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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File: 2AM-MRY1325

October 19, 2021

Lou Kamermans
Senior Director, Sustainable Development
Baffinland Iron Mines Corporation
Suite 300 – 2275 Upper Middle Road East
Oakville, Ontario, Canada L6H 0C3

Email: lou.kamermans@baffinland.com

RE: Licence No: 2AM-MRY1325 Type “A”; Mary River Project, Baffinland Iron Mines Corporation; 2020 Annual Report Review

Dear Lou Kamermans:

The Nunavut Water Board (NWB or Board) has completed the technical review of the 2020 Annual Report (Report) for Type “A” Water Licence 2AM-MRY1325 (Licence). The Report was received on March 31, 2021 from Baffinland Iron Mines Corporation (Baffinland or Licensee), submitted as a requirement under Part B of the Licence.

Copies of all documents received during Report review can be accessed through the NWB’s Public Registry and FTP site using the following links:

[ftp://ftp.nwb-oen.ca/registry/2_MINING_MILLING/2A/2AM - Mining/2AM-MRY1325 BIMC/3 TECH/1 GENERAL \(B\)/2 ANNUAL RPT/2020/](ftp://ftp.nwb-oen.ca/registry/2_MINING_MILLING/2A/2AM_-_Mining/2AM-MRY1325_BIMC/3_TECH/1_GENERAL_(B)/2_ANNUAL_RPT/2020/)

On April 14, 2021, the NWB distributed the Report for public review with the deadline set for July 14, 2021. On July 15, 2020, Environment and Climate Change Canada (ECCC) provided its feedback regarding the Report. On July 27, 2021, Crown-Indigenous Relations and Northern Affairs (CIRNA) requested that the deadline be extended to August 6, 2021, which the NWB granted. On July 29, 2021, the Qikiqtani Inuit Association (QIA) submitted its comments on the Report. On August 6, 2021, the NWB granted a further extension to August 9, 2021 at the request of CIRNA. On August 9, 2021, CIRNA submitted its comments.

The table below provides a brief summary of issues found outstanding during the Report review period. Only the issues pertaining to the NWB’s mandate and the scope of the Licence were included in the table. The table also provides deadlines for the Licensee to respond to respective recommendations and concerns. For the intervenors’ discussion of these items, please refer to the comment submissions referenced above.

No.	Intervener Recommendation / Concern	Deadline to Respond by and Notes
Qikiqtani Inuit Association (QIA)		
1	Provide an explanation as to why the Milne Port Fuel Module Construction Summary Report is not available.	December 13, 2021
4	QIA requests the following information be provided: 1. Confirmation if Baffinland will still proceed with the multi-bench mining system if Phase 2 is not approved. 2. Confirmation if QIA will be notified when works at the Waste Rock Storage Facility are completed. 3. Confirmation that an amended Quarry Management Plan for QMR2 will be provided.	March 31, 2022 (2021 Annual Report submission)
5	QIA requests elaboration as to when the Long-Term Water Management Plan will be developed, noting the Interim Water Management Plan is limited to the next five years of mining operations.	December 13, 2021 The Board also notes its approval of Modification No. 13.
6	QIA seeks to better understand what footprint Baffinland believes would represent pit conditions. It is requested that Baffinland delineate or provide indicators that would define active dewatering compared to pumping of localized ponding. In addition, it is requested that discussions on how security can be allocated for the observed status of the pit be held.	March 31, 2022 (2021 Annual Report submission)
Crown-Indigenous Relations and Northern Affairs (CIRNA)		
R-01	Develop and implement a system to respect authorized water withdrawal volumes at each water source.	March 31, 2022 (2021 Annual Report submission)
R-02	Investigate why acid drainage formation occurred at locations where only non-potentially acid generating (Non-PAG) waste rock would be placed (including examination of markers of active dissolution of acidic soluble sulphates and oxidation of iron sulphides at surveillance network program (SNP) station MS-08 and sampling locations within diversion ditches), take corrective and/or mitigation measures if necessary, and provide a summary of the investigation.	March 31, 2022 (2021 Annual Report submission)
R-03	Implement the Groundwater Monitoring Program recommendations, or propose alternative actions to better characterize the impact the landfill has on surrounding groundwater and groundwater conditions at the four additional areas identified as potentially impacted.	March 31, 2022 (2021 Annual Report submission)
R-04	Implement the Core Receiving Environment Monitoring Program Report recommendations, or propose alternative actions to address the causes of Aquatic Effects Monitoring Plan benchmark exceedances.	March 31, 2022 (2021 Annual Report submission)
R-05	Once the Mine Site Water Management Plan is approved, the Licensee should take actions as quickly as possible to eliminate future sediment laden water discharges to the project area streams.	March 31, 2022 (2021 Annual Report submission)
R-06	Provide information on where water previously reporting to station MP-C-C is now directed and discuss whether the station could be relocated to capture the diverted flow.	December 13, 2021

