

August 25, 2025

Robert Hunter  
Licensing Administrator  
Nunavut Water Board  
Gjoa Haven, Nunavut, X0B 1J0

**Re: 2AM-MRY2540 ICRP Revision 6 and WRF Thermal Model Review Comments Responses**

Dear Mr. Hunter,

Please find enclosed Baffinland's responses to the second round of comments received on August 13, 2025, regarding the Interim Closure and Reclamation Plan (ICRP) and the Waste Rock Facility (WRF) Thermal Model.

Enclosed are responses to comments from CIRNAC. Comments from QIA and ECCC have been addressed and are considered complete. Baffinland notes that where relevant, updates identified through this process will be incorporated into the next revision of the ICRP, which is planned for submission to the NWB on November 1, 2026, as required under the Water Licence 2AM-MRY2540.

Sincerely,

A handwritten signature in blue ink, appearing to read "Elisabeth", with a stylized flourish at the end.

Elisabeth Luther  
Senior Manager, Regulatory Affairs

Cc: Lou Kamermans, Senior Director, Sustainable Development  
Steve Borcsok, Approvals Manager

**Enclosed:**

- *Attachment 1. Responses to Comments from CIRNAC*

**Attachment 1. Responses to Comments from CIRNAC**

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25-Aug-25

Comment #	Reference	Section #	Topic	CIRNAC Comments and Recommendations (March 7th, 2025)	BIM Responses / Comments (July 11, 2025)	CIRNAC Response (August 6, 2025)	Baffinland Response (August 2025)
1	Waste Rock Facility Thermal Model	D4.5.1 Task 4.1, Appendix D4	Thermal monitoring of Waste Rock Facility (WRF)	<p>In previous reviews it was clearly stated that the current state of BIM's thermal monitoring network for the WRF needs to be expanded. In D4.5.1 Task 4.1 it is now stated that: "A total of three (3) additional thermistors were installed within the WRF in 2024, bringing the facility total to six (6) installations, and the data collection/thermal data collection is being evaluated in conjunction with model development to ascertain the requirement for more instrumentation. If required, the installation of additional thermistor strings is anticipated to occur in 2026."</p> <p>Additionally, Baffinland states that: "All instruments are functional except for the oxygen sensors at BH2 (damaged in August 2019) and 8 of the 26 thermistor nodes at BH2 (damaged September 2019). Baffinland will continue to maintain the installed instrumentation to the extent practical. At this time the installed instrumentation is considered sufficient for the current need. The instrumentation requirements will be reviewed regularly based on the results of site observations and measurements." While in 2023 several of the sensors had nonfunctional heads.</p> <p>It was mentioned that new oxygen sensors need to be installed as the ones previously installed were reported uncertain in their functionality. The report also mentions the installation of new oxygen sensors, but that one of the two is damaged.</p> <p>No update has been provided on the status of current instrumentation, if those functional are still functional. It is reported that some additional thermistors have been installed but no mention of oxygen probes, vibrating wire piezometers or barometers whether these have been added.</p> <p><b>Recommendation:</b> (R-01) CIRNAC recommends installing thermistors in the winter 2024/2025 to get a better coverage of thermal heterogeneity in the WRF and aid in understanding of why increasing temperatures are observed in some locations. Furthermore, install additional oxygen sensors and present all data past 2020/2019.</p>	<p>Baffinland installed five thermistors in the WRF in 2024 (one (1) which was previously down, three (3) vertical thermistors and one (1) horizontal thermistor), in excess of what was initially planned. Information on the newly installed thermistors is provided in the 2024 QIA-NWB Annual Report for Operations as per previous commitments to CIRNAC.</p> <p>Regarding the specific request for additional monitoring of oxygen, Baffinland has not planned for installation of additional oxygen probes in the WRF for 2025, as outlined in the 2024 QIA-NWB Annual Report for Operations. Through discussion with BIM's consultant and subject matter expert on waste rock management, new oxygen sensors are not currently being considered for installation at the WRF given their poor success for continued operation. Thermistors installed in target locations at the WRF will provide the necessary monitoring to confirm the deposition strategy is promoting freezing as per the design intent.</p> <p>Updated information on the status of thermistor installations at the WRF are provided in the 2024 QIA-NWB Annual Report for Operations (March 31, 2025), section 9.6.4 and Appendix E.15.1. Baffinland is conducting an assessment of thermistor data sets and assessing the need for additional monitoring and recommendations for future instrumentation.</p>	<p>(R2-01) CIRNAC acknowledges that Baffinland installed 5 thermistors in 2024 but 4 of the initially installed instruments are no longer operational. The net total number of instruments has not significantly increased, but spatial distribution has been enhanced with the locations of BH4, BH6 and T6 in the south part of the WRF.</p> <p>CIRNAC recommends Baffinland conduct an assessment of the thermistor database and determine the adequacy of existing instrumentation as well determine if additional instrumentation and monitoring is required. CIRNAC acknowledges the temperature data should be adequate to be used for the calibration of the thermal models.</p> <p>Thermistor data are not sufficient to validate at which temperature sulfides specific to this deposit to have negligible oxidation rates. Oxygen concentrations should be monitored in the WRF to assess the performance of the non-PAG cover.</p> <p>Concerning the oxygen probes, CIRNAC recommends that Baffinland provides:</p> <p>a) b) c)</p> <p>Rationale on why additional oxygen probes will not be installed in the WRF;</p> <p>The results of the oxygen probe monitoring collected to date;</p> <p>The implementation of an alternative methodology to measure oxygen consumption by sulfide below and inside the cover (i.e., lab or field oxygen consumption tests).</p>	<p>Baffinland developed the 2024 instrument installation plan with its consultant and subject matter expert after reviewing the thermistor database and the instrument coverage in the WRF. Baffinland also recognizes that while spatial distribution of thermistors in the WRF has been enhanced, the net total number of instruments has not significantly increased. Baffinland is considering additional thermistor installation in 2026, assessing current spatial coverage in conjunction with existing instrument results and the progressive growth of the waste rock dump, and will continue to report installation plans in the QIA-NWB Annual Report for Operations.