



Water Resources Division
Resource Management Directorate
Nunavut Regional Office
P.O. Box 100
Iqaluit, NU, X0A 0H0

Your file - Votre référence
2AM-MRY1325

January 7, 2019

Our file - Notre référence
CIDM#1237228

Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0

Re: Crown-Indigenous Relations and Northern Affairs Canada's comments on Baffinland Iron Mines Corporation's 2018 Spill Contingency, Interim Closure and Reclamation, and Emergency Response Plans for water licence #2AM-MRY1325 – Mary River Project

Dear Ms. Porter and Mr. Dwyer,

The Water Resources Division of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the above mentioned plans, and the results of our review are provided in the enclosed memorandum for the Nunavut Water Board's consideration. Comments have been provided pursuant to CIRNAC's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

CIRNAC appreciates the opportunity to participate in this review. If there are any questions or concerns, please contact Bridget Campbell at (867) 975-4282 or by e-mail at bridget.campbell@canada.ca.

Sincerely,

Sarah Forté
Water Management Specialist

Technical Review Memorandum

To: Licensing, Nunavut Water Board

From: Sarah Forté, Water Management Specialist, Water Resources Division, INAC

Date: January 7, 2019

Re: Review of updated Interim Closure and Reclamation, Emergency Response and Spill Contingency Plans for Type A Water Licence 2AM-MRY1325

Applicant: Baffinland Iron Mines Corp.
Project: Mary River Project
Region: Qikiqtani

A. BACKGROUND

On November 2, 2018, Baffinland Iron Mines Corporation (Baffinland) submitted three updated plans for its Mary River Project, which is authorized under Type A water licence 2AM-MRY1325. The Mary River Project is an iron mine located on the northern part of Baffin Island and includes a 100 km long road to Milne Port, where ore is stockpiled and shipped out during the open water season.

The updated plans are:

- Spill Contingency Plan, BAF-PH1-830-P16-0036 Rev 4, September 25, 2018
- Emergency Response Plan, BAF-PH1-840-P16-0002 Rev 4, September 25, 2018
- Interim Closure and Reclamation Plan, BAF-PH1-830-P16-0012 Rev 5, October 30, 2018

The NWB requested interested parties review the plans and make representations by January 7, 2019.

B. RESULTS OF REVIEW

On behalf of Crown-Indigenous and Relations Northern Affairs Canada (CIRNAC) Water Resources, the following comments and recommendations are provided for the Board's consideration.

Spill Contingency Plan

Reference:

- Spill Contingency Plan (BAF-PH1-830-P16-0036 Rev 4), Baffinland Iron Mines Corporation, September 25, 2018
- Spill Contingency Plan (BAF-PH1-830-P16-0036 Rev 3), Baffinland Iron Mines Corporation, March 30, 2017

We have no comments and are satisfied with the updated plan.

Emergency Response Plan

Reference:

- Emergency Response Plan (BAF-PH1-840-P16-0002 Rev 4), Baffinland Iron Mines Corporation, September 25, 2018
- Emergency Response Plan (BAF-PH1-840-P16-0002 Rev 3), Baffinland Iron Mines Corporation, March 30, 2017
- Review of Baffinland Iron Mines Corporation's 2017 Annual Report for Type A Water Licence #2AM-MRY1325, Crown-Indigenous Relations and Northern Affairs Canada, September 14, 2018

We have no comments and are satisfied with the updated plan.

Interim Closure and Reclamation Plan

Reference:

- Interim Closure and Reclamation Plan, BAF-PH1-830-P16-0012 Rev 5, Baffinland Iron Mines Corporation, October 30, 2018
- Interim Closure and Reclamation Plan, BAF-PH1-830-P16-0012 Rev 4, Baffinland Iron Mines Corporation, March 31, 2016
- Review of updated plans submitted with Baffinland Iron Mines Corporation's 2015 Annual Report for Type A Water Licence #2AM-MRY1325 and Type B Water Licences #8BC-MRY1416 and #2BE-MRY1421, Indigenous and Northern Affairs Canada, December 23, 2016
- Review of Baffinland Iron Mines Corporation's Interim Closure and Reclamation Plan for Type A Water Licence #2AM-MRY1325, Indigenous and Northern Affairs Canada, January 4, 2016
- Review of Baffinland Iron Mine Corporation's Aquatic Effects Monitoring Plan and Interim Closure and Reclamation Plan for the Type A Water Licence 2AM-MRY1325, Aboriginal Affairs and Northern Development Canada, June 26, 2015

- 2AM-M-MRY1325 – Mary River Project – Baffinland Iron Mines Corporation – Qikiqtani Region – Interim Mine Closure and Reclamation Plan, Aboriginal Affairs and Northern Development Canada, September 15, 2014

Comments:

Revision 5 (the current version under review) of the Interim Closure and Reclamation Plan (ICRP) includes changes to the structure of the document and addition of more information in certain sections, which generally improves the document. CIRNAC is particularly encouraged by the new details, deadlines and refinements brought to the Reclamation Research Program. The waste rock test pads will help provide information critical for reclamation. However, some relevant new information is not acknowledged, and some of the information added is not pertinent for an ICRP.

CIRNAC has a list of outstanding recommendations made on previous versions of the ICRP and their status is described in the table below.