R-07	Clarify: a) where operational changes to eliminate water quantity withdrawal exceedances are recorded for implementation; b) where operational changes to avoid holding time exceedances for acute lethality water samples are recorded for implementation; and c) if day tanks have been installed within 100 m of water bodies at Milne Port and justify changes if they have occurred.	December 13, 2021
R-08	Investigate where the 376,352 tonnes of potentially acid generating (PAG) waste rocks were placed in the Waste Rock Facility (WRF) in 2020 and review the design and the implementation of its WRF Quality Control / Quality Assurance (QA/QC) program so that the objective of the program can be met in future years.	December 13, 2021
R-09	Implement the QA/QC Plan fully in order to prevent sampling errors resulting in exceedance to discharge criteria.	March 31, 2022 (2021 Annual Report submission)
R-10	List the locations along the Tote Road identified as having potential project related impacts so that Inspectors can monitor these locations if appropriate and interveners can follow the monitoring results.	December 13, 2021
R-11	Clarify what the four different values for S represent in Table E.6.4 and which value was applied as total sulfur in its waste rock identification and classification.	December 13, 2021
R-12	Include settlement monitoring and inspections of swale as part of the required maintenance or propose alternatives.	March 31, 2022 (2021 Annual Report submission)
Environment and Climate Change Canada (ECCC)		
1	In regards to groundwater monitoring, assess impacts to nearby receptors (i.e. Sheardown Lake NW and SE) with 2021 data, and if trends and elevated levels are confirmed, ECCC recommends further actions be identified to assess risk to receptors and mitigative measures. ECCC notes that the data for sampling stations in Sheardown Lake NW and SE closest to the landfill do not yet show any differences in the parameters that are elevated in groundwater, but recommends that the movement of contaminants towards the lake be monitored, and mitigation identified if necessary.	March 31, 2022 (2021 Annual Report submission)
2	Evaluate contaminant mobility in the substrate adjacent to the landfill; specifically, the likelihood of movement of particulate-associated contaminants whether through direct transport or desorption processes.	March 31, 2022 (2021 Annual Report submission)
3	Provide a discussion of 2019 and 2020 results for Aluminum, Copper and Iron in Mary River samples.	March 31, 2022 (2021 Annual Report submission)
4	<ul style="list-style-type: none"> Use the updated values for Zinc from Canadian Council of Ministers of the Environment (CCME) Water Quality Guideline for analysis in future monitoring years, and Discuss whether the newly released CCME Manganese Water Quality Guideline is more appropriate for use at the mine site than the BC 	<p>Subsequent annual reports</p> <p>March 31, 2022 (2021 Annual Report submission)</p>

	Water Quality Guideline.	
5	Provide a discussion of final pit depth and geotechnical investigations required to evaluate groundwater inflows which may inform data collection activities outlined in the Reclamation Research Studies Pit Lake Literature Review.	March 31, 2022 (2021 Annual Report submission)
6	Clarify the Metal and Diamond Mining Effluent Regulations (MDMER) details and whether they are applied in the Oily Water Treatment Plant (For Vehicle Wash Water) O & M Manuals. ECCC also notes that the discharge criteria for Arsenic and Lead were amended as of June 1, 2021 (for reference in the next Annual Report).	December 13, 2021 Subsequent annual reports
7	Provide a discussion of data quality objectives and procedures in section 10 of the Quality Assurance and Quality Control Plan.	December 13, 2021
8	Continue monitoring, investigating and updating the thermal assessment of the WRF and identifying other possible hot spots in the WRF.	Subsequent annual reports

The NWB notes that Baffinland submitted the following updated management plans with the 2020 Annual Report:

- *Emergency Response Plan (ERP)* dated December 8, 2020;
- *Spill Contingency Plan* dated February 28, 2021;
- Fresh Water Supply, Sewage, and Wastewater Management Plan dated March 31, 2021;
- Surface Water and Aquatic Ecosystem Management Plan dated March 31, 2021; and
- Snow Management Plan dated March 23, 2021.

The Licensee is advised that the updated plans address the requirements of Part B, Item 17 of the Licence.

If you have any questions, please contact the undersigned at assol.kubeisinova@nwb-oen.ca or (867) 360 6338 (ext. 31).

Best regards,

Assol Kubeisinova
Nunavut Water Board
Technical Advisor

Enclosure: Comments – QIA, CIRNA, ECCC

Cc: Distribution List – Mary River