ᖁᑭᖅᑕᓂ ᐃᓄᐃᑦ ᑲᑎᒪᔨᖏᑦ
Qikiqtani Inuit Association

ᐱᓕᕆᔨᖅᑐᑦ
ᓄᓇᕗᑦᓂᓕ ᐅᑯᓂᖅ
Serving the communities of

ᐃᑲᐱᑦ
Arctic Bay

ᑭᓚᐃᑦ
Cape Dorset

ᑲᕐᓗᒍᓕᐊᑦ
Clyde River

ᐊᐅᓚᐃᑦᑐᖅ
Grise Fiord

ᓱᓂᕆᑦ
Hall Beach

ᐃᑦᓗᓂᑦ
Igloolik

ᐃᖅᓗᐃᑦ
Iqaluit

ᑭᒥᓕᑦ
Kimmirut

ᐸᖅᓂᖅᑐᖅ
Pangnirtung

ᑎᑎᒪᒃᓴᑦ
Pond Inlet

ᖁᑭᖅᑕᐅᔪᖅ
Qikiqtarjuaq

ᖃᐅᓚᐃᑦᑐᖅ
Resolute Bay

ᓱᓂᑭᓗᖅ
Sanikiluaq

David Hohnstein, CET
Director, Technical Services
Nunavut Water Board
Gjoa Haven, Nunavut
PO Box 119
X0B 1J0

June 22, 2012

RE: Technical Review of the Mary River Type 'A' Water License Application

The Qikiqtani Inuit Association (QIA) would like to thank the Nunavut Water Board (NWB) for providing the opportunity to present comments on the Baffinland Iron Mines Corporation (BIMC) Type A Water License Application.

QIA submits to the NWB this technical review of the application. To ensure an efficient technical meeting for all parties, QIA requests that responses to the following technical comments be provided by the NWB and BIMC before the technical meeting is held. QIA will gain a greater understanding of the application and regulatory process upon receipt of these responses, and will therefore be able to more fully participate in the technical meeting.

The following technical review consists of three components. Section 1.0 contains technical comments addressing the application process and the events and proposed timelines that occur during the review process. Section 2.0 is a summary of technical issues and resolutions that QIA and BIMC have arrived at through meetings that have occurred external to the NWB administered review process. Section 3.0 contains technical comments on issues that are still of concern to QIA, and have yet to be addressed through external meetings with BIMC.

1.0 Application Process, Events, and Timeline

i) On February 29, 2012 the NWB requested comments[1] from interested parties on the proposed Type A water license review process. Additional correspondence from the NWB on March 2, 2012[2] expanded on the NWB's proposed water license review process. In response to this request, QIA had sent comments on the application process to the NWB.[3] There has not been any further written correspondence from NWB concerning these comments, or the

[1] Amanda Hanson, Director, Technical Services, Nunavut Impact Review Board and David Hohnstein, Director, Technical Services, Nunavut Water board, to Mary River Distribution List, February 29, 2012, Nunavut Impact Review Board Public Registry, Cambridge Bay, NU

[2] David Hohnstein, Director, Technical Services, Nunavut Water board, to Erik Madsen. Vice-President Sustainable Development, Baffinland Iron Mines Corporation, March 29, 2012, Nunavut Water Board Public Registry, Gjoa Haven, NU

[3] Qikiqtani Inuit Association to David Hohnstein, Director, Technical Services, Nunavut Water Board. Proposed Next Steps in the NWB Licensing Process. March 30th, 2012.

proposed review process. As a result, there is uncertainty regarding the review process and timeline. It is requested that the NWB detail the review process steps up to the completion of the public hearing and the expected timeline for each step.

ii) During the Nunavut Impact Review Board's (NIRB) technical meetings in Iqaluit on May 1-3, 2012, NWB Director of Technical Services David Hohnstein gave direction regarding the NWB review process via teleconference. From this direction it is QIA's understanding that:
   a) There will not be a NWB technical meeting that runs consecutively with the NIRB Final Hearing.
   b) The NWB technical meeting would be held 1 to 2 weeks after the NIRB Project Certificate workshop, which will be held around September 22, 2012.

   It is requested that the NWB affirm this understanding.