Table 1 CIRNAC comments from previously submitted technical memoranda

Date initially submitted	Title	Recommendation addressed?
June 26, 2015	Long-term mine closure activity timeline	Yes, timelines for removing equipment are included.
June 26, 2015	Accelerated open pit filling	Partially, Baffinland has committed to research – see comment #6
June 26, 2015	Mary River option for accelerated pit filling	Partially, Baffinland has committed to research – see comment #6
June 26, 2015	Aesthetic closure objective	Yes, it is no longer an issue because of document restructuring.
June 26, 2015	Waste rock stockpile cover thickness	Yes, a thickness of 25 m is now specified.
Sept. 15, 2014	Ultimate Project closure and reclamation cost	No, the ultimate project closure cost still does not include the Early Revenue Phase.
Jan. 4, 2016	Railway construction	Yes, the reference has been removed
Jan. 4, 2016	Closure activities planned for landfarm	Yes, table has been revised.
Jan. 4, 2016	Closure activities planned for site wide railway	Yes, it is no longer an issue because conflicting schedule was removed from table.

Previously, our biggest concern was the pit lake filling, and with new information available on acid rock drainage (ARD) from the waste rock pile, the pit lake remains our primary concern. We recognize that the Reclamation Research Program proposes to address some of the uncertainties, and believe a solid reclamation plan is necessary prior to pit formation so that steps can be taken to optimize ease of closure. Below are comments and recommendations on Revision 5 of the ICRP.

1. ACID ROCK DRAINAGE

Sections 5.2.1.2, 5.2.1.5, and 5.21.7 refer to predictions from studies submitted in the Final Environmental Impact Statement (FEIS) and FEIS Addendum (AMEC, 2010). These forecasted that ARD would not be an issue for water quality. Field data exists that demonstrates the studies assumptions do not hold, since there is an ARD issue for water quality. Though we recognize that further research is ongoing and new predictions are not yet ready, it is counterproductive to continue referring to predictions which have been disproven.

Recommendation:

If predictions on water quality from the FEIS are mentioned, they should immediately be followed by an acknowledgment that the assumptions used to make the predictions have not held true in the field.

2. REFERENCE TO EXPIRED WATER LICENCES

Sections 1 and 2.1 refer to the 8BC-MRY construction water licence. This licence has been canceled.

Recommendation:

Removing references to this water licence as a relevant regulatory instrument is recommended since this water licence has been canceled and is no longer valid.

3. FUEL STORAGE FACILITIES AT MILNE PORT

The Spill Contingency and Emergency Response Plans were updated to include the new 15 ML diesel tank at Milne Port. Section 5.2.7.1 describes the Milne Port Tank Farm as holding 3-12 ML and 2-5 ML tanks, but the 15 ML tank is not included.

Recommendation:

Including the 15 ML fuel tank at the Milne Port Tank Farm in the next revision of the ICRP is recommended.

4. PERMANENT WASTE ROCK PILE

Sections 5.2.3.4, 5.2.4.4 and 5.2.8.4 include the statement “*Detailed alternative analysis of other closure options have not been completed by Baffinland due to the early stage of the Project and the absence of Project components which represent the largest uncertainty at closure (Open Pit, Permanent Waste Rock Stockpile).*” It is CIRNAC’s understanding that the waste rock pile currently in use will be expanded to cover much more ground, but it will not be moved. If this is correct, it underlines the importance of developing an effective closure plan as quickly as possible.

Recommendation:

Baffinland clarify whether the currently used waste rock pile is permanent or if it will be moved.

5. RE-VEGETATION

Section D5 states: *"It should be noted that vegetation is naturally sparse or nonexistent (e.g., waste rock stockpile footprint) over much of the Project Area, and therefore the potential for natural re-vegetation of disturbed Project areas is uncertain. Re-vegetation by reseeding or replanting is not currently being considered by the Project based on the current site conditions and the potential for success in areas not historically vegetated."*

CIRNAC agrees that the lack of pre-disturbance vegetation in areas such as the waste rock stockpile does not prompt large re-vegetation efforts in those areas. However other areas do have significant vegetation pre-disturbance. Presently a series of laydown pads is being built in the Phillips' Creek valley near Milne Port, filling in wetlands, streams and ponds. As noted by Baffinland, *"vegetative cover is greater on wetter sites"* and a study found *"considerable re-vegetation had occurred along the old tote road, particularly in damp areas"*.

Recommendation:

Baffinland has committed to studying natural re-vegetation and we recommend they particularly consider what efforts could help re-vegetate previously wet areas.

6. STUDY ON PIT FLOODING TIMELINE

The Reclamation Research Program includes a component for the Open Pit Flooding Timeline (D2). The second task is an assessment of potential water sources/enhanced flooding, which is to include a desktop hydrology study. This is a good beginning and some work has already been done, but field data would likely be necessary to validate the conclusions. This might involve installing a hydrometric station at the proposed abstraction point, which should be done some years in advance to develop an understanding of naturally variable flows.

The proposed timeline for the study in Table D-2 is *"Should be completed during first 5 years of dewatering."* A reclamation plan for the pit needs to be established prior to its development, so that if the pit needs to be reclaimed at any point, a plan is already in place.

Recommendation:

Baffinland revisit the schedule for the second task of its Open Pit Flooding Timeline Reclamation Research Program to allow it to be completed, and if necessary collect field data, prior to pit development.

7. EXTRANEEOUS DETAILS

The ICRP is a long complex document, and the addition of certain information not directly relevant to reclamation make it longer than it needs to be. Some examples are:

- Section 5.2.5.1 – Discussion of crushers and lump-to-fine ratios
- Section 5.2.7.1 – Slope towards sumps in tank farms
- Section 5.2.8.1 – Details of water treatment system including its filters

Recommendation:

Description of facilities and infrastructure should be limited to information directly pertinent to future reclamation efforts.