



THE LAKE SUPERIOR BINATIONAL FORUM

Responsible Mining in the Lake Superior Basin Dec. 2013

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We note that some of these recommendations are already in place in various jurisdictions within the basin, but they are not yet consistent or predictable.

INTRODUCTION

The Lake Superior Binational Forum has drafted a statement on responsible mining within the basin, with specific recommendations for future mining projects. To gather input for this statement, the Forum held three public meetings on mining within the basin, used an online public comment form to gather additional input, and reviewed responsible mining definitions from other regions as well as those developed by global mining corporations.

The intended audiences for these recommendations include representatives of the Lake Superior Binational Program and their governments and agencies, elected

officials, agencies, municipal staff, mining companies, and the general public.

This document builds on over 20 years of the Lake Superior Binational Program working toward a “Zero Discharge” principle. The document aims to advance the Forum’s Vision Statement, which begins, “Water is Life, and the quality of water determines the quality of life.”

The Forum does not take a position for or against any mine in the basin, but the group does promote the goals of the Zero Discharge Demonstration Program and the broader ecosystem goals as outlined in the binationally developed Lakewide Action and Management Plan (LAMP).

PART 1. STATEMENT ON RESPONSIBLE MINING

The Lake Superior Binational Forum recognizes that:

- Mining includes all the stages from exploration, extraction, transport, milling, closure, long-term monitoring, and byproduct handling and storage.
- Metals and minerals are required for our modern lifestyles.
- Mining provides employment opportunities and financial resources to our communities.
- Governments and communities, in turn, make significant financial and in-kind contributions to support the mining industries in the form of tax benefits and infrastructure development and maintenance.
- There is widespread concern by the public, and local, regional, provincial/state, Tribal/First Nations/Metis, and national governments concerning the nature, extent, byproducts, and the environmental, social, and economic legacies of mining operations in the basin.

Responsible Mining Should:

- A. *Meet or exceed the provisions of the Great Lakes Water Quality Agreement of 2012 between Canada and the United States in:*
1. Adopting the goal of zero discharge and zero emission of persistent bioaccumulative toxic substances in the basin, thereby preventing further degradation of the ecosystem.
 2. Anticipating and preventing pollution and other threats to water quality in the Great Lakes to reduce overall risks to the environment and human health.
 3. Incorporating the precautionary approach, as set forth in the Rio Declaration on Environment and Development, that “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”
 4. Incorporating the “polluter pays” principle, as set forth in the Rio Declaration on Environment and Development, “that the polluter should bear the cost of pollution.”
 5. Applying innovation – considering and applying advanced and environmentally-friendly ideas, methods and efforts to prevent environmental problems.
 6. Considering social, economic and environmental factors, including assessment of full life cycle costs and benefits, and incorporating a multi-generational standard of care.
- B. *Be clear and transparent with regulatory agencies, affected communities, and the public, while fostering cooperation with relevant agencies and the greater public.*
- C. *Carry out rigorous environmental assessment of all aspects and phases of the mining and milling process, including potential future expansion of mining activities.*
Public opinion and advice should be incorporated where possible, and the assessment process should explain why other public proposals were not incorporated into the final decision.
- D. *Recognize that short-term mining operations can have long-term legacies, so approved plans should secure funding for staffing, monitoring, prevention, and repair of mining sites after closure.*
- E. *Contribute to the local, regional, and national economy through a fair wage, salary, and benefit structure, and in paying all taxes assessed by government agencies in each jurisdiction in which it operates*
- F. *Respect private and other land rights and where applicable compensate land owners for losses of value, and land users for losses of opportunity.*

PART 2. RECOMMENDATIONS FOR MINING PROJECTS IN THE BASIN

A set of binational agreements and programs guide management of Lake Superior resources: U.S.-Canada Great Lakes Water Quality Agreement (2012), the Lake Superior Lakewide Management Plan (2008), and the Zero Discharge Demonstration Program (1991). State and provincial authorities should include goals, strategies, and recommendations from the Great Lakes Water Quality Agreement and the Lake Superior Lakewide Management Plan when regulating mining activities to provide uniformity and predictability about mining regulations to all stakeholders.

A. Common Criteria for Permitting

Currently, Michigan, Wisconsin, Minnesota, and Ontario all use different criteria to measure and monitor the environmental performance of mining projects. Further, the Fond du Lac Band and the Bad River Band of Lake Superior Chippewa in the western Lake Superior basin have been granted “Treatment as an Affected State” authority (from US EPA) for administering their own water quality programs, and other tribes are in the process of applying for such authority. The development of common criteria by which governments, NGOs, and industry can measure the environmental performance of mining projects would offer predictability in the permitting process. These common criteria should be equivalent to or more stringent than the highest current standards in the basin, not a lowest common denominator.