2.0 Meetings with BIMC External to the Water Licence Application Process

QIA has endeavoured to work with the BIMC to discuss issues externally to the NWB review process. A meeting between QIA and BIMC on May 11, 2012 occurred to further this cooperative process. During this meeting many of QIA issues and uncertainties regarding the water licence application materials were discussed and resolved. It is recommended that these resolutions be incorporated into conditions issued by the NWB for the Type A Water License. The issues discussed, and their agreed upon resolution (listed in bold) are as follows:

i) A clear understanding of waste discharge locations and characteristics is needed to assess the impacts of waste discharge to the environment, and adequately monitor ongoing environmental effects. Discharges need to be controlled, to ensure that waste of unknown quality and quantity does not enter freshwater systems. To facilitate the understanding of waste discharge locations and characteristics:
   a) Each discharge of waste should have the expected total yearly volume and expected discharge quality clearly listed and defined. This should include water that has been in contact with waste rock and ore.
   b) All waste discharge volumes should be measured via appropriate means. Volumes and concentrations should be reported annually.
   c) Ensure all water that has come into contact with waste at the Mary River and the proposed Steensby Inlet landfills be controlled, and only discharged to the environment if the effluent meets discharge criteria.

ii) Secondary containment areas (which include lined laydowns and fuel storage areas) and landfills have the potential for runoff water to collect, and thereby come into contact with contaminants. The discharge water, if not managed and treated appropriately, may impact receiving waters. It is recommend that monitoring occur at all runoff water effluent discharge locations associated with lined laydown areas that contain hazardous goods, secondary containment areas, and landfills, and if applicable, treat runoff water to the appropriate discharge criteria. It is recommended that monitoring results be annually reported.

iii) Preliminary monitoring points and waste discharge criteria have been presented in BIMC's Type A Water license application. Monitoring of mixing zones and receiving environments have not been detailed in the application. While the production of an Aquatic Effects Management Plan (AEMP) has been committed to in the water license application, the specifics contained in the plan are unknown. Appropriate selection of water sampling locations and water quality criteria in the receiving environment, down-gradient of the last point of control, is an integral component of a monitoring program. If water sampling locations and receiving water objectives are selected improperly, greater than predicted impacts to the environment could occur. It is recommended that BIMC develop a monitoring program for receiving waters and mixing zones. This program should include a well-defined sampling program, water quality objectives for receiving waters and mixing zones and a comprehensive Aquatic Effects Management Plan. QIA should be engaged during the development of this monitoring program for receiving waters and mixing zones.

iv) Understanding of how a project affects water quantity and quality in the aquatic ecosystem is dependent on assumptions that are made regarding the final design of the project. As the final design of project components is finalized, final engineering reports and drawings are needed to ensure that the monitoring programs and management plans presented in the Type A water license adequately regulate discharge of waste to freshwater. As such:
   a) Prior to construction, performance and design specifications, engineering analysis to support design and final design drawings approved for construction for each installation or facility should be submitted for review by interested parties.
   b) As-built drawings and associated reporting for each installation or facility should be submitted for review by interested parties.

v) An explosives management plan is included in the Type A water license application; however, it is limited to the management of the manufacturing of explosives and the storage of raw explosives materials. The management of blasting, and blasting residue discharges to the environment is not specifically considered in this plan. Blasting can result in discharges of substances such ammonia, nitrate and nitrite to water. As such:
   a) A Blasting Management Plan should be produced and will integrate mitigation and monitoring practices to ensure blasting residue contamination of the environment is minimal. The monitoring practices should be designed to provide confirmation of the effectiveness of the mitigation strategies in place.

3.0 Additional Issues

i) The application for the Type A water license contains much of the infrastructure currently covered by the Bulk Sampling Type B Water License. During discussions with BIMC, QIA was informed that BIMC intends to retain the Bulk Sampling Type B Water License, and move certain elements from the Type B License to the Type A Water License. QIA is unable to locate in the Type A Water License application a concise description of which infrastructure and

activities will be included in the Type A water license, and which will be as part of the current Type B.

A construction access road is referenced tangentially in the Type A Water License application (Borrow Pit and Quarry Management Plan (Page 21), Individual Quarry Management Plans (Figure 1 in each document) and displayed in drawings of representative water crossings and predevelopment works). The construction and operation of a winter road along the proposed railway is not explicitly mentioned as being part of the Type A Water License application and is not covered in the current Type B license. QIA was informed by BIMC that a second Type B water license will be applied for to cover this activity. There is concern that without a clear understanding of how multiple water licenses apply to project infrastructure, it will be difficult to ensure that all activities are regulated and that enforcement of the license can be executed. There is also the potential to have infrastructure being regulated in multiple water licences, which may cause significant confusion. QIA notes that a number of points related to a proponent holding multiple water licences were raised in previous submissions to the NWB in relation to BIMC's 2012 Work Plan Application.[4] To mitigate these concerns, the following is requested:

a) It is requested that BIMC produce a table that clearly defines which activities and project components will be covered under the revised current Type B License, the Type A Water License Application and the proposed Type B Water License Application.
b) Clarification from the NWB is requested on the suitability of multiple water licenses for the same project, and how these multiple water licenses may affect the application review and ongoing monitoring of the project.
c) It is requested that AANDC provide guidance on how enforcement of similar activities under two water licences will be completed.

