Importance of Indigenous Community Engagement related to ARD/ML and Long-Term Water Quality

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ABSTRACT

Long-term water quality is an extremely important environmental issue for Indigenous Communities in Canada. One of these Communities, Batchawana First Nation (BFN), is located in northeastern Ontario and has been involved with many mineral resource development projects and mines within their Traditional Territory. Every one of these projects has the potential to negatively impact the water, both from a quantity perspective, but also with respect to water quality. A likely possible contributor to impacting water quality from mining related projects is acid rock drainage (ARD) and metal leaching (ML). Understanding the long-term consequences of ARD and ML is key for Batchewana First Nation and the protection of the water resources within their traditional lands. Engagement is critical so that the importance of water to the First Nation is understood by the mining industry, both on a time scale that is short-term as well as long-term, and multi-generational. Batchewana First Nation works with the mining industry so that solutions to protecting the water resources are developed together.

Key Words: Indigenous Communities, engagement, water quality, ARD and ML, long-term, Traditional Territory

INTRODUCTION

Batchewana First Nation (BFN) is located on the eastern shores of Lake Superior (Gichigamin in Anishinaabemowin) with Traditional Territory (Territory) stretching between Whitefish Island and Pukaskwa, Ontario. The population of BFN is approximately 2,500 people. Figure 1 shows a map of the Batchewana Communities (Batchewana, 2022). As can be seen on Figure 1, BFN Territory is vast and contains significant water resources.

Numerous operating mines and several active mineral resource exploration ventures are located throughout BFN's Territory. There are also many historic and inactive mines, some of which last operated more than 100 years ago. Each of these active and historic sites may have the possibility to impact the water quality of the Territory due to the potential generation of ARD and ML from these mining activities.

Great strides in water protection and conservation have been made by BFN, especially when it comes to the mineral resource sector and mining activities within BFN's Traditional Territory. ARD and ML from mining has the potential to have one of the most significant negative impacts to water quality in BFN's Territory unless it is thoroughly investigated, avoided (if possible), mitigated and managed in the short-term but more importantly over the long-term.

