Lake Superior Binational Program
Mining in the Lake Superior Basin
January 13, 2009
What is non-ferrous mining?

- Non-ferrous (non-iron) metals in Northeastern Minnesota include:
  - Copper
  - Nickel
  - Platinum
  - Palladium
  - Gold
  - Cobalt
  - Titanium
Companies in Minnesota

♦ PolyMet Mining
  ♦ Franconia Minerals
    ♦ Duluth Metals
    ♦ Encampment Minerals
  ♦ Kennecott Exploration
    ♦ Teck
Why Minnesota?

• 4 Biiliiiiiillion tons!

– Possibly 5 or even more
Global Importance

- 2nd largest Copper deposit
  - 34 percent of U.S. resource

- 3rd largest Nickel deposit
  - 95 percent of U.S. resource

- 2nd largest PGM deposit
  - 75 percent of U.S. resource
Why Now?

- Technology
- Demand
America’s Minerals Baby

Every American Born Will Need...

1.309 lbs. Copper
1.576 Troy oz. Gold
19,815 lbs. Phosphate Rock
587,288 lbs. Coal
5,677 lbs. Bauxite (Aluminum)
19,245 lbs. Clays
19,245 lbs. Iron Ore
671 lbs. Zinc
1.61 million lbs. Stone, Sand, & Gravel
82,034 gallons Petroleum
928 lbs. Lead
65,480 lbs. Cement
29,608 lbs. Other Minerals & Metals
+67,695 lbs.
5.68 million cu. ft. Natural Gas

3.6 million pounds of minerals, metals, and fuels in their lifetime

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National Security

Mineral Development

Our National Security may depend on it.

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Copper

- U. S. Consumption – 2,300,000 tons
- U. S. Production – 1,190,000 tons

2007 USGS
Nickel

- U.S. Consumption – 231,000 tons
- U.S. Production – None (no active nickel mines in 2007)

2007 USGS
Platinum

♦ U.S. Consumption – 93,200 kg
♦ U.S. Production – 4,200 kg
Can this mining be done safely without harm to the environment?

♦ Yes – both safely and successfully!

♦ How?
  Through use of an autoclave – eliminating the need for a smelter

♦ With new technology, the potential for a mineral to generate ARD can be determined prior to excavation

♦ This information is used to prevent ARD or to contain it

MINING MINNESOTA
Responsible Development of Natural Resources

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Autoclave
Duluth Complex

♦ Largely sulfur deficient ores!!!!!

- Sulfur is the FUEL!!! (No coal)
Governmental Regulation

♦ All Regulations and Standards to assure water quality in Minnesota are in place.

♦ No new restrictive regulations are necessary.
Economic Benefits

It’s no myth!
Real Economic Benefit

University of Minnesota
- UMD Economists

500 spin-off jobs (St. Louis Co)
$242,000,000 economic impact

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Real Economic Benefit

• “30% of Regions’ GDP from mining. And growing! More than twice the next two industries combined.”

• “Grow the pie! Don’t replace it.”

• “All industries have cycles. Look at airlines, and even retail.”

– Dr James Skurla and Dr Richard Litchey, University of Minnesota Economists, UMD

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Current Proposed Projects

♦ Projects
  ♦ PolyMet
    - 400 permanent jobs
    - 500 spin-off (St. Louis Co. only)
  ♦ Franconia
    - 400 permanent jobs (both sites)
Non-ferrous mining will generate tens of millions of dollars in tax revenue!!!!!

♦ Local and State Government
  ♦ Net proceeds taxes
  ♦ Ad valorem taxes
  ♦ Occupation taxes
  ♦ Royalties
School Trust Fund

- $1.4 Billion (current projects)

- School Trust Fund
  - Royalties that help hold down property taxes in school districts all across Minnesota.
    - Minnesota Department of Natural Resources
Win/Win/Win

• Help meet growing demand
• Do it with Minnesota jobs
• With Minnesota’s strict Standards
• Reduce Global Emissions