ii) Preliminary discharge criteria have been proposed in the Type A Water License Application. It is stated in the Environmental Monitoring Plan (page 28) that the discharge criteria for Vehicle Maintenance Shops will follow the Industrial Waste Discharge in Nunavut Guideline (IWDNG). These guidelines are meant for industrial areas, on commissioner's land. The Mary River Project is predominantly on Inuit Owned or Crown Lands and as such, the Canadian Council of Ministers of the Environment (CCME) guidelines for the protection of aquatic life should apply. The CCME guidelines are more suitable for the land title and use than the IWDNG guidelines, and generally have lower discharge limits. If the CCME Water Quality Guidelines for the Protection of Aquatic Life are not used to select discharge criteria, it is possible that waste could adversely affect freshwater throughout the project footprint.
   a) It is requested that BIMC use the CCME Water Quality Guidelines for the Protection of Aquatic Life for the selection of criteria for waste discharge.

[4] Qikiqtani Inuit Association to Dionne Filiatrault, Executive Director, Nunavut Water Board. February 27th, 2012. Baffinland Iron Mines Corporation's 2012 Work Plan Application.

iii) BIMC agrees with QIA that a blasting residue management plan is needed (Section 2.0, comment 'v'); however, as the plan has yet to be developed, the specifics of the plan are unknown. Blasting residue can leave ammonia, nitrates, nitrites and petroleum hydrocarbon residues that is a waste that can enter and impact receiving waters. If the levels of these contaminants exceed CCME Guidelines for the Protection of Aquatic life, significant impacts to the environment can occur.

It is not stated in the Type A Water License application what amount of explosives are proposed to be used during the construction of the railway. Due to the blasting and tunneling needed to construct the railways, the total volume of explosives needed is likely to be significant. When large volumes of explosives are used, even a small percent loss of explosives can result in unforeseen waste discharges to freshwater. Estimates and modeling have not been provided regarding the expected levels of explosives loss into the environment from blasting during construction and operation; therefore, the amount of waste discharged to waters from this activity is not defined.

Mitigation strategies and best practices can be a useful tool in the reduction of the impacts of blasting residue on the freshwater; however, without sufficient monitoring to ensure adequate performance, it is impossible to practice adaptive management practices and ensure waste to freshwater is managed. To mitigate this, a defined monitoring plan, with criteria and monitoring conditions is needed. As such:

a) It is requested that in developing a blasting residue management plan, BIMC take into account the following areas:
   - Mary River Construction and Operation
   - Railway Construction, including breakdowns relative to railway locations
   - Steensby Port Construction

b) It is requested BIMC state the total yearly amount of explosives expected to be used during the construction, including breakdowns by location.

c) It is requested that BIMC state the expected yearly amount of explosives used during operations, including breakdowns by location.

d) It is requested that BIMC provide an estimate of the expected monthly loss of explosives during construction and operation, including breakdowns by location.

e) It is requested that BIMC determine what the acceptable explosives loss is for blasting operations and provide this value.

f) It is requested that BIMC commit to monitor and report the monthly loss of explosives. This value should be compared to the expected monthly loss estimates.

g) It is requested that BIMC provide an adaptive management trigger criteria that provides a clear method to determine if the performance of blasting management is adequate.

h) It is requested that BIMC commit to modeling blasting residue loss and migration in the environment if adaptive management trigger criteria is exceeded.

i) It is request that BIMC commit to identifying project areas where impacts associated with blasting residue are predicted to be relatively higher. Identification of potentially high

impact areas should take into account; the sensitivity of the receiving environment, amount of explosives, the applicability of mitigation measures, and, the ability to effectively monitor explosive loss.

ii) BIMC has committed to providing an Interim Closure and Reclamation Plan for the Mary River Project. As much of the project infrastructure is still at the conceptual phase, the closure plan is formulated using significant assumptions related to costing and infrastructure. If the closure plan is not updated regularly as the development of the Mary River project proceeds, it may not accurately capture activities that are required for closure and reclamation activities. If BIMC is rendered insolvent during construction, and the Closure and Reclamation Plan is dated, QIA may be exposed to liability in excess of posted financial security as a significant portion of the project is on Inuit Owned Lands. As such, the plan will need to be updated as the project progresses. Therefore:
   a) It is requested that BIMC commit to having the Closure and Reclamation Plan adhere to the most recent QIA Abandonment and Reclamation Policy for Inuit Owned Lands. The plan will include a financial security assessment that delineates financial security associated on land and water by land-owner.
   b) It is requested that BIMC commit to updating the Interim Closure and Reclamation Plan prior to the construction of mine components, prior to mine operation, and on a regular basis to reflect current site liability.