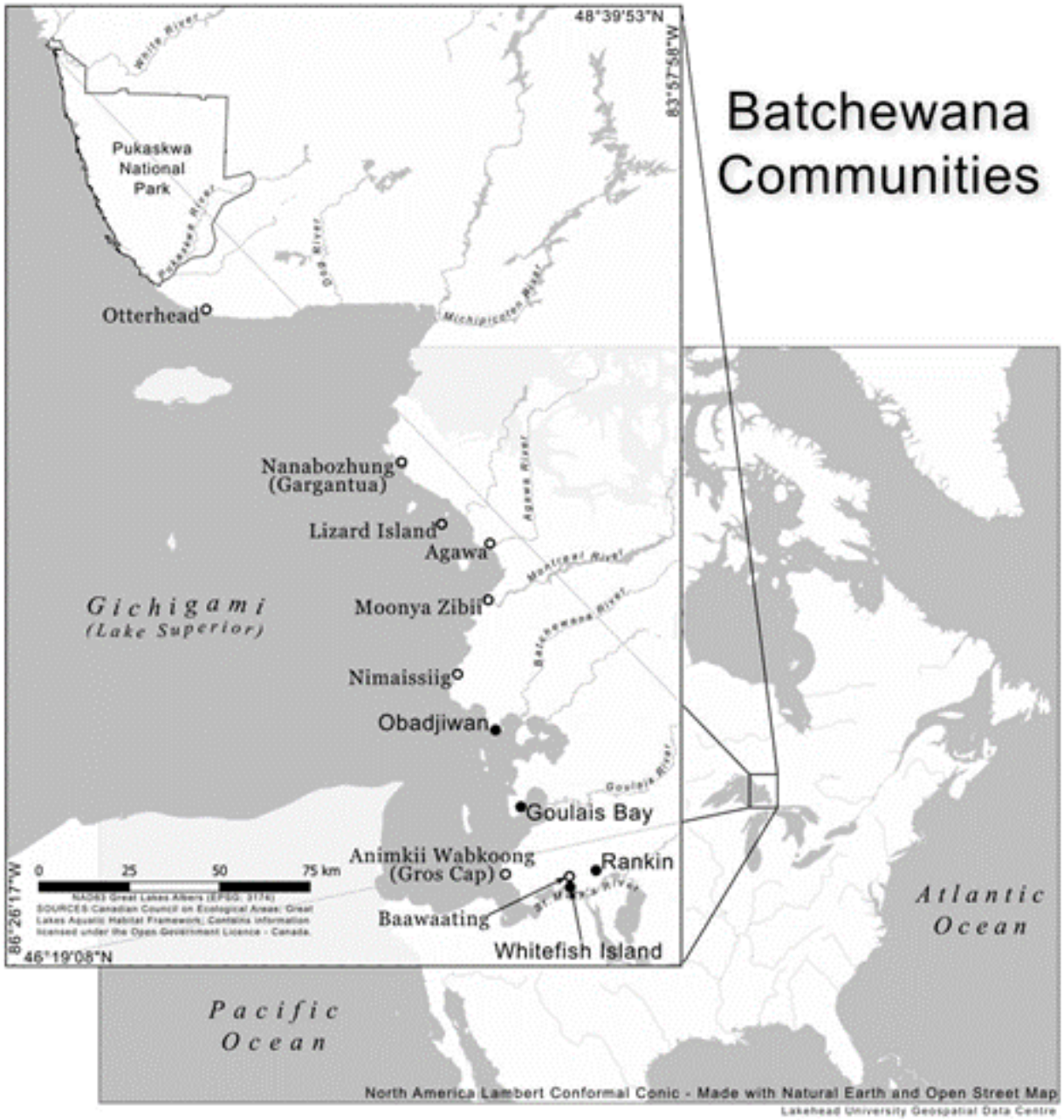

Figure 1. Map of Batchewana Communities and Territory

Indigenous Community Context

All life needs water to live. The Anishinabek Peoples believe water is:

- alive
- provides life
- can heal

Water is used in traditional and ceremonial practices and carries knowledge for generations. The protection of water should be a priority for everyone, not just the people of BFN. Water impacts our way of life and our ability to thrive as people. Water is a basic human right. Photo 1 shows a Sweat Lodge used during a ceremony at the edge of the water at Gargantua Bay, Lake Superior.

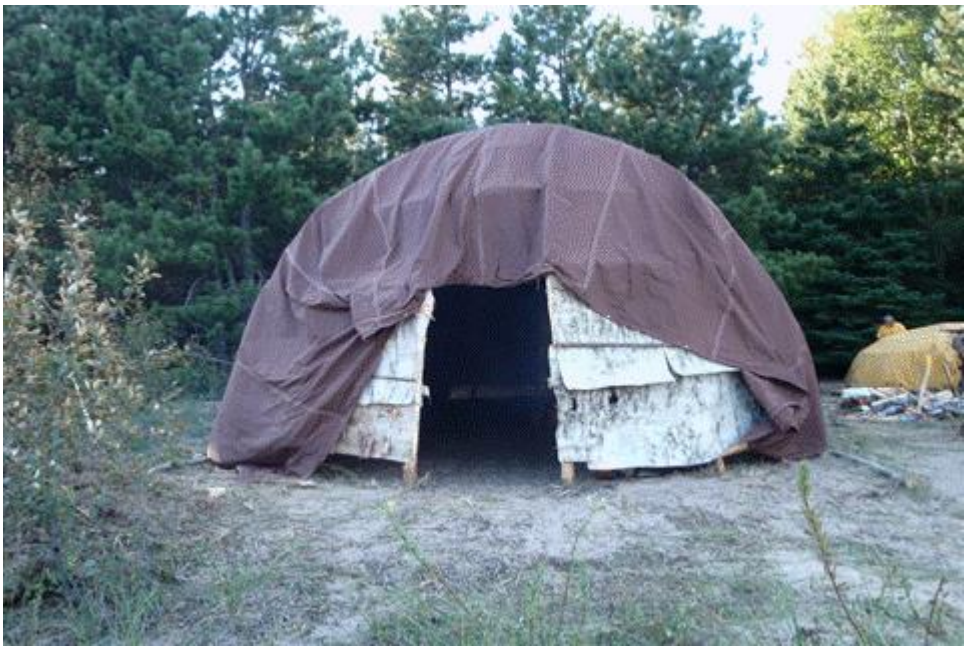

Photo 1. Sweat Lodge/Ceremony, Gargantua Bay, Lake Superior

The First Nation has a long-term, multi-generational view of life and the future. Often it is referenced as 7 generations, or more broadly as a 100-year plus view. The short-term view is also important to BFN, but Indigenous Communities have a broader, more holistic look at the past, present and the future. It is critically important to try to understand the future, not just tomorrow, next week, next month, or next year, but for many years or the next millennium.

