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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File: 2AM-MRY1325 / B17

March 8, 2019

Christopher Murray
Environmental & Regulatory Compliance Manager
Baffinland Iron Mines Corporation
Suite 300 – 2275 Upper Middle Road East
Oakville, Ontario, Canada L6H 0C3

Subject: Licence No. 2AM-MRY1325; Request by Baffinland Iron Mines Corporation for Approval of Interim Closure and Reclamation, Spill Contingency, and Emergency Response Plans

Dear Mr. Murray:

On November 2, 2018, Baffinland Iron Mines Corporation (BIMC or Licensee) submitted the Interim Closure and Reclamation (dated October 19, 2018), Spill Contingency (dated September 25, 2018), and Emergency Response (dated September 25, 2018) Plans as part of its 2019 annual security review document package to the Nunavut Water Board (NWB or Board). On December 14, 2018, the Licensee requested that these Plans be considered for approval, and NWB distributed the Plans for review by interested parties on December 17, 2018.

Only Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) responded to NWB's call on January 7, 2019. CIRNAC did not have any comments pertaining to the Spill Contingency Plan or the Emergency Response Plan; however, comments were provided in relation to the Interim Closure and Reclamation Plan.

The intervener recommended for the Licensee:

- If predictions on water quality from the Final Environmental Impact Statement (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[1];
- Removing references to a cancelled water licence;
- Including the 15 ML fuel tank at the Milne Port Tank Farm;
- Clarifying whether the location of the current waste rock stockpile is permanent;
- Considering what efforts could help re-vegetate previously wet areas;
- Revisiting 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

[1] In this recommendation, CIRNAC refers to the low-pH wastewater in the waste rock stockpile sedimentation pond due to unforeseen acid rock drainage (ARD).

pit development[2]; and

- Limiting the description of facilities and infrastructure to information directly pertinent to future reclamation efforts.

On January 10, 2019, BIMC provided its response to CIRNAC's comments. The Licensee stated that water quality predictions for the open pit were not disproven, and the low-pH event at the waste rock facility pond was due to waste rock management practices. As for open pit flooding, BIMC committed to creating a Mine Closure Working Group in 2019. The Licensee agreed with the rest of CIRNAC's comments.

On January 28, 2019, CIRNAC followed up with its feedback to BIMC's response. The agency stated:

> *CIRNAC supports Baffinland's continued use of preliminary assumptions as the basis for future site conditions, only until water quality predictions are updated using field data and residual impact evaluations for pit water quality. However, making references to these outdated predictions is misleading unless the reader is informed that the preliminary assumptions do not hold true in the field.*

The concern over pit flooding strategy was re-iterated, and the intervenor recommended completing a hydrometric assessment and determining the water source for flooding as soon as possible.

On February 20, 2019, the Licensee provided its latest response to CIRNAC's comments. BIMC stated:

> *Furthermore, while the open pit and waste rock facility water quality models completed by AMEC (2012) share the same source terms based on the results of humidity cell testing, the results of the modelling (mass loading approach) for each location are different, based on the difference in assumptions and other source terms including hydrological factors…*
>
> *Baffinland maintains that the acid rock drainage (ARD) issue observed at the Waste Rock Facility is an operational issue related to waste rock management, and is being addressed through the interim updates to the Waste Rock Management Plan and the final update scheduled for December 2019. The water quality modelling completed by AMEC (2012) was based on the assumption that the waste rock pile is complete (year 21 of the mine life) and is in the closure phase…*

BIMC committed to further research on pit flooding and re-vegetation through the work of the Mine Closure Working Group.

On February 25, 2019, CIRNAC submitted a letter to NWB summarizing its disagreement with the Licensee's point of view on acid rock drainage in open pit.

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[2] Here, CIRNAC refers to "Task 2 – Water Monitoring and Comparison against Water Quality Predictions", which prescribes that "(t)he quality and flow of key inflows to the open pit should be monitored (or otherwise estimated) and compared against water quality predictions".

By copy of this letter, the Board approves the Spill Contingency and Emergency Response Plans, both dated September 25, 2018, and the Interim Closure and Reclamation Plan dated October 19, 2018 through Board Motion No. 2018-A1-030, dated March 8, 2019. The Licensee is advised that the Spill Contingency and Emergency Response Plans may be implemented upon Board approval. The Interim Closure and Reclamation Plan (ICRP) dated October 19, 2018 is approved on the condition that an updated version is submitted to NWB on or before May 1, 2019 to account for the uncertainty in regards to acid rock drainage in the open pit. The Board notes that the 2018 blast hole data showed that potentially acid generating "waste rock represented 17.2% of the waste rock material generated during 2018 which is greater than the assumed 10% for the five-year pit" [3], which can indicate a potential for pit water treatment at closure. The submitted ICRP discusses the existence of uncertainties in pit water quality; however, it also indicates that "(i)t is currently anticipated that the discharge from the open pit will not require treatment" basing on a study from 2010[4]. The Board believes that statements such as these require further validation and thus should be excluded from the Plan. The Board appreciates BIMC's efforts in furthering its research and looks forward to seeing the conclusions of this research in the future updates of the Interim Closure and Reclamation Plan.

Should you have any questions, please feel free to contact Assol Kubeisinova at (867) 360-6338 or assol.kubeisinova@nwb-oen.ca at your earliest convenience.

Regards,

Assol Kubeisinova
NWB Technical Advisor

cc: Distribution List – Mary River

[3] See BIMC's Interim Waste Rock Management Plan, dated December 2018.
[4] AMEC Earth & Environmental, Interim Report on ML/ARD Characterization Mary River Project, Deposit No. 1, dated December 2010.