</p> <p>To address CIRNAC's comments on oxygen probes and recommendations A through C:</p> <p>The results of all available oxygen probe monitoring data were reported on within Golder 2019, and Golder 2021. Oxygen data from BH1 was available between 2019 and 2020 and from BH2 for 2019. No new oxygen data has been measured or collected. As previously mentioned, after discussion with BIM's consultant and subject matter expert on waste rock management, new oxygen sensors are not currently being considered for installation at the WRF given their poor success for continued operation. Thermistors installed in target locations at the WRF will provide the necessary monitoring to confirm the deposition strategy is promoting freezing as per the design intent.</p> <p>While oxygen probes offer direct measurements of sulphide oxidation, under the current site conditions and controls it is not considered essential because:</p> <p>1. Thermistors confirm the waste dump is frozen below the active layer, which inherently limits oxygen diffusion</p> <p>2. Engineering controls (lift thickness, placement timing, and cover design) are already in place to promote rapid permafrost aggradation and to minimize oxygen pathways</p> <p>3. Placed PAG rock is typically covered within 1 year of placement, and no more than 2 years after placement, ensuring oxidation potential is extremely limited</p> <p>4. There is no evidence of active ARD/ML from the dump.</p> <p>While oxygen probes could provide additional verification and data, they are not considered to be essential for ensuring ARD/ML risk is managed under the current design and operational framework.</p> <p>Regarding CIRNAC's specific comment related to defining the temperature at which sulphide oxidation can occur, Baffinland refers the reader to its response to CIRNAC Comment #29.</p>
2	Interim Closure and Reclamation Plan Version 6	2.3.1.3., Table 2.3	Closure and Reclamation Activities	<p>More frequent updates on the ICRP have been recommended in previous reviews of the annual reports and license renewals. The progressive change deviating from the previous ICRP hindered the review of the interim closure and reclamation activities.</p> <p>The new ICRP states several times "The ICRP will be updated as required throughout the life of the Project." However, no minimum frequency for the updates is mentioned.</p> <p>Section 2.3.1.3. and Table 2.3 in the updated ICRP gives details on the timing of delivery for updates on permits, licences, authorizations, and agreements, but no information on a minimum frequency of updates for the ICRP or trigger on when update is required. The ICRP references the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB/AANDC) as guidelines to assist in the development of the ICRP. It is noted that Figure 5 (Mine Development Regulatory Process General Steps) in these guidelines suggests a 3-year cycle for ICRP updates.</p> <p><b>Recommendation:</b> (R-02) CIRNAC recommends updating the License to include a description of the minimum frequency for renewals of the ICRP as recommended in the Mackenzie Valley Land and Water Board's Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mines Site in the Northwest Territories, dated November 2013.</p>	<p>As outlined in Section 2.3 of the ICRP, Baffinland will continue to update the ICRP on a regular basis considering lessons learned, the results of research and monitoring data, input from stakeholders, and changes to how the site is operated. This is aligned with the Type A Water Licence, Part J, Item 1, which states that the ICRP "shall be updated as necessary from time to time" (2AM-MRY-2540).</p>	<p>(R2-02) CIRNAC acknowledges Baffinland's response and recommends providing a rationale for preparing or postponing future ICRP updates should be clearly stated in each QIA-NWB Annual Report for review.</p>	<p>Baffinland agrees to include, within the QIA-NWB Annual Report for Operations, a clear rationale for preparing or deferring future ICRP updates, as appropriate.</p>
3	Interim Closure and Reclamation Plan Version 6		PAG Materials Volume	<p>Previous annual reports reported a Potentially Acid Generating (PAG) percentage of waste rock substantially higher than the 11% that Baffinland projected for the project. In the updated ICRP this discrepancy is not discussed and the original 11% is stated.</p> <p><b>Recommendation:</b> (R-03) CIRNAC recommends Baffinland explain the source of the discrepancy in the PAG percentage and update the projection if required.</p>	<p>An analysis of cumulative waste rock mined between 2014 and 2023 indicates the percent of PAG rock mined to date is in-line with current predictions presented in the Life of Mine Waste Rock Management Plan (July 10, 2024 Memo, "Baffinland Waste Rock Reconciliation").</p>	<p>(R2-03) CIRNAC acknowledges the predictions presented in the WRMP and associated waste rock reconciliation documents. This recommendation is considered closed.</p>	<p>Closed</p>
4	Interim Closure and Reclamation Plan Version 6	3.3.3, Appendix D3	PAG Materials Classification	<p>The waste rock classification proposed by Baffinland poses several risks as laid out in previous report reviews. The proposed classification only takes sulfur content and paste pH into account. The recent WRF management plan and waste classification has not been formerly approved. Neutralization potential and the neutralizing mineral is not considered to define PAG material. But without a neutralization potential capable of reacting at a similar time scale as the acidification happening, rocks can develop Acid Rock Drainage (ARD) even at a low sulfur content. Additionally, appendix D3 (Table 1) provides a different classification from the one presented in the ICRP (Table 5.3).</p> <p>Section 3.3.3 of the ICRP states that "the waste rock is dominated by noncarbonate sources of Neutralization Potential (NP) (e.g., silicates) with lesser NP derived from carbonate sources." Silicate neutralization is generally slower than carbonate neutralization, thus acidic conditions might develop despite the NP exceeding the Acid Potential (AP), if the acidification commences at a rate that the neutralization can not keep up with.</p> <p>The ICRP cites the MEND 1.20.1 prediction manual for the Neutralization Potential Ration (NPR) that defines PAG vs uncertain vs non-Acid Generating (AG). It fails to cite section 13.1.2.3 of MEND 1.20.1, though, which clearly states that NP from silicates might not be effective in neutralizing acidic conditions from sulfide weathering. Considering this fact, it is important to identify the identity of the neutralizing minerals and the neutralizing kinetics they have.</p> <p>Section 3.3.3 also discusses the humidity cell results: "three cells exhibited slowly declining pH throughout testing reaching a minimum measured weakly acidic pH of between 4.5 and 5" and metal "release rates are the highest in the lower pH humidity cells with notable release rates for cadmium, cobalt, copper, nickel, lead and zinc". No information was given if the samples turning acidic had been identified as PAG or non-AG. Data on neutralization potential depleted samples, which would help evaluate the long-term acid potential, is also not yet available to evaluate the proposed classification.