BFN Territory has provided for our people, and it is our commitment and duty to protect Mother Earth by managing our resources in ways which reflect BFN culture. Ongoing discussion with BFN Elders and other knowledgeable Anishinabe Knowledge Keepers is essential to ensure:

- suitable balance for sustainable natural resources plans
- that the harvest activities and decisions undertaken are to the benefit of all BFN members
- protect the interest of BFN for future generations

BFN established a Natural Resources Department in 2008. The principal objective of this Department is to encourage and promote the health of the land, air and water for future generations while balancing the current needs of the Indigenous Community. The Natural Resources Department's mandate is to "manage, sustain, protect, and fulfill our obligations as caretakers of Mother Earth". This philosophy, coupled with the protection of BFN Inherent and Treaty Rights, serves as the foundation for the Department.

Indigenous Communities, including BFN, have been and continue to be stewards of Mother Earth for time immemorial. The BFN Community have and continue to manage their Traditional Territory throughout northeastern Ontario including:

- harvesting plants and berries for food and medicines
- managing the forest/trees for fuel, lodging and manufacturing
- using the water for transportation, fishing, and drinking
- hunting to provide country foods
- using the soil for growing plants
- excavating the rock for tools and metals such as copper

The relationship between Mother Earth and BFN is long-term, symbiotic, and mutually beneficial.

Water Quality Impacts

Water is the most significant and highly valued resource within BFN's Territory. As indicated earlier, water is essential for all life and is a basic human right. The protection of water is key to BFN and must be a priority. Photo 2 shows the shore of Lake Superior within BFN's Territory.

Photo 2. Lake Superior, BFN Territory

There are many ways that water may be negatively impacted naturally. They include:

- Natural impacts caused by excessive sediment being released into the water due to storms, spring runoff, forest fires and landslides.
- Natural impacts from high concentrations of metals leaching into the water from exposed mineralization and from mineral soils.
- Beaver activities may result in flooding land upstream of dams that may result in the release of metals from the soils into the water.

There are also many ways that water may be negatively affected by human activities. They include:

- Water quality may be impacted by sediment being released into the water due to construction activities involving earthworks, such as building transportation corridors or developing large areas of land.
- Housing and general urban development may impact water quality due to human waste treatment, the use of fertilizers, the use of pesticides, and from the runoff of hazardous liquids such as hydrocarbons and glycol from roadways.
- Commercial and industrial developments may also impact the water due to hazardous materials runoff and from the development of the land itself.
- Forestry harvesting activities may result in increased sediment runoff both in the short-term and over the long-term until new trees re-establish.

In general, human created impacts to water are likely much more numerous and preventative than natural causes.

A specific human activity, mineral resource development and mining, has many possible situations that may result in negative impacts to water. This includes:

- Sediment release to the water from site development activities at exploration drill pads, mine sites, and associated transportation corridors.
- A potentially significant negative impact to water quality from mining, as indicated earlier, is from ARD and ML from exposing rock faces in open pits and/or underground workings, the generation and management of waste rock and ore, and from the production of tailings and the associated management facilities. Photos 3 and 4 show examples of impacts from ARD and ML to surface water.

Photo 3. Evidence of ARD and ML from waste rock in BFN Territory

Photo 4. ARD and ML from mining in BFN Territory

ENGAGEMENT

Engagement between BFN and the resource development and mining companies is key to developing solutions that protect Mother Earth from the impacts to water from ARD and ML. Engagement is critical so that the importance of water to BFN is shared and understood with the mining industry. The mining industry must understand the value of water to BFN, but also the importance of the long-term timeline that BFN has with respect to water resources in the Territory. BFN will be here for generations to come and will have to deal with the legacy of what the mining industry and governments that support the industry leave behind.

Historic Engagement Process

Not so long ago (< 50 years), consultation or engagement with Indigenous Communities was not the norm. Mineral resource and mining companies rarely talked or reached out to the Indigenous Communities, and the government agencies essentially ignored the Indigenous Communities as a distinct group of People.

