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September 19, 2014

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Your file - Votre référence  
2AM-MRY1325  
Our file - Notre référence  
CIDM# 851975

**Re: 2AM-MRY1325 – Mary River Project – Baffinland Iron Mines Corporation –  
Amendment Application – Completeness Review**

Dear Phyllis Beaulieu:

On August 29, 2014, the Nunavut Water Board (the Board or NWB) invited interested parties to review an amendment application submitted by Baffinland Iron Mines Corporation for their Type 'A' water licence 2AM-MRY1325 (the application) for completeness and initial technical assessment including any information requests identified.

Aboriginal Affairs and Northern Development Canada (AANDC) Water Resources Division has completed an initial technical assessment of the application for the Mary River Project with the intent of assessing the completeness of the information presented in the application, as per the direction provided by the NWB. Please find enclosed AANDC's completeness review and information requests for the Board's consideration.

In addition to the completeness review, the NWB requested comments on proposed updates to terms and conditions in the current licence and the type of Technical Meeting/Pre-Hearing Conference (TM-PHC) to be held. AANDC Water Resources and Field Operations Divisions will conduct a thorough review of the current water licence as part of the detailed technical review and provide comments regarding proposed updates to terms and conditions in the technical review submission. In regards to the type of TM-PHC, AANDC recommends that the TM-PHC be held either in writing or by teleconference.

The following advice has been provided pursuant to AANDC's mandated responsibilities for the enforcement of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*. In conducting our review, AANDC Water Resources referred to the documents on the NWB's FTP-site under 2AM-MRY1325.

AANDC appreciates the opportunity to participate in this review. If there are any questions or concerns, please do not hesitate to contact me at (867) 975-4738 or by e-mail at [Jean.Allen@aadnc-aadnc.gc.ca](mailto:Jean.Allen@aadnc-aadnc.gc.ca).



Sincerely,

Jean Allen  
Water Management Specialist

Enclosure

cc. Murray Ball, Manager of Water Resources, AANDC  
Erik Allain, Manager of Field Operations, AANDC

## **Initial Technical Review Memorandum**

**September 19, 2014**

**To: Phyllis Beaulieu, Manager of Licensing, NWB**

**From: Jean Allen, Water Management Specialist, AANDC**

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**Re: 2AM-MRY1325 – Mary River Project – Baffinland Iron Mines Corporation –  
Amendment Application – Completeness Review**

### **1.0 Background**

The Nunavut Water Board (the Board or NWB) issued Baffinland Iron Mines Corporation (Baffinland) a Type 'A' Water Licence 2AM-MRY1325 (Type 'A' licence) to use water and deposit waste in relation to the construction, operation, closure, and reclamation of an iron mine under the Mary River Project in June 2013. Project Certificate No. 005 was subsequently amended on May 28, 2014 by the Nunavut Impact Review Board (NIRB). The amended Project Certificate authorizes Baffinland to proceed with the Early Revenue Phase (ERP) of the Mary River Project.

On August 4, 2014, the NWB issued Baffinland a renewal licence for their Type 'B' construction licence 8BC-MRY1416 for the Mary River Preparation Project which authorizes construction activities for the ERP, including increased water demand, additional off-spec sewage effluent storage capacity, and the construction of a permanent ore dock, ship loading facility, ore stockpile and associated sedimentation ponds, and ore reclaiming equipment.

On July 16, 2014, Baffinland submitted an application to the NWB to amend their Type 'A' licence to consolidate under one licence all requirements for the construction and operation of the Mary River Project, including the newly authorized ERP. Specifically, the amendment application addresses the following infrastructure and associated activities:

#### **Milne Port**

- Increase water demand (authorized under Type B licence 8BC-MRY1416) during construction and operation;
- Increased size of the sewage treatment plant (authorized under Type B licence 8BC-MRY1416);
- Construction and operation of additional off-spec capacity in the form of a Polishing Waste Stabilization Pond (PWSP), similar in design to the existing PWSP constructed in 2013;
- Relocation of the treated sewage effluent discharge location;
- Increased fuel storage to include marine diesel, i.e., addition of two 100,000 L tanks as authorized by the amended Project Certificate No. 005;

- Construction of the ore stockpile pad and associated drainage ponds - authorized by the amended Project Certificate No. 005); and,
- Construction and operation of an ore dock and ore loading system, additional ancillary buildings and maintenance facilities required for the shipment of ore and associated changes to surface drainage.

#### Tote Road

- The additional withdrawal of water at several locations along the Tote Road for effective dust suppression associated with road haulage of ore as per commitments made during the NIRB review process for the amendment of Project Certificate No. 005.

#### Mine Site

- Increasing the originally intended life span for some of the temporary facilities (transitional construction camp, buildings and fuel storage) at the Mine Site; and,
- Land discharge of treated sewage effluent as was submitted to the NWB in the March 31, 2014 version of the approved “Fresh Water Supply, Sewage and Wastewater Management Plan”.

## **2.0 Objective**

A preliminary review of Baffinland’s application for amendment of the Type ‘A’ licence was undertaken to identify whether the application is complete with respect to information required to conduct a technical review.