B. Places That Should Not Be Mined

Some places with mineral potential may be so environmentally or socially sensitive that the risks posed by development in these areas are too high. As was done in Ontario through the “Lands for Life” planning initiative, multi-stakeholder involvement processes should be developed throughout the basin to identify areas of high cultural and conservation value that qualify as “no mine” zones.

C. Environmental Assessment Process

Stakeholders should be given adequate notification, time, and financial support to pay for technical resources, and access to supporting information, so that participation in the environmental assessment process is effective.

1. *Data collection*: Mining companies (“companies”) should collect adequate baseline data during the environmental assessment process, and these data should be available to the public. Sampling designs and parameters should be available for public comment at all major steps in the environmental review and permitting process.
2. *Worst-case scenarios*: Environmental assessment should include worst-case scenarios and analyses of off-site impacts. As is currently required in Ontario, companies should work with potentially affected communities and jurisdictions to identify potential worst-case emergency scenarios and to develop appropriate response strategies.
3. *Independent review*: Third-party, independent review panels, fully funded by industry and government, should be established for mining projects. They should meet at two-year or similar intervals to review data and receive project updates from the mine, regulatory and resource agencies, and other stakeholders, in order to provide unbiased, adaptive recommendations.

D. Water Contamination and Use

Water quality objectives that are developed for any proposed mine in the Lake Superior basin should be consistent with the goals and objectives developed for the LAMP. Discharge of contaminant-containing materials that will add significant increased stresses to groundwater, streams, rivers, and wetlands should not be permitted within the Lake Superior basin. Technologies and practices that adequately contain and recycle waste water and remove or encase toxic material and excessive sediment should be implemented.

1. Companies should make discharge reports of contaminants to surface and ground waters and the atmosphere publicly available.
2. Minimizing water usage should be a stated mine management goal.
3. Mine dewatering should be minimized to prevent undesirable impacts on ground and surface waters, including seeps and springs.

E. Waste Management

Rivers, lakes, estuaries, streams, and wetlands should not be used for tailings and overburden disposal, nor for the unregulated discharge of any type of wastewater or solid waste. Acid mine drainage is of particular concern for aquatic resources in the Lake Superior Basin, and is an issue where a precautionary principle is particularly relevant.

1. *Acid Mine Drainage*: Companies should conduct adequate pre-mining and operational mine sampling and analysis for acid-producing minerals, based on accepted practices and appropriately documented, site-specific professional judgment. Net acid-generating material should be segregated and/or isolated in waste facilities.
2. *Tailings impoundments and waste rock dumps* should be constructed to minimize the release of contaminants or other pollutants. Waste facilities should have adequate monitoring systems to detect and collect any contaminants or other pollutants released in the immediate vicinity.
3. *Hazardous material* minimization, disposal, and emergency response plans should be publicly available.

F. Air Quality and Energy

1. Companies should make emission reports of contaminants to the atmosphere publicly available. Reducing energy use and greenhouse gas emissions should be a stated mine management goal, and specific and measurable criteria should be developed to measure progress toward this goal.
2. Environmental assessments should consider the greenhouse gas emissions of a mine, with the aim of identifying more sustainable practices.

G. Financial Guarantees for Cleanup, Reclamation, Monitoring, and Maintenance

To cover the lasting environmental impacts of the exploration phase, companies should provide adequate financial guarantees to pay for prompt cleanup, reclamation, and long-term monitoring and maintenance.

1. Financial sureties should be reviewed and upgraded on a regular basis by the permitting agency, and the results should be publicly disclosed.
2. The public should have the right to comment on the adequacy of the reclamation and closure plan, the adequacy of the financial surety, and completion of reclamation activities prior to release of the financial surety.
3. Financial sureties should not be released until reclamation and closure are complete, all impacts have been mitigated, and cleanup has been shown to be effective for a sufficient period of time after mine closure, as determined by an independent review.

H. Monitoring and Oversight

Public access to monitoring data and periodic technical review materials should continue throughout the life of the mine, and during subsequent closure and reclamation activities.

1. The environmental performance of mines and the effectiveness of the regulatory agencies responsible for regulating mines should be addressed in regular, independent environmental audits. Environmental indicators need to be specific and measurable.
2. The results should be independently verified and made publicly available.
3. Communities should have the right to independent monitoring and oversight of the environmental performance of a mine.
4. If permit violations occur, companies should commit to rapidly implementing corrections in order to maintain clean surface and groundwater. Company responses to violations should also be publicly accessible along with associated data and technical reports.

I. Reclamation, Rehabilitation, and Perpetual Maintenance

Reclamation plans should include plans for post-closure monitoring and maintenance of all mine facilities, including surface and underground mine workings, tailings, and waste disposal facilities. The plan should include a funding mechanism for these elements. Plans requiring perpetual maintenance should be discouraged.