</p> <p>Smith et al. (2013) The Diavik Waste rock project: Initial geochemical response from a low sulfide waste rock pile. Applied Geochemistry 36:210-221. Here demonstrates that in a waste rock pile containing 0.053% sulfur acidic conditions and metal leaching can occur in a waste rock pile in a permafrost region. CIRNAC suggest BIMC review the results of Smith et al. (2013) and compared to the Mary River project to evaluate what impact it has on the conclusions for the PAG classification.</p> <p><b>Recommendation:</b> (R-04) CIRNAC recommends that BIMC determines the minerals responsible for the neutralizing potential and performs a kinetic evaluation on the effectiveness to work towards approval for the proposed classification. In the meantime, standard laboratory analysis should be performed and presented in the relevant documents (i.e., ICRP, WRMP).</p>	<p>While Baffinland acknowledges that the current WRF Management Plan and waste classification scheme are not approved, Baffinland does note the the current approved WRF management plan (Phase 1 Waste Rock Management Plan - Revision 3 June 16, 2020) contains only sulphur content as the classification mechanism, while the revised WRF Management Plan has a more robust classification scheme that includes sulphur percentage and paste pH. As such, CIRNAC's assertion this methodology is not approved is incorrect, as the previous approved classification scheme is being implemented with additional testing. Sulphur content has been part of the approved classification process since project initiation.</p> <p>Baffinland looks forward to working with CIRNAC on future revisions of the Waste Rock Management Plan.</p>	<p>(R2-04) CIRNAC recommends that Baffinland includes or updates a section of the ICRP to include:</p> <p>a) b)</p> <p>A rational on why the non-carbonate type of neutralizing mineral is not taken into account to define PAG material.</p> <p>A rational on why sulfur content and paste pH for waste rock are the only factors in determining if it is PAG or Non-PAG and how the kinetic cell tests results contributed to the justification of the classification.</p>	<p>Understanding CIRNAC has concern regarding the partial reliance on silicates to provide buffering capacity, Baffinland provides the following response.</p> <p>As part of the overall geochemistry evaluation for the project, humidity cell testing and mineralogy has been completed as described in AMEC 2014 and other reference documents including the EIS and summary appendices. The humidity cell tests confirm that at room temperature release of acidity is not expected over the duration of testing (~150 weeks). Results of the overall mineralogy show the presence of chlorite, mica, and amphibolite or ultramafic material that are considered intermediate weathering silicates with reaction rates as described in Karlsson, et. al. (2018).</p> <p>When considering the thermal conditions of the pile, the presence of silicate minerals that are considered fast to intermediate weathering, the humidity cell observations from the EIS and follow-up work, and the observations on site that show water quality improvements following adjustments to the deposition strategy to enhance freezing in the pile and place any materials with soluble sulphate minerals near the center of the pile, the predictions of acid generation and water quality are considered reasonable and appropriate. As a result, considering the silicate buffering, there is not expected to be any impact to the practice of determining ARD potential based on paste pH and 0.2% sulfur content only.</p> <p>References: Teemu Karlsson, Marja Liisa Räisänen, Marja Lehtonen and Lena Alakang. 2018. Comparison of static and mineralogical ARD prediction methods in the Nordic environment. Environ. Monit. Assess. (2018) 190: 719.</p>
5	Interim Closure and Reclamation Plan Version 6	4.4.1	Waste Rock Handling	<p>Section 4.4.1 gives an overview of approved project operations. Waste rock handling and deposition in WRF as well as water removal, treatment, and discharge are not listed. Closure objectives for the WRF are provided in Section 5.3.2.1. and water treatment is referenced in Section 5.3.2.2 with the Waste Rock Management Plan – 2023 to 2026 (WSP 2024b). It is inferred that this is an oversight and the text in the ICRP predates the requirement for water treatment.</p> <p><b>Recommendation:</b> (R-05) CIRNAC recommends that all the approved operations are included in the overview list in Section 4.4.1 of the ICRP.</p>	<p>Baffinland has updated section 4.4.1 to include and overview of approved waste rock handling and deposition, water removal, treatment and discharge operations.</p>	<p>(R2-05) CIRNAC acknowledges the updated section 4.4.1 of the ICRP and considers this recommendation closed.</p>	<p>Closed</p>
6	Interim Closure and Reclamation Plan Version 6		Waste Rock Facility Evolution	<p>Term and Condition #17 states that "The Proponent shall develop and implement effective measures to ensure Figures 5.3 and 5.4 show different configurations of the waste rock facility at closure.</p> <p><b>Recommendation:</b> (R-06) CIRNAC recommends that BIMC include the most recent final configuration of the WRF in the ICRP.</p>	<p>The current configuration of the WRF is in line with the proposed configurations displayed within Figures 5.3 and 5.4. Currently, the WRF is at the stage of development between the 11.4MT realization and the 102.5 MT realization displayed within Figure 5.4</p>	<p>(R2-06) CIRNAC acknowledges Baffinland's response and considers this recommendation closed. It is also noted that the 2024 QIA-NWB Annual Reports provides quarterly WRF compliance reports for annual review of progressive reclamation of the WRF.</p>	<p>Closed</p>
7		Table 6.1	Progressive Rehabilitation Schedule	<p>Table 6.1 and 6.2 show the life of mine (LOM) and past reclamation activities. The past activities are not included in the LOM overview.</p> <p><b>Recommendation:</b> (R-07) CIRNAC recommends that BIMC update Table 6.1 and change years to actual years were possible.</p>	<p>Table 6.1 has been updated to include all past reclamation activities and actual years. As Steensby planning and permitting is still ongoing, the exact date of progressive reclamation of certain construction infrastructure is still unknown. For future progressive reclamation activities that are planned in Year 1 of the Steensby component operation (e.g. borrow pits, rail access roads, laydown areas), the actual year will be indicated when it is known.</p>	<p>(R2-07) CIRNAC acknowledges Table 6.1 has been updated to include years of past reclamation activities where possible; this recommendation is considered closed.</p>	<p>Closed</p>