The application and the following supporting attachments were reviewed:

- Attachment 1: Supplementary Technical Information for Milne Port facilities subject to this amendment;
- Attachment 2: Supplementary Technical Information for additional water withdrawal locations and water quantities along the Tote Road subject to this amendment;
- Attachment 3: Supplementary Technical Information for changes introduced at the Mine Site subject to this amendment;
- Attachment 4: Interim Closure and Reclamation Plan for the Mary River Project and associated estimated security deposit;
- Attachment 5: Company Financial Information and List of Directors;
- Attachment 6: Compliance Assessment and Status Report in Response to Inspector’s Report.

References to the amended Project Certificate No. 005 and specific management plans as cited in the application and supporting material were also made where appropriate.

Aboriginal Affairs and Northern Development Canada (the Department or AANDC) has a broad mandate for the co-management of freshwater resources in Nunavut as well as the management of Crown land and mineral resources. Our responsibilities, mandate and obligations (intervening in water licence processes, enforcing regulatory authorizations, etc.) stem from the following applicable laws and policies:

- *Department of Indian Affairs and Northern Development Act*
- *Nunavut Land Claims Agreement Act*
- *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the associated regulations
- Mine Site Reclamation Policy for Nunavut

Preliminary comments pertaining to the Interim Closure and Reclamation Plan for the Mary River Project and associated security estimate (Attachment 4) were forwarded under separate cover on 15 September 2014.

The Information Requests (IRs) outlined below provide reference to specific locations in the application documentation, describe the issue and its relevance and make recommendations for additional information. The first information request is directed to the NWB while the remainder are directed to Baffinland.

### **3.0 Information Requests**

#### **3.1 Accelerated Pit Filling Scenarios**

##### **Reference:**

Application for Water Licence Amendment, Section 8, page 4;  
Attachment 4: Interim Closure and Reclamation Plan, Section 8.2.1, pages 44 to 46.

##### **Issue:**

The accelerated pit filling concept is presented in the Interim Mine Closure and Reclamation Plan but it is unclear whether this concept has been formally vetted by the NIRB review process and whether it has been identified as a project component in the amended Project Certificate. It is understood that the application was exempted from screening by the NIRB (11 September 2014), but it is unclear whether the NWB process can deal with impacts to project valued ecosystemic components other than water quality and quantity that may be affected by changes in source waterbody quantity and quality.

Previously during the NIRB review process, discussion of pit filling options were deferred until the licencing stage. However, during the original NWB review process, accelerated pit filling was not open to discussion as it was not part of the “approved” project as delineated in the Project Certificate. Accelerated pit filling does not appear to be addressed in the recently amended Project Certificate.

AANDC is seeking guidance from the NWB on how accelerated pit filling can be addressed procedurally in the current or future licensing process. AANDC requests that additional monitoring and future studies be conducted and submitted to the NWB for review and consideration of the accelerated pit filling options prior to the development of an open pit. At this stage, there is insufficient information to make an informed decision on the accelerated pit proposal. AANDC recognizes that it will be 10-12 years before an open pit will be part of the project and before a final decision is required on this option.

**Rationale:**

Procedural approach to introducing the accelerated pit filling concept to the licence review process needs to be determined to ensure this aspect of mine development is adequately evaluated from an environmental impact perspective in advance of mine closure.

**Recommendation:**

AANDC seeks clarification from the NWB on how the accelerated pit filling concept can be assessed within the current or future licence review process.

### 3.2 Milne Port Ore Stockpile Runoff Ponds

**Reference:**

Attachment 1, Drawing H349000-2000-00-015-0017 Milne Port Early Revenue Phase Site Layout;

Attachment 1, Drawing H349000-2345-10-035-0001 Milne Port Ore Stockpile Sedimentation Ponds;

Attachment 1, Section 1.5 (Ore Stockpile and Sedimentation Ponds at Milne Port), pdf page 4;

Attachment 1, Civil Design Criteria - H349000-1000-10-122-0001, Section 7.4 (Sedimentation Ponds), page 17;

Fresh Water Supply, Sewage, and Wastewater Management Plan BAF-PH1-830-P16-0010 (January 31, 2014), Section 5.3 (Treated Wastewater Generation and Discharge/Outfall Locations), Table 5.7 (Effluent Discharge Quality Limits for Ore Stockpiles and Pits), page 18; Aquatic Effects Monitoring Plan BAF-PH1-830-P16-0039 (June 27, 2014), Section 3.4.1 (Surveillance Network Program Overview), Table 3.2 (Established SNP Monitoring Stations Associated with ERP) and Table 3.3 (Future SNP Stations Associated with ERP), pages 26 and 30.

**Issue:**

Information on the operation of the Milne Port ore stockpile runoff ponds could not be readily located in the application materials. While civil design criteria to be used for the pond designs have been provided and the emergency overflow outfalls to the ocean are detailed, there appears to be no information provided confirming whether the ponds under normal operating conditions will operate as per the amended FEIS (i.e., pumped to a discharge ditch). Whether the amended FEIS information (Volume 8, Section 3.5.2.5) still applies is questioned since the same section states that run-off from the ore stockpile at Milne Port “*will be treated to meet the MMER before being released*”. However, neither the recently updated Fresh Water Supply, Sewage, and Wastewater Management Plan or the Aquatic Effects Monitoring Plan indicate that monitoring stations to capture ore stockpile runoff quality have been proposed (as is the case for ore stockpiles at the Mine Site and Steensby Port).

