Crown-Indigenous Relations and Northern Affairs Canada
Relations Couronne-Autochtones et Affaires du Nord Canada

Water Resources Division
Resource Management Directorate
Nunavut Regional Office
918 Nunavut Drive
Iqaluit, NU, X0A 3H0

Your file - Votre référence
2AM-MRY1325
Our file - Notre référence
GCDocs# 133365890

February 11, 2025

Robert Hunter
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
Sent via E-mail: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada's review of Baffinland Iron Mine Corporation's Water Licence renewal for Type A Water License 2AM-MRY1325 Mary River Project

Dear Mr. Hunter,

Thank you for the email dated December 27, 2024 to provide final written submissions for the Renewal Application for the Mary River Project Type A Water Licence 2AM-MRY1325 following the Pre-Hearing Decision Report issued on December 19, 2024.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. Please find CIRNAC comments and recommendations in the attached Technical Memorandum, as well an updated summary table of outstanding concerns.

If there are any questions or concerns, please contact Lauren Perrin at lauren.perrin@rcaanc-cirnac.gc.ca or Andrew Keim at Andrew.keim@rcaanc-cirnac.gc.ca

Sincerely,

Lauren Perrin,
Water Management Specialist

Canada

Technical Review Memorandum

Date: February 11, 2025

To: Robert Hunter– Licensing Administrator, Nunavut Water Board

From: Lauren Perrin– Water Management Specialist, CIRNAC

Subject: **Crown-Indigenous Relations and Northern Affairs Canada's review of Baffinland Iron Mine Corporation's Water Licence renewal for Type A Water License 2AM-MRY1325 Mary River Project**

Region: ☐ Kitikmeot ☐ Kivalliq ☒ Qikiqtani

A. BACKGROUND

The Mary River Project is an operating high-grade iron mine located in the Qikiqtani Region of Nunavut, on northern Baffin Island. The mine is owned and operated by Baffinland Iron Mines Corporation (Baffinland) and includes the Mine Site, the Milne Port site, and a 100 km-long Tote Road connecting the two sites. The current approved project allows iron ore production through open pit mining. The Nunavut Water Board correspondence dated June 27th, 2024 with respect to determination of completeness of the Water Licence 2AM-MRY1325 renewal application began the water licence renewal process. On September 23, 2024 the technical review stage began inviting intervenors to comment on the technical documents provided by Baffinland. On December 3-4, 2024 the Board held in person and virtual technical meetings and pre-hearing conference. The Board then requested intervenors to file any further and final written submissions regarding the Water Licence Renewal for 2AM-MRY1325.

A summary of Crown-Indigenous Relations and Northern Affairs' (CIRNAC) comments and recommendations regarding the water licence renewal are listed in Table 1 'Summary of Recommendations' as well detailed summaries and recommendations outlined in Section C of outstanding concerns.

Table 1: Outstanding Summary of Recommendations post PHC

Recommendation Number	Subject
R-04	Dustfall Monitoring Improvements
R-08	Mineral Wastes
R-11	Climate Change Predictions
R-16	Water Quality Monitoring

B. DOCUMENTS REVIEWED AND REFERENCED

The following table (Table 2) provides a list of the documents reviewed under the submission and reference during the review.

Table 2: Documents Reviewed and Referenced

Document Title	Author, File No., Rev., Date
NWB Type "A" Water Licence No. 2AM-MRY1325 – Mary River Project, Nunavut; Baffinland Iron Mines Corporation	Nunavut Water Board, 12 June 2013
NWB Licence No. 2AM-MRY1325 – Amendment No. 1	Nunavut Water Board, 31 July 2015
Project Certificate 005 (Amendment 05)	Nunavut Impact Review Board, 17 November 2023
2023 NIRB Annual Report: Baffinland Iron Mines 2023 Annual Report to the Nunavut Impact Review Board	Baffinland Iron Mines Corporation, 3 May 2024
The Nunavut Impact Review Board 2022-2023 Annual Monitoring Report for Baffinland Iron Mines Corporation's Mary River Project (NIRB File No.08MN053)	Baffinland Iron Mines Corporation, January 2024
The Nunavut Impact Review Board 2022-2023 Annual Monitoring Report for Baffinland Iron Mines Corporation's Mary River Project – Updates to Parties Comments on the 2022-2023 Annual Report (NIRB File No.08MN053)	Baffinland Iron Mines Corporation, 20 March 2024
955-221 Mary River Mine 2023 Environmental Audit	Okane, November 17, 2023
2019 Inspection of the Milne Inlet Tote Road and Associated Borrow Sources	Tetra Tech Canada Inc., 30 October 2019
Interim Closure and Reclamation Plan BAF-PH1-830-P16-0012. Revised Draft – Rev 5	Baffinland Iron Mines Corporation, 2018

C. Outstanding Concerns

4. Dustfall Monitoring Improvements

Review Topic/Discipline Area:

Waste Deposit to Water for AEMP

Reference Documents:

- N/A

Comment:

Dustfall as a pathway of potential effect requires improved management planning, monitoring and reporting under the authority of the WL. CIRNAC does not believe that the current dustfall monitoring meets the regulatory expectations for WL monitoring. Due to changes in BIMC operations (e.g., mine plan updates, increased haulage rates, future planned expansion), there is a need to conduct a detailed review of dustfall monitoring. Review of dustfall monitoring and capture data should be undertaken to verify the mine's dustfall performance over time, relative to baseline predictions. In addition, a review should also consider whether the existing data is sufficient to make evidentiary conclusions about cumulative effects and potential effects of dustfall on water quality as a source load input.