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8			Water Quality Predictions	<p>The freshwater quality predictions exceed the water quality objectives for several cases. Additionally, the predictions do not seem to be backed up by available monitoring data despite the report being written long after the first monitoring data was available. Such an update was recommended in previous annual report reviews.</p> <p><b>Recommendation:</b> (R-08) CIRNAC recommends that BIMC discuss the impact and mitigation measures for cases where water quality objectives are not met. In addition, BIMC verify the model predictions using monitoring data and present a comparison of the two.</p>	<p>Baffinland notes this comment, while Appendix H does not represent the most up to date available monitoring data, it is the most up to date collated version. This issue was raised in the March 2025 Type A Water License Renewal Public Hearing by the QIA, and as a result of commitments made during the Public Hearing, Baffinland is producing an updating collated version of monitoring and prediction data with the following commitment:</p> <p>"Baffinland commits to the development of a one-time memorandum including the following aquatic monitoring information:</p> <ul style="list-style-type: none"><li>• Temporal plots of water quality results from lake and stream CREMP monitoring areas that include results from the baseline (2006 to 2013), construction (2014), and operations (2015 to 2024) periods for specific parameters associated with the mine site ore bodies or with blasting (i.e., aluminum, arsenic, cadmium, chromium, copper, iron, lead, nickel, zinc, nitrate, nitrite, total Kjeldahl nitrogen, and ammonia). Area specific predictions from the Final Environmental Impact Statement (FEIS; Baffinland 2012) will be included on the plots for comparison.</li><li>• Tabular summaries of seasonal averages</li><li>• A statement comparing the concentrations to area specific predictions from the FEIS</li><li>• Weather data will be correlated with sampling to the extent possible to assess the impact of wet versus dry events on observed monitoring values.</li></ul> <p>This memorandum will be submitted within 6 months of the approval of this Licence by the Minister. The memorandum will be submitted to the NWB to allow a review of the study outcomes. Baffinland will provide the memorandum to QIA 30 days before the NWB submission to allow QIA to evaluate the conclusions and provide recommendations of updates into suggested management plans. As required, the outcomes of the memorandum will be integrated into relevant management plans. Any plan updates would be completed within 6 months of publication of the memo, or an alternative date as agreed to between QIA and Baffinland."</p> <p>The Type A Water Licence was issued on June 9, 2025 and as such, this commitment will be completed by January 9, 2026. This information will be included in the next version of the ICRP once developed.</p>	<p>(R2-08) CIRNAC acknowledges that BIMC is planning on preparing a memorandum to discuss the impact on water quality and comparison to the FEIS. CIRNAC recommends the proposed memorandum and future iterations of the ICRP include the current and planned mitigation measures for cases where the water quality objectives are not met.</p>	<p>Baffinland confirms that a memorandum is being prepared to present the observed effects on water quality, including a comparison with FEIS predictions. However, the memorandum and the ICRP are not intended to serve as the primary location for detailing current or planned mitigation measures in the event that water quality objectives are not met. These mitigation measures and response actions are comprehensively addressed in Baffinland's established suite of management plans, including the SWAEMP, AEMP, MDMER ERP, and other site-specific monitoring and management programs. These plans provide clear, actionable guidance for managing potential exceedances and ensuring protection of the aquatic environment.</p>
9	Interim Closure and Reclamation Plan Version 6		Site Wide Drainage Pathways	<p>Review of "Table 5.1 Closure Objectives, Criteria and Actions by Major Project Components of the ICRP" noted that the actions/measurements required for drainage pathways during closure refer to only geotechnical assessment, analysis and/or monitoring of the drainage pathways will occur as part of the Geotechnical/Engineering Monitoring Program. It also mentioned closure surface water quality monitoring.</p> <p><b>Recommendation:</b> (R-09) CIRNAC recommends that BIMC include hydrotechnical assessment, analysis and/or monitoring of the drainage pathways as part of the Engineering assessment for closure.</p>	<p>Baffinland confirms hydrotechnical assessment, analysis and/or monitoring of the drainage pathways will occur as part of the Geotechnical/Engineering Monitoring Program. Table 5.1 (row 1) has been updated accordingly.</p>	<p>(R2-09) CIRNAC acknowledges Baffinland's response and confirms the update to the ICRP; this recommendation is considered closed.</p>	<p>Closed</p>
10	Interim Closure and Reclamation Plan Version 6	5.3.3	Quarries/Rock Cuts and Ore/Aggregate Stockpiles	<p>Section 5.3.3 of ICRP noted that all borrow areas and quarries will be progressively reclaimed maintaining stable side slopes. Active quarry walls will be terraced during operation to closely manage issues related to drainage and will not be altered for closure. The ICRP also noted that the quarry development will reduce the creation of pits and depressions to the degree practicable to reduce the potential for standing water and the quarry pit floors will be left as free draining, but did not provide the decommissioning of the pits when it is not practicable to freely drain the borrow pits.</p> <p><b>Recommendation:</b> (R-10) CIRNAC recommends the creation of a management plan for decommissioning when borrow pits are left with standing water.</p>	<p>The Borrow Pit and Quarry Management Plan states "Site development must ensure positive drainage to prevent water pooling or flooding of the pit." This is an inherent part of development of borrow pits and quarries on site, and as such at decommissioning by design there will be no borrow pits with standing water.</p> <p>If standing water is observed as per the plan the quarry/borrow area will be modified and contoured to ensure there is not standing water in accordance with the Borrow Pit and Quarry Management Plan.</p>	<p>(R2-10) CIRNAC acknowledges Baffinland's response and considers this recommendation closed.</p>	<p>Closed</p>