Over the past 30 to 40 years consultation with Indigenous Communities became a requirement for government agencies and then indirectly for mining companies. The mining companies did not have a duty to consult. Consultation, however, was more-or-less a one-way message, based on BFN's experience. Mining companies would generally layout their plans, but seldom would they seek input or knowledge from the Indigenous Community.

Engagement Today

Indigenous Community engagement and consultation has significantly improved over the past 10 or so years. Mining companies and the government now want to actively engage with the Indigenous Communities. BFN, utilizing their Natural Resource Department, has generated a mutually beneficial relationship with most of the mineral resource and mining companies within their Territory.

Engagement today includes the incorporation of input and values and traditional knowledge from BFN into the planning process for new and existing mines, and for mine closure. Engagement now includes site visits, involvement with field activities, reviews of draft permit applications and approvals, and on-going and regular meetings. Input from BFN is actively requested and appreciated by the mining company. Photos 5 and 6 show involvement in field programs related to water quality sampling and ARD and ML sample collection.

Photo 5. Water sampling

Photo 6. Waste rock sampling for ARD and ML testing

It has also been made very clear to the mineral resource and mining companies that BFN has standards that are typically more rigorous than government standards and best mining practice. To BFN, agency requirements, guidelines, objectives, and standards are considered the minimum such as what is required for mine closure planning through the Ontario Ministry of Northern Development and Mines – Ontario Regulation 240/00 (Ontario, 2024) and water quality requirements such as summarized in the Ontario

Provincial Water Quality Objectives (Ontario, 1994). The mining companies appreciate and understand this need, and work with BFN and their representatives to meet these higher standards.

As indicated earlier, ARD and ML have the potential to negatively impact the water quality in BFN's Traditional Territory. It is critical to BFN that ARD and ML that may be caused by mining in their Territory is a key aspect of engagement so that together short and long-terms solutions to protecting the water are developed, implemented, managed, monitored, and improved upon if necessary.

ARD AND ML FOCUSED ENGAGEMENT

The process of engagement with the mining companies in BFN's Territory related to ARD and ML starts early in the mine development planning process. BFN engages with the mining companies from early exploration, through mine development studies, during construction, operations, active and passive closure, and into post-closure.

Getting an early understanding of the geochemical nature of the mining project is critical during exploration and initial planning studies. Understanding the potential for ARD and ML will direct the planning for a mine. It will aid in developing the best approaches to mine development, waste management, water management, operations, and closure.

Staying on top of the geochemical data is important throughout mine development and operations. Mining plans and predictions change. For example, what may have been considered to be inert waste rock or tailings, may, through changes in the mine, exhibit evidence of ARD and ML. Regular engagement, including site visits and meetings, may result in questions asked, and observations made that may prompt further testing and/or sampling.

ARD and ML Standards

Ontario Regulation 240/00 (Ontario, 2024) and the International Network for Acid Prevention (INAP) version 1 Global Acid Rock Drainage Guide (GARD Guide) (INAP, 2014) are two of the standards that guide mining companies to characterize their sites for ARD and ML potential. In addition, there are numerous permits and approvals required that must be received by mining companies that ensure that water released to the environment will not impact the natural environment.

BFN and their representatives have substantial experience with ARD and ML testing and prediction, mitigation and management, and short and long-term monitoring. BFN also has experience with the permitting and approvals process in Ontario and Canada that regulate discharge to the natural environment. As stated earlier, BFN's standards are higher than the government requirements and generally higher than mining industry best practice. BFN's point of view is that the water quality that existed prior to the human activity related to mining is the standard that should be achieved. The baseline water quality is often more rigorous than what the government requires.

The goal of BFN's engagement with the mining companies is to improve the mining operations and reduce impacts to water quality from ARD and ML. BFN provides another resource to the mining company, above and beyond their internal resources and their own consultants and contractors. From experience, the engagement with BFN often results in a better, more robust, long-term outcomes that result in improvements to water quality in the short-term and more importantly for the long-term, seven generations.

CLOSING

Engaging with BFN, and in general with Indigenous Communities, benefits the environment, and

specifically usually improves water quality. It also benefits the Indigenous Communities and the mining companies through the sharing of information, listening to the different viewpoints that are presented, and encourages additional input and review that would not be received without Indigenous Community engagement.

ACKNOWLEDGEMENTS

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