1. Companies should develop a reclamation plan before operations begin that includes detailed cost estimates. The plan should be periodically revised to update reclamation practices and costs.
2. Currently, some jurisdictions in the basin discourage reclamation plans that require perpetual maintenance. We recommend that all jurisdictions discourage plans that require perpetual maintenance, because these increase the risk that future generations will end up paying the true costs.
3. Companies should restore all disturbed areas so that they are consistent with future uses. Companies should re-contour and stabilize disturbed areas. Quantitative standards should be established for re-vegetation, and clear mitigation measures should be defined that will be

implemented if standards are not met. Native plant species should be used where possible.

4. Where acid-generating materials might be exposed to air and water during mining operations, companies should include detailed plans for operating, closing, and reclaiming the mine without water contamination. Where possible, companies should demonstrate that these technologies have been successfully implemented elsewhere. If not, the operations and closure options must ensure that contaminated or acid-generating materials are not disposed of in a manner that will degrade surface or groundwater.

J. Social Impacts and Decision-Making

Citizen participation and oversight are important elements in the Great Lakes Water Quality Agreement and the Lake Superior LAMP. In Canada, consultation and accommodation are fundamental legal requirements. Throughout the basin, Tribal/First Nations/Metis governments should be integral participants in the decision-making and governance processes. Responsible mining needs to include clear, effective consultation with all affected communities.

1. Companies and permitting authorities should consult with affected communities, including Tribal/First Nations/Metis governments, before exploration and throughout the life of the mine. Consultation does not merely mean informing communities of a decision that has already been made; it means including them in the decision-making process.
2. Companies should fully disclose information regarding stages of a mining project to affected communities and tribal, First Nations and Métis governments.
3. Companies should pay a percentage of receipts (not just profits) into local impact funds that help to diversify economic development and education.
4. A multi-stakeholder process should be developed to identify concrete social goals for communities affected by mining (e.g., economic diversification), where feasible. Companies should report their progress toward achieving these goals through specific and measurable indicators that can be independently verified.
5. Sustainable practices regarding resource use should be adopted to increase reuse and recycling of all mined goods and products.
6. Companies should consult with local communities and regional planning and economic development organizations throughout the planning, mining, and reclamation/rehabilitation phases of the project to facilitate long-term planning for “life after mining.” Such collaboration might improve communication and company stewardship and reduce controversy among stakeholders.
7. Companies are encouraged to seek out collaborations with university scientists and educators, natural resource and regulatory agencies, Tribal/First Nations/Metis governments, citizen science, outdoor sports and recreation groups, and other mining related businesses to share responsibility for cleaning up historical problems; partnering in research addressing mine land reclamation; conserving and restoring wildlife habitat; and supporting education focused on questions associated with the environmental impacts of mining as well as long-term monitoring.
8. Outreach and educational programs should be funded to increase public knowledge in affected communities regarding the life cycle analysis of mining, the laws regarding all aspects of mining

development, and opportunities for citizen involvement in local, county, and state decision making.

K. Broader Research Needs

1. *Cumulative Impacts*: Mine permits are granted on an individual basis, but mines have cumulative and indirect effects in the basin that can be short- (months to years) or long-term (decades or longer). Cumulative Environmental Effects Management is an approach that establishes outcomes for an area by balancing environmental, economic and social considerations and implementing appropriate plans and tools to ensure those outcomes are met. The effects from any one project may be small, but the aggregated effects from all development together may be significant. More research is needed for assessing indirect effects and cumulative impacts, particularly for the development of standardized methods for assessing those impacts. Federal, state, provincial, and Tribal/First Nations/Metis natural resource and regulatory agencies in the basin should coordinate to address environmental reviews of projects to ensure that broader Lake Superior Basin impacts are addressed in addition to site-specific local watershed effects.
2. *Climate Change and Mining Impacts*: The Lake Superior basin has already experienced increases in the intensity and frequency of extreme weather events, changes in the distribution of precipitation, and warmer temperatures. In fact, Lake Superior surface water has warmed at a faster rate than the regional air temperature. Site drainage and diversion structures, tailings impoundments, and passive contamination reduction systems are particularly at risk. Extreme rainfall, rain-on-snow events, and rapid melting of the snowpack within a watershed can lead to excess runoff to tailings impoundments and increased maintenance and operational costs. Increased precipitation may result in increased flushing of acid rock drainage. As the climate continues to change, the basin's mining sector will need to recognize these changes, understand how the changes will impact them, and develop adaptation strategies to minimize negative impacts to infrastructure and operations.
3. *Human Health Impacts*: Additional research is needed on human health impacts of mining. In particular, sulfate and mercury issues and their impacts on the health of fish, wild rice, and people were identified as requiring additional research.