
Other rock types have also been tested.

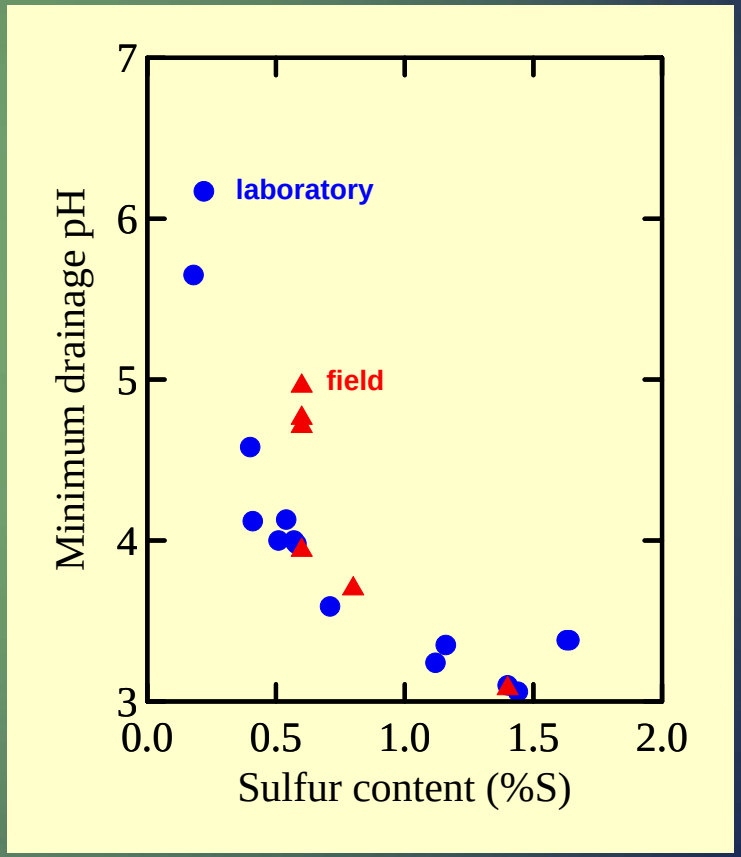
Waste Characterization



In the lab and in the field

Waste Characterization





- Compare results in lab and field
- Also use lab rates to predict and model water quality of proposed operation

Proposed Copper/Nickel Mine -- PolyMet

- A joint state and federal EIS is being drafted
- MN DNR and US Army Corps of Engineers (USACE) are lead agencies
  - MN DNR is RGU (regulatory governmental unit)
  - US Forest Service is a cooperating agency
  - Two tribes have formally requested cooperating agency status through the USACE
  - MN DNR has hired consultant to provide specific expertise and EIS drafting services

Summary

- System in place to conduct environmental review
- Series of permits in rule to regulate both ferrous and non-ferrous mines
- More recent developments in copper/nickel deposits calling into action State's knowledge of unique components of this type of mining