11	Interim Closure and Reclamation Plan Version 6	5.3.b	Transportation Routes	<p>Section 5.3.b of ICRP noted transportation routes on site to include the Mine Haul Road, Tote Road, and the ore/freight docks and barge landing area at Mine Port. Future approved but not constructed transportation route include the southern rail route to Steensby Port. The report mentioned that bridges, culverts, and other water crossings along the Mine Inlet Tote Road will remain in place until all the closure activities requiring Mine Port access at the Mine site are completed. It is noted that roads will be left in good physical condition for public use to communities with water crossings removed. The report noted that bridge abutments will be left in place where needed to maintain long-term stability of the section of the road abutting the watercourse.</p> <p><b>Recommendation:</b> (R-11) CIRNAC recommends that if the bridge is removed, the stream crossing restoration as provided in Figure 5.2 of the report is expected. CIRNAC recommends clarity on the safety and responsibility of leaving bridge abutments in place without the crossings in the ICRP.</p>	<p>Table 9.2 lists the remaining water crossing abutments that will be assessed as part of the geotechnical closure and monitoring requirements. Section 9.4.1 outlines how the assessment will be completed at closure and what will be considered.</p> <p>It is expected that the stream crossing restoration designs will be developed as part of the ongoing discussion regarding land use with the QIA post closure, and will be a subject of discussion for the Mine Closure Technical Advisory Group (MCTAG) to provide feedback to Baffinland.</p>	<p>(R2-11) CIRNAC acknowledges that water crossing abutments will be subject to geotechnical analyses and monitoring as outlined in Section 9 of the ICRP. Per Baffinland's response CIRNAC recommends any future stream crossing restoration design be incorporated in future iterations of the ICRP and be provided for review by CIRNAC in relevant annual reports, once prepared.</p>	<p>Baffinland agrees to incorporate future stream crossing restoration designs into future iterations of the ICRP once they have been developed.</p>
12	Interim Closure and Reclamation Plan Version 6	Appendix D	WRF Permafrost Evaluation	<p>In Appendix D of the ICRP, BIMC states that they have developed a 1-D thermal model to assess long term climate change implications on permafrost within the WRF. This model will be used to provide the basis to develop a more complex 2-D model, ready for 2026. BIMC also states that future updates to the thermal model will establish an appropriate final cover thickness based on the latest climate change predictions.</p> <p>The objective of the WSP study was to develop a conceptual thermal model to predict the impact of climate change on the depth of ground subject to seasonal freezing and thawing (active zone). To meet this objective, multiple climate change projection scenarios must be considered. It is CIRNAC's opinion that this objective was not achieved.</p> <p>The WSP study only considers SSP1-2.6 (low warming) which is the least conservative climate change projection scenario. For most mining projects evaluating ML/ARD prevention via freeze-up a range of scenarios should be considered including, SSP5-8.5 (worse case/highest warming), SSP2-4.5 (moderate warming) and SSP1-2.6 (low warming), to provide a balanced risk assessment of warming impacts.</p> <p>The WSP 2024 use the Mean Annual Temperature (°C) for the Climate Air Temperature Change Projections. This is not optimal. It is recommended using, the Median Daily and Median Monthly Temperature instead, as is common for climate change assessments. This will incorporate extreme events for the analysis.</p> <p>Air temperature can change rapidly throughout the day, while soil temperature changes more slowly. The soil absorbs and releases heat more gradually. Therefore, is important to consider the Median ground temperature, instead of the average as suggested in the Technical Memorandum.</p> <p>CIRNAC recommends BIMC consider additional variables in the analysis. For instance, Freeze-Thaw Cycles provide a simple count of the days when the air temperature fluctuates between freezing and non-freezing temperatures on the same day. Freeze-thaw cycles can have major impacts on infrastructure, increasing the ML/ARD risk.</p> <p>Additionally, the new model does not address the inconsistencies in the thermal profiles reported previously. The reason for the inconsistencies has not been determined, questioning the assumptions the model is based on. Thus, these inconsistencies need to be addressed to develop a model that can represent the geochemical and thermophysical conditions in the waste rock.</p> <p><b>Recommendation:</b> (R-12) CIRNAC recommends BIMC complete a new climate risk assessment based on multiple climate change scenarios to evaluate ML/ARD prevention via freeze-up. The range of scenarios should consider SSP5-8.5 (worse-case/highest warming), SSP2-4.5 (moderate warming) and SSP1-2.6 (low warming), to provide a balanced risk assessment of warming impacts. The update should use of the median ground temperature and freethaw cycles when assessing the impacts of climate change on the depth of the active zone and implications of ML/ARD prevention. The update should also address the inconsistencies in the thermal profiles to develop a model that can represent the geochemical and thermophysical conditions in the waste rock.</p>	<p>BIM committed to using multiple scenarios during the Water Licence renewal process, details are available in Appendix D4 of the ICRP. Specifically the model will consider three climate change scenarios as defined by the IPCC Sixth Assessment Report on climate change (IPCC, 2021). These scenarios are as follows:</p> <p>1.SSP1-2.6 (Global CO2 emissions cut to net zero ~2075) 2.SSP2-4.5 (Global CO2 emissions around current levels until ~2050, then falling but not reaching net zero until 2100) 3.SSP5-8.5 (Global CO<sub>2</sub> emissions continue to rise throughout the 21st century, with no net zero achieved by 2100)</p> <p>In addition to the multiple climate scenarios to be included in the 2D model, other model inputs and boundary conditions to be considered during the model formulation will include parameters such as ground temperature, freeze thaw cycle, thermal profiles and geochemical and thermophysical conditions.</p>	<p>(R2-12) CIRNAC acknowledges Baffinland's committed to considering the three climate change scenarios as defined by the IPCC report during development of the model. During development of the model, CIRNAC recommends Baffinland revisit the climate projections and update the thermal model based on realistic in situ and boundary conditions of the model domain and include geochemical and thermophysical conditions.</p>	<p>Baffinland agrees to consider model inputs, boundary conditions, and climate projections during model development.</p>
13	Interim Closure and Reclamation Plan Version 6	Table 4.1, Table 5.1 and Table 9.2	Mine Site Geotechnical	<p>In the geotechnical overview of mine site (Section 4.3.3.3), the report identified that the upper horizontal portion of the bedrock is highly fractured, often containing ice lenses and infilling in the joints, which might impact the risk of failure. Physical stability is one of the closure objectives shown in Table 5.1. However, the more detailed plans and remediation methods are not provided in Table 4.1 nor Table 5.1. This might result in missing the risks.</p> <p><b>Recommendation:</b> (R-13) CIRNAC recommends that BIMC include the monitoring plan on bedrock conditions in Tables 4.1, 5.1, and 9.2 (Geotechnical Engineering Monitoring Requirements).</p>	<p>Baffinland has included post-closure mine site bedrock stability monitoring into Table 5.1 and Table 9.2. Table 4.1 is a list of Major Project Components which does not include information on monitoring plans.</p>	<p>(R2-13) CIRNAC acknowledges the updates to Table 5.1 and 9.2 and considers this recommendation closed.</p>	<p>Closed</p>