**Rationale:**

Information (confirmation) on the normal operating strategy of the ponds, and whether monitoring is proposed to ensure compliance with MMER will help determine whether environmental discharges will pose a threat to the environment.

**Recommendation:**

AANDC requests Baffinland to clarify the normal operating strategy for the Milne Port ore stockpile runoff ponds and whether there is any commitment to monitor these ponds to determine whether MMER criteria are met.

### 3.3 Treated Effluent Pond

**Reference:**

Attachment 3: Supplementary Technical Information for changes introduced at the Mine Site subject to this amendment, Drawing H349000-4100-10-015-0001 Mine Site East Sheet Drainage Plan.

**Issue:**

On Drawing H349000-4100-10-015-0001 the Treated Effluent Pond at the Mine Site is labeled as “Possible Treated Effluent Pond”. It is not clear whether the “possible” implies this is a possible location for the pond or whether the pond itself is now being considered for possible elimination.

**Rationale:**

Clarification of whether the Treated Effluent Pond will possibly be eliminated or moved will have potential ramifications on the impact of treated effluent discharge.

**Recommendation:**

AANDC requests Baffinland to clarify whether the Treated Effluent Pond will be possibly eliminated or possibly moved to an alternate location.

### 3.4 Desalination Plant

**Reference:**

Application for Water Licence Amendment, Section 10, page 4;  
Fresh Water Supply, Sewage, and Wastewater Management Plan BAF-PH1-830-P16-0010 (January 31, 2014), Section E.1.1.1 Steensby Port Site; page 48;  
Project Certificate No. 005 (May 28, 2014).

**Issue:**

Under Section 10 of the application Baffinland states for Milne Port under item 10d –“*Additional service buildings and desalination plant (no land discharges of waste water or waste)*” and under item 10e – “*Construction and operation of outfall for discharge to ocean of treated sewage effluent and desalination plant brine*”. It is not clear where this proposed desalination plant has been previously described, its purpose, operation and effluent characterization (quality and quantity). There is no reference to a desalination plant at Milne Port in the amended Project Certificate. In the Fresh Water Supply, Sewage, and Wastewater Management Plan there is reference to a desalination plant but this relates to Steensby Port where an onboard desalination unit on the floating barge accommodation vessel is proposed for drinking water supply.

**Rationale:**

There is insufficient information provided on the proposed desalination plant to assess its

potential impact on the environment.

**Recommendation:**

AANDC requests Baffinland to provide additional information on the proposed desalination plant sufficient to assess its potential impact on the environment.

### **3.5 Hydrological Monitoring**

**Reference:**

Aquatic Effects Monitoring Program Framework (December 2013), Section 4.2, page 15  
Nunavut Land Claims Agreement, Article 20, Part 2;  
Final Environmental Impact Statement (February 2012) Volume 7 Section 1.0 –Regional Fresh Water Setting, page 11;  
Addendum to the Final Environmental Impact Statement Early Revenue Phase (June 2013)  
Volumes Two through Seven, Appendix 7A

**Issue:**

Under Section 4.2 of the Aquatic Effects Monitoring Program Framework (AEMP) Baffinland committed to maintaining a hydrometric network as the project moves forward. The four year-round hydrometric stations operated by Water Survey Canada were discontinued in 2011, leaving a network of only 7 seasonal stream gauges, 6 of which are located in the Mine Site area. It is not clear whether the hydrometric network has been expanded to include the Milne Port area. In March 2014, AANDC recommended that Baffinland submit their hydrometric data to Water Survey Canada (WSC) as "contributed data" so that it can be validated and published if it meets appropriate standards. It is important that hydrometric data meets national standards and that it is made available to the public to ensure that there is no impact to water quality, quantity, and flow within, in, or flowing through Inuit Owned Land in accordance with the Nunavut Land Claims Agreement. It is also incumbent on individual mining projects, including Baffinland, to make a contribution to regional monitoring in development of a long-term hydrometric record that will support future decision-making.

Under Section 1.0 of the FEIS (2012), Baffinland stated that the hydrological monitoring program will be continued to improve the long-term hydrological record. This information is important for the engineering design of infrastructure. The Addendum to the FEIS (2013) does not provide further details on the long-term monitoring program.

**Rationale:**

There is insufficient information provided on the hydrometric network to assess its value in supporting long-term regional monitoring or in addressing potential project-specific impacts to fresh water quality, quantity, or flow.

**Recommendation:**

AANDC requests Baffinland to a) provide additional information on the hydrometric network located within the Mary River Project area; b) expand the current hydrometric network to include Milne Port; c) commit that hydrometric data will meet national standards; and d) commit that hydrometric data will be shared with AANDC Water Resources and Water Survey Canada for inclusion in the national WSC database, the NWB, and the Qikiqtani Inuit Association.