LAND OF 10,000 ACIDIC LAKES?
SULFIDE MINING IN NORTHEASTERN MINNESOTA

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FINDINGS
Sulfide Mining is a poor alternative for the Northeastern Minnesota economy due to the following:

NORTHMET’S OPEN PIT MINING METHOD
The project’s mine site is located on wetlands within Superior National Forest, which explicitly prohibits open pit mining. To mitigate this issue, a land exchange between PolyMet Mining, Inc. and the United States Forest Service may occur.

PolyMet’s open pit requires the loss of wetlands— in fact, the largest one-time loss within state history... there is no man-made way to replace the natural functioning wetlands of the Arrowhead—and the habitat they provide, along with their carbon sequestering ability.

-Elaine Palchich, member of Sierra Club North Star Chapter

SULFIDE MINING & ACID MINE DRAINAGE
Current regulations intended to protect water quality are inadequate. This often leads to increased acidity levels in the local ground and surface water which can negatively impact sensitive plants and animals. The proposed sulfide tailings (acid-producing waste rock) site is on old, utilized taconite tailings basins which may impact wetlands that abut tributaries to the Embarrass River, which is a tributary to the St. Louis River that flows into Lake Superior.

The process fails— all mines are predicted to not cause acid mine drainage, but for mines with surface and groundwater nearby that have potentially acid producing wastes still 75% of them fail to meet surface and/or groundwater water quality discharge standards.

-David Chambers, Ph.D., Center for Science in Public Participation

UNPREDICTABLE INTERNATIONAL MARKET
Demand for base metals has skyrocketed during the last decade due to industrialization in India and China. This high demand has motivated mineral deposit prospecting all over the world, including Northeastern Minnesota. Developing a new boom and bust industry could make the region more vulnerable to future economic instability.

Minnesota will have to compete with a flood of copper mining that is going to come on line at the current prices. Many of those new development will fail as the supply rises and drives the price back down.

-Thomas Power, Ph.D., University of Montana

REFERENCES

1. Rouchleau Open Pit in Virginia, MN. PolyMet proposes creating an open pit mine in Superior National Forest.

2. The Hull-Rust Mahoning Mine in Hibbing, MN. One of the largest open pit taconite mines in the world, it spans 1,600 acres and is over a mile deep.

3. Copper Unit Value During Twentieth Century. Note the recent increase, likely due to industrialization in India and China.

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CONCLUSIONS
Sulfide mining is a poor option for the Northeastern Minnesota economy due to its unpredictable international markets, history of environmental degradation, and the sensitivity of the regional environment within and around the NorthMet Project proposal. To avoid the establishment of an under-regulated sulfide mining industry, while still allowing economic development in the region, the following must be considered:

1. Adopt a successful policy similar to Wisconsin’s “Prove it First” policy. Established in 1998, this policy requires prospecting sulfide mining companies to operate a similar mine for ten years without polluting surface or groundwater from the mine site or the tailings basin. Twelve years later in 2010, no companies have been permitted to mine sulfide rocks.2

2. Identify failures of other sulfide mining states, like Michigan. The 2004 non-ferrous mining law requires permit applications to include an Environmental Impact Assessment. However, permitting officials’ failure to critically analyze the permit application’s Environmental Impact Assessment led to the permitting of a mine that had no air, water, or other natural resource quality standards available to hold the company accountable.2

3. Approximately 75% of operating sulfide mines do not comply with air and water standards. If the NorthMet Site is approved by the Environmental Protection Agency, Minnesota legislatures must establish and enforce strict air and water standards which force mining companies to comply to remain in operation.

4. Develop and diversify regional industries which promote long-term regional sustainable development to become less reliant on the mining industry.

State investment should be directed towards funding jobs in forests and wilderness areas, which would stimulate the region’s recreation and tourism industry and invest in protecting Minnesota’s unique natural resources.

METHODS

Data Collection- Personal interviews were conducted with individuals from the US Army Corps of Engineers, Minnesota Pollution Control Agency, PolyMet Mining, Inc., Sierra Club, Center for Science in Public Participation, Water Legacy, and the University of Montana.

Data Analysis- Raw data from the United States Geological Survey was examined to extrapolate twentieth century copper and iron ore market trends and personal interviews were analyzed. Case studies from former sulfide mining operations and legislative decisions from other states were considered and compared to the NorthMet Proposal.

ABSTRACT
PolyMet Mining, Inc. has proposed developing the first sulfide mine in Minnesota called the NorthMet Project. Sulfide mining extracts marketable base metals, such as copper, from sulfide ore bodies. PolyMet proposes the community would benefit from an estimated 448 direct jobs and $14.5 million in taxes to state and local governments from the mine operation, however under-regulated sulfide mining poses a significant threat to local water quality. Can a sulfide mining industry be an environmentally responsible solution for long-term economic stability in Northeastern Minnesota? An analysis of literature reviews and data collection indicate that the sulfide mining industry is an inadequate alternative for the Northeastern Minnesota economy due to its negative environmental history, threat to local ecosystems, and unpredictable international markets.