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Comment #	Reference	Section #	Topic	CIRNAC Comments and Recommendations (March 7th, 2025)	BIM Responses / Comments (July 11, 2025)	CIRNAC Response (August 6, 2025)	Baffinland Response (August 2025)
14	Interim Closure and Reclamation Plan Version 6	Table 5.1	Post Closure Water Quality	<p>Review of Table 5.1 Closure Objectives, Criteria and Actions by Major Project Components of the ICRP suggests the Site Wide closure objective of surface water runoff and seepage from the WRF being safe for the environment will not be met. Whereas the same table mentions the effluent quality from the WRF is consistent or improved from FEIS predictions.</p> <p><b>Recommendation:</b> (R-14) CIRNAC recommends that BIMC provide clarification, backed up with data, on whether the WRF will be chemically stable and meet the closure objective.</p>	<p>Baffinland does not state that the Site-Wide closure objective related to surface water runoff and seepage from the Waste Rock Facility (WRF) will not be met. Current closure criteria indicate that predicted water quality will meet the applicable regulatory standards, including Type A Water Licence effluent quality criteria, territorial and federal guidelines, the Metal and Diamond Mining Effluent Regulations (MDMER), and/or site-specific, risk-based criteria, as appropriate for individual mine components.</p> <p>The reference in Table 5.1 to effluent quality being consistent with or improved from FEIS predictions is accurate. While historical monitoring has identified potential concerns, water quality trends, particularly for the WRF, have improved due to the implementation of ongoing mitigation and management measures. These outcomes are supported by the site's active water quality monitoring program.</p> <p>As noted in Table 5.1, closure criteria will be refined over time based on monitoring results and outcomes of ongoing research. To date, the modelling and assessments presented in Appendix D3 do not indicate that the closure objective will be exceeded for the WRF. Furthermore, a site-wide water quality model to evaluate conditions under near-term or unplanned closure is scheduled for completion in 2027 and will provide additional confirmation of long-term chemical stability of the WRF, which will address CIRNAC's recommendation. Baffinland is committed to providing further data and updated predictions, as they become available, to support ongoing closure planning and to ensure alignment with the closure objectives.</p>	<p>(R2-14) Table 5.1 states that water quality predictions for the WRF and receiving water bodies indicate that risk management strategies may be required. If risk management strategies may be required, this implies that based on current predictions there may be risk to humans and the receiving environment requiring risk management. CIRNAC recommends Baffinland provide further clarification, backed up with data, on whether the WRF will be chemically stable and meet the closure objective that surface water runoff and seepage will be safe for humans and the environment.</p>	<p>As stated in Baffinland's earlier response, to date, the modelling and assessments presented in Appendix D3 do not indicate that the closure objective will be exceeded for the WRF. Furthermore, a water quality model to evaluate conditions at the WRF under near-term or unplanned closure is scheduled for completion in 2027 and will provide additional confirmation of long-term chemical stability of the WRF, which will address CIRNAC's recommendation.</p>
15			Mine Working Water Quality and Runoff	<p>Within Appendix H (FEIS Freshwater Quality Predictions), Table H9 – 14 list water quality predictions for Based on studies completed by AMEC in 2012, the water quality within the open pit is expected to be elevated in select metals and have a pH of around 4.2. We understand that the research plan described will improve predictions for water quality within the open pit and long-term effluent flow. Since 2012, the occurrence of ML/ARD in the waste rock has been observed. Runoff at and from the mine working is not currently being assessed. Task # 1.2 in Table D1.1 states that monitoring of the water quality related to the open pit will only be started once open pit dewatering will be started as no pit water is currently available. Runoff similar to what will drain into the open pit once it is established, however, is already available to be analyzed and support the model verification. Baffinland argues that such measurements will not be accurate as the rock type proportions will change throughout the LOM. Controlled sampling of certain formations and knowledge of the resource geometry will allow to properly assess the importance of each runoff sample for the final pit water quality.</p> <p>Review of Table D1.1 suggest that water quality data in the open pit should be compared against the assumptions made in the initial water quality predictions. Use this data and geochemical results from the WRF to better predict water quality in the proposed open pit before it is created.</p> <p><b>Recommendation:</b> (R-15) CIRNAC recommends that BIMC develop a comprehensive geochemical model of the Mine Site which includes the mine workings. This model should include water flow monitoring and quality sampling locations with annual reporting within the mine workings (including runoff) and discharging toward the Mary River or in the KM105 sedimentation pond.