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Assol Kubeisinova
Technical Advisor
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0

July 16, 2020

Re: NWB Request for Updated Comments on Baffinland's Phase 1 Waste Rock Management Plan (Rev. 3)

Ms. Kubeisinova,

The Qikiqtani Inuit Association (QIA) provides this letter in response to the Nunavut Water Board's (NWB) request for updated comments on Baffinland Iron Mines Corporation's (Baffinland) Phase 1 Waste Rock Management Plan – Revision 3 (WRMP). QIA's updated technical comments are provided in Appendix A¹.

At this time, QIA is satisfied that all outstanding technical concerns (QIA-WRMP-1 to QIA-WRMP-3) have been addressed either by (1) revisions to the Phase 1 WRMP or (2) commitments made by BIMC in recent correspondence submitted to the NWB^{2,3}. The status of these commitments will be reviewed by QIA during future site inspections and audits.

Sincerely,

Chris Spencer
Manager, Regulatory Affairs

cc: Christopher Murray, Baffinland Iron Mines Corporation

¹ Technical comments, including the assessment of Baffinland's responses, were prepared by Hutchinson Environment Sciences Ltd. on behalf of QIA.

² Baffinland (2020). RE: Response to Intervenor Comments, Phase 1 Waste Rock Management Plan Revision 2. Mary River Project, Type 'A' Water Licence – 2AM-MRY1325 – Amend. No 1. March 13, 2020.

³ Baffinland (2020). RE: Phase 1 Waste Rock Management Plan – Revision 3. Mary River Project, Type 'A' Water Licence – 2AM-MRY1325 – Amend. No 1. June 16, 2020.



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| Review Comment Number | QIA-WRMP-1. |
| Subject/Topic | Water balance uncertainty |
| References | WRMP Appendix A Waste Rock Management Plan for 2020 through 2021 Section 6.0 Water Balance APPENDIX A3 Water Balance Memorandum Section 4.1 Climate; Section 4.1.2 Precipitation; 5.0 Water Balance Calibration |
| Original Comment Summary | BIMC has developed a water balance for the WRF that includes significant uncertainty and has not been calibrated to on site conditions. Specific concerns are highlighted with inputs used for precipitation, seasonality, snowpack and, in the longer term, deep interflow in potentially unfrozen portions of the WRF. These concerns introduce significant uncertainty in all modelling, mitigations and management approaches that have used the Water Balance as an input. Specifically, the resulting water quality model used to predict concentrations of key contaminants in WRF contact water may under or over predict impacts to the aquatic environment, and water storage and conveyance infrastructure may be under or oversized. |
| Revision 3 Update | <p>Water Balance Sizing and Calibration</p> <p>We appreciate BIMC's commitment to collect additional data for model calibration in 2020. We look forward to reviewing those data as well as model results from the 1:100 storm event scenario in the next WRMP update.</p> <p>The newly added Adaptive Management section of the WRMP, specifically section 12.2 pertaining to water quantity, provides increased confidence that BIMC will be able to manage excess contact water reporting to the WRF Pond. This issue is resolved.</p> <p>Water Balance Uncertainty</p> <p>We appreciate the additional clarifications regarding the water balance inputs and assumptions. While we remain concerned that BIMC has not yet been able to calibrate the water balance and water quality models (i.e. uncertainties with the model remain), the adaptive management approaches as outlined in Section 12 of the updated WRMP, in particular the stated capacity of the water treatment system, provides confidence that BIMC can manage excess contact water reporting to the WRF Pond. We look forward to reviewing the calibrated model that is expected to be included in the next iteration of the WRMP. Calibration is still expected and required to increase confidence in the longer-term predictions for WRF contact water. These calibrated long-term predictions are required to provide confidence to QIA that BIMC's WRF will not result in long-term environmental liabilities.</p> |



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| Review Comment Number | QIA-WRMP-2. |
| Subject/Topic | Lift thickness and uncertainty in WRF performance |
| References | WRMP Section 7 Thermal Assessment; Section 8.2 Deposition Strategy and Guidelines |
| Original Comment Summary | We are concerned that the waste rock deposition strategy outlined in the WRMP is insufficient to ensure a solid frozen core throughout the WRF and prevent potentially acid rich surface and subsurface seepage stemming from interflow below the active layer. Failure for the WRF to ensure the core remains frozen and that PAG waste rock is isolated from water and oxygen may result in long term risks both structurally and to the environment. |
| Revision 3 Update | We have reviewed the additional information provided in the new Section 12 of the WRMP and consider this issue resolved. |



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| Review Comment Number | QIA-WRMP-3. |
| Subject/Topic | Water quality model uncertainty |
| References | Appendix A Waste Rock Management Plan for 2020 through 2021, Section 7.0 Water Quality Model; 3.3.4 Model Calibration; 2.1 WRF Runoff Water Quality |
| Original Comment Summary | <p>Water quality predictions were only generated for WRF pile runoff and the East and West drainage ditches for the 2020-2021 period. No predictions were provided for the WRF Pond where water will be stored prior to discharge nor were they provided for closure. Model outputs that were provided were relatively accurate in predicting nickel concentrations when calibrated to 2019 data, but were inaccurate for most other parameters.</p> <p>Poor performance of the water quality model and failure to provide predictions both within the WRF Pond and at closure creates uncertainty as to short- and long-term impacts contact water associated with the WRF will have on the aquatic environment.</p> |
| Revision 3 Update | <p>We remain concerned that the water quality model has not been calibrated. However, we are satisfied at present based on the following understanding:</p> <ol style="list-style-type: none"> 1. BIMC has demonstrated in Section 12 of the WRMP that sufficient water treatment capacity is available to mitigate noncompliant contact water thereby preventing discharges of that water to the receiving environment. 2. BIMC continues to propose a 50m NPAG cap for the WRF at closure. This cap thickness coupled with the adaptive management strategies to prevent encapsulated exothermic waste rock will increase long term physical and chemical stability of the WRF. 3. Ongoing water treatment and the use of thermosyphons in perpetuity remains an option should both short- and long-term mitigation and management strategies fail to achieve the predicted outcomes. <p>We also request that the results of BIMC's proposed study on the future expansion of the WRF to address the life-of-mine waste storage requirements be submitted as part of the 2021 Annual Report.</p> |