Recommendation:

(R-04)
CIRNAC recommended a comprehensive review of dustfall monitoring relative to the scope and authority of the WL, relative to water quality, and to consider the following:

a) Review of dustfall data and the model used to support the monitoring program (including sample design, assumptions etc.) to determine if dustfall data collection is sufficient, relative to the current state of development and verify the operations of dustfall performance over time, relative to baseline predictions.

8. Mineral Wastes

Review Topic/Discipline Area:

Waste Management

Reference Documents:

- Appendix L5 - Waste Management Plan BIM-5200-PLA-0013

Comment:

Mineral wastes are soils, sediment or construction materials which have become contaminated as a result of mining operations. These can include native soil contaminated by dusting from ore haulage, crushing, blasting, or spilled ore, or sediments collected in retention ponds with metal concentrations greater than CCME soil standards protective of human health and the environment.

These wastes may also be generated by cleanup activities undertaken during site closure and remediation, like contaminated native soils below operational areas such as the crusher and ore storage areas at the mine site and Milne Port.

The waste management plan does not mention how these materials would be collected, contained, recorded during work, and disposed of correctly. Table 2 and 3 in the Waste Management Plan describe how soil contaminated with petroleum hydrocarbons are managed but there is no mention of native soils or other contaminants used by mining operations.

The Interim Closure and Reclamation Plan states that “Residual soils meet federal/territorial soil quality guidelines or site-specific risk based criteria as required (CCME agricultural is assumed at this time). If soil exceeds the adopted criteria, it will be removed or risk managed to the satisfaction of the qualified professional to achieve protection of ecological and human health”. There is no mention of how this will be operationalized.

Section 3.3.8, Landfills and Other Waste Disposal Areas within the Guidelines for Closure and Reclamation of Advance Mineral Exploration and Mine Sites in the Northwest Territories, states that landfills and other waste disposal areas which can include abandoned waste rock piles should be disposed in a manner that minimizes adverse human health and environmental effects. It is CIRNACs interpretation that if the mine were abandoned, agriculture, parkland or residential guidelines would apply to all mineral waste areas (including the waste rock facility) and the Federal government would be held to a higher standard of clean-up for the crusher, ore storage areas, dusting zones and possibly the waste rock facility.

Recommendation:

(R-08)
CIRNAC recommends that:

a) After the pre-hearing and technical meetings CIRNAC considers this unresolved and recommends BIMC update the waste management plan to include mineral waste and directives for: collection, containment, data / records, and disposal.

11. Climate Change Predictions

Review Topic/Discipline Area:

ML/ARD Mitigation

Reference Documents:

- 240626-2AM-MRY1325-WL-Renewal-Applic-Appendix-L10-ILAE.pdf
- NIRB\240331 - 2023 QIA-NWB Annual Report for Ops - Full Report - As Sent.pdf

Comment:

The only ML/ARD mitigation strategy is freezing the PAG waste rock in permafrost in the WRF. The 2007 Intergovernmental Panel on Climate Change is cited to support BIMC's assertion that the non-PAG shell is sufficient to keep the PAG frozen. Climate change is occurring at a faster rate in the Arctic than in other regions of the earth, and climate change models have been substantially updated in recent years.
The original water license states under Part F paragraph 3 that a revised waste rock management plan shall be provided for future revisions under the license. The revision shall include updates on:

g. Waste Rock Storage Facilities with consideration for climate change.

BIMC has committed to providing multiple climate change projections in the next update of the thermal model planned for 2026, as outlined in the ICRP Revision 6.

Recommendation:

(R-11)
CIRNAC recommendation remains that:

a) BIMC revisit its climate change predictions and evaluate the long-term thermal stability of the permafrost in the WRF. This evaluation also needs to be updated once additional monitoring and modelling data from the WRF are available.

16. Water Quality Monitoring

Review Topic/Discipline Area:

Water Quality Monitoring

Reference Documents:

- 240626-2AM-MRY1325-WL-Renewal-Applic-Appendix-L10-ILAE.pdf
- NIRB\240331 - 2023 QIA-NWB Annual Report for Ops - Full Report - As Sent.pdf

Comment:

Within Appendix H (FEIS Freshwater Quality Predictions), Table H9 – 14 list water quality predictions for different creeks in the area. The predictions are from pre-2018. More data from water quality monitoring is now available. A comparison between predicted and measured water quality data will support an evaluation of water quality predictions and confirmation of required mitigation measures.
Part F paragraph 3 of the 2013 water license (and 2015 Amendment No. 1) states that a revised waste rock management plan shall be provided for future revisions under the license. The revision shall include updates on:

a. Geochemical modeling which should include post closure monitoring of the WRF;
b. Pit water quality predictions

Recommendation:

(R-16)
CIRNAC recommends that BIMC:

a) Provide a comparison between predicted and measured water quality data and evaluate if additional mitigation measures are required.
b) Provide update on geochemical modeling and pit water quality predictions

APPENDIX A: Status of Technical Comments post Pre- Hearing conference and Technical Meetings

Resolved		Resolved by Commitment	Unresolved
R-1	R-19	R-6	R-4
R-2	R-21	R-13	R-8
R-3	R-23	R-20	R-11
R-5	R-24	R-22	R-16
R-7	R-26	R-25	
R-9	R-27	R-28	
R-10	R-29	R-33	
R-12	R-30	R-34	
R-14	R-31	R-35	
R-15	R-32		
R-17	R-36		
R-18			