</p>	<p>Baffinland's annual reporting, specifically the 2024 QIA-NWB Annual Report for Operations, provides comprehensive data on effluent flow, as detailed in Table 5.1, 5.2, 5.3 and 5.4. Existing management plans, monitoring programs and reporting also provide thorough and detailed information on site water management and effluent discharges.</p> <p>The Blockflow diagrams referenced by CIRNAC in Appendix L4 accurately represent the site, with the exception of routine additions to the overall water management system, such as the KM106 stockpile pond, KM105 dam and Mine Surface Water Management Pond 3. These updates will be incorporated in the next revision of the Fresh Water, Supply, Sewage and Wastewater Management Plan, scheduled for submission in 2025. Additionally, precipitation runoff is accounted for in these Blockflow diagrams through the mean annual unit runoff, shown in the top of the diagrams. This approach is aligned with Part E, item 10 of the Water Licence: "The Licensee shall update or revise annually following the commencement of the Operations Phase and/or the Early Revenue Phase, the Project Block-flow Diagram Water Supply Balance information for the various Project sites provided with the Application, and submit the revisions, for review by the Board, with the Annual Report under Part B, Item 4."</p> <p>Given the extensive and detailed nature of current documentation, including the annual review of the water balance as outlined in the existing Water Licence, Baffinland believes that an additional geochemical water balance model is unnecessary.</p>	<p>(R2-15) CIRNAC acknowledges that Baffinland reports on effluent flow data and has Blockflow diagrams for the Site. However, these diagrams do not provide any information regarding water quality or the occurrence of ML/ARD since the AMEC 2012 study. CIRNAC continues to recommend Baffinland develop a comprehensive geochemical model of the Mine Site.</p>	<p>To address CIRNAC's primary concern, an update to the pit water quality model is currently being completed and will be submitted to regulators by November 1, 2025. This model will include operational pit water quality predictions for the next 5 years, and water quality predictions for an early closure scenario.</p>
16			Missing Water Quality	<p>Predicted and monitored sulfate and nickel concentrations for the WRF pond are presented. The latest monitored data are from Summer 2022, while the report was prepared in 2024. The 2023 data is missing.</p> <p><b>Recommendation:</b> (R-16) CIRNAC recommends that BIMC update the presented graphs to include the most recent data and provide explanation for any missing data.</p>	<p>The water quality data presented in Appendix D3 is from a water quality model completed in 2023 by WSP and published in 2024. The ICRP contains site monitoring information that is a snapshot of data that was developed when the plan was drafted. Additional monitoring and modelling data will be integrated into the ICRP as relevant when available.</p>	<p>(R2-16) CIRNAC recommends Baffinland include the most recent data in future iterations of the ICRP. If the snapshot of data developed during the ICRP revision does not include the most recent monitoring data, it is recommended rationale be included in the plan to add clarity and provide transparency.</p>	<p>Baffinland strives to present the most recent comprehensive analysis in each ICRP; however, this may not always include the most current monitoring data available at the time of issuance. Any subsequent updates will be incorporated into the next ICRP revision.</p>
17	Waste Rock Facility Thermal Model		Hydrocarbon Soil and Water Contamination	<p>Section D2.5.5, Task 6.5 – Landfarm Treatment Research states that starting in 2025 there will be a research program to assess the effectiveness of treatment for petroleum hydrocarbon in soil. CIRNAC notes this issue/commitment and continually mentioned but not actioned year after year. Furthermore, CIRNAC notes BIMC reports on annual contamination volumes, but it is not clear what the total volume of contaminated soil and water are.</p> <p><b>Recommendation:</b> (R-17) CIRNAC recommends that the total volume of contaminated soil and water are reported annually and posted security be updated to include shipping of petroleum hydrocarbon impacted soil to an offsite location, until research shows a viable onsite remediation method. The ICRP should be updated to reflect these changes.</p>	<p>Baffinland reports the volume of contaminated soil deposited in landfarm facilities quarterly, as per the conditions of the QIA Commercial lease, and annually in accordance with the Type 'A' water licence.</p> <p>As outlined in Appendix D6, Baffinland is planning to undertake a Landfarm Treatment Research Program in 2026. Baffinland has engaged soil remediation companies regarding technologies for increasing the performance of landfarming, and will continue to investigate options to enhance the performance of landfarming to treat hydrocarbon impacted soils. These results will be used as part of the ongoing progressive reclamation process. Currently, based upon similar programs in Northern Canada, it is assumed that soil contaminated with hydrocarbons will be treated as part of the closure process on site, soil contaminated with other materials as identified in the ESA process or otherwise will be removed from site and treated as appropriate. This is standard practice in northern Canada.