4.0 Mary River Project Committee Concerns and Recommendations

QIA recognizes the need to have additional communication and engagement with communities specific to the Mary River Project. It is imperative that communities have up-to-date information and have their voice, knowledge, and vision expressed and promoted by QIA. As a means to achieve these objectives, in early 2011 QIA formed and has since administered seven Mary River Project Committees (MRPC); one committee in each of the seven communities most affected by the Project (Arctic Bay, Cape Dorset, Clyde River, Hall Beach, Igloolik, Kimmirut, and Pond Inlet).

The primary responsibilities of the MRPC are to act as an avenue for direct interaction with the communities during the environmental review and regulatory process led by the Institutes of Public Governments (IPGs). The MRPC and their members meet regularly to openly discuss matters in their community regarding the Mary River Project. They receive, review and provide information to the communities and develop advice and recommendations on behalf of the communities and provide this to QIA. Concerns and recommendations that the MRPC committees have stated that pertain to the Type A water license application have been summarized below. It is important to note that the items listed below have been sourced from meeting minutes previously filed before the Nunavut Impact Review Board, as part of QIA's formal submission on the Draft and Final Environmental Impact Statement.

Impacts to Freshwater Wildlife

- Fish populations in lakes and waterways should be quantified before construction starts. Without knowledge of fish populations in specific water bodies close to the railway, BIMC will be unable to determine if fish populations are decreasing as a result of mine waste discharges.
- There is uncertainty on how much iron ore dust will enter waterways near the rail way. There is a concern that there has been an insufficient level of study into this area.
- Dust should be monitored all along the rail route, to ensure it does not enter the nearby water bodies, and affect fish. Mitigation plans (such as covering the ore rail cars more securely) should be put into place if it is found that dust is affected fish.

Harmful Alteration, Disruption or Destruction of Fish Habitat

- There has been the suggestion by BIMC that manmade lakes, and other constructed structures will be used to produce an equivalent amount of fish habitat. It is recommended that BIMC monitor these manmade habitats to ensure that an equivalent amount of fish stock is replaced.
- There is significant concern that ice jamming in culverts and bridges could impede fish movement, and thereby negatively impact fish stocks.
- It is recommended that BIMC conduct more in depth study in to the effect bridges and culverts will have on fish stocks, and present this information to the community. It is felt that communities are being told that there will be very little effects to fish from these water crossing structures, but that only limited field testing has been completed to prove this issue at Mary River.
- It is recommended that BIMC make a concerted effort to keep culverts and bridges in good repair, because culverts have been found in the past to be in poor repair, and that could be an impediment to fish movement.
- While it has been stated in the FEIS that equivalent fish habitat will be constructed to compensate for destroyed habitat, it is important to the Inuit that the constructed habitat be equivalently easy to fish and use as they would traditionally. It is recommended that BIMC consult with Inuit before construction of such habitat, to ensure Inuit would be able to use it.
- Ongoing monitoring of fish stocks by Inuit should be commissioned by BIMC for impacted water bodies. A mitigation plan should be in place if it is found that fish stocks are impacted, with compensation being a component of such a plan.
- Wastewater treatment systems should be built far from beaches. Wastewater should not be dumped into lakes and rivers.

Blasting Activities Around Fresh Water

- There is uncertainty in the thresholds BIMC has selected for blasting noise underwater. It is recommended that BIMC conduct research into what thresholds would be appropriate for the Mary River Project specifically, instead of applying literature values from southern Canada.

- There are concerns regarding bubble curtains and what effect they might have on fish. It is recommended that BIMC explain their blasting strategy to the communities, and outline the effects it may have on freshwater fish.
- There is concern regarding BIMC's proposal to using blasting to construct the tunnels near the Cockburn Lake area. This concern stems from worry about blasting residue entering the lake system near this area, and potentially effecting fish.
- Due to the level of uncertainty regarding the thresholds chosen for blasting noise levels, it is believed that fish could be harmed or killed from blasting noise. It is recommended that BIMC use tunneling equipment instead of blasting, so impacts to fish could be lessened.

Fuel Storage and Handling

- The monitoring of fuel storage is of paramount importance, to insure that leaking tanks and accidents are discovered promptly.
- Fuel sites should be properly restored after they are no longer in use.
- The bladder storage systems in use at Milne Inlet and the Mary River camp should be decommissioned and remediated as soon as possible.
- Funds should be held in escrow for compensation and remediation in the event of a major hydrocarbon spill.

Infrastructure

- Culverts and bridges should be left in place along the Tote Road when the mine closes, so that hunters and Inuit can continue to use the road.

Once again, QIA would like to thank the Nunavut Water Board for providing the opportunity to present these comments on the Baffinland Iron Mines Corporation (BIMC) Type A Water License Application. It is our expectation that the issues outlined herein can be resolved if BIMC adheres to this list of requests. QIA would also like to impress the importance that continued work and collaboration with the NWB and BIMC are critical to the success of this Project.

Sincerely,

[original signed by]

Stephen Williamson Bathory
Director, Major Projects
Qikiqtani Inuit Association