</p> <p>Baffinland disagrees with CIRNAC's assertion that independent research is required to verify the assumption that landfarms are a viable method for soil treatment within Nunavut. Landfarming is widely accepted, as included in Baffinland's Type A Water Licence, and is also implemented at many Federally managed contaminated sites, such as the DEW Line Remediation Project.</p>	<p>(R2-17) CIRNAC notes that Baffinland continues to revise the proposed start date for the Landfarm Treatment Research Program. As stated in CIRNAC's March 7th, 2025 recommendation, "Section D2.5.5, Task 6.5 – Landfarm Treatment Research states that starting in 2025 there will be a research program to assess the effectiveness of treatment for petroleum hydrocarbon in soil". Baffinland's response now suggests further delay and proposes "to undertake a Landfarm Treatment Research Program in 2026". CIRNAC recommends that Baffinland commit to the proposed schedule and complete the Landfarm Treatment Research Program in 2026.</p> <p>CIRNAC also notes that landfarms have been used for remediation of hydrocarbon contaminated soil with variable results. The results typically observed show that remediation is effective yet time consuming. CIRNAC would like to confirm what the proposed Landfarm Treatment Research Program is researching if these results are known and used in the North. The effectiveness of the landfarm should also be discussed in the Annual Report as well as any studies undertaken or planned.</p>	<p>Baffinland continues to operate the landfarm cells at the Mary River Project. While standard industry approaches have been reviewed, site-specific data required to identify the most effective treatment strategy is still being fully assessed with support from external expertise. Scarification is currently conducted onsite to promote remediation; however, Baffinland is evaluating options to optimize equipment use, nutrient amendments, permeability, and other site-specific factors.</p> <p>In parallel, Baffinland is also investigating alternative industry practices for the management and potential disposal of hydrocarbon-contaminated soils. The project team is assessing the benefits and feasibility of future remediation and disposal methodologies to ensure effective and responsible management of these materials.</p>
18	Interim Closure and Reclamation Plan Version 6		Missing Detail in Appendices	<p>The appendices provided with the ICRP tend to be relatively short documents only providing limited data. Research studies and data reports are cited, but they are not provided. In at least one occasion (D4 the 2024 WSP report) the cited document is not yet available, hindering the review of the ICRP.</p> <p><b>Recommendation:</b> (R-18) CIRNAC recommends that BIMC provide all required information to review the document in a single package.</p>	<p>Baffinland acknowledges this request, however the ICRP is a technical document that is subject to ongoing updates and revisions based on evolving site conditions, operational experience, and new research. In accordance with the water licence and other regulatory requirements, technical reports and supporting documentation are submitted through the annual reporting process and may not always be fully integrated into the ICRP. However, Baffinland is committed to transparency and would be pleased to provide any of the referenced reports upon request, should the reviewer be unable to locate them within existing regulatory registries.</p>	<p>(R2-18) CIRNAC acknowledges Baffinland's response and considers this recommendation closed at this time. It is noted that QIA-NWB and NIRB Annual Report Reviews provide the framework for ongoing review of technical reports and studies. However, CIRNAC recommends that all cited documents be complete and readily available from the public registry. If cited documents are not yet available, as noted in CIRNAC's March 7, 2025 comment above, this should be clearly stated or a interim version should sent directly for review along with the report/plan being reviewed.</p>	<p>Closed</p>
19	Interim Closure and Reclamation Plan Version 6		Groundwater Quality	<p>There was groundwater contaminants identified for both the Hazardous Waste Berm Facility and Landfill, neither of which have been fully delineated or deemed to be stable. There is also no discussion on how groundwater impacts will be dealt with during closure.</p> <p><b>Recommendation:</b> (R-19) CIRNAC recommends that BIMC includes a plan for properly assessing groundwater impacts to identify if there is a risk based on current and predicted conditions. If unacceptable risks are anticipated there should be a plan to deal with groundwater impacts during closure.</p>	<p>Appendix D6 within the ICRP has been drafted in response to historical comments from CIRNAC and other stakeholders. This research plan outlines the schedule and timeline for conducting Environmental Site Assessments (ESA) prior to closure to provide information for the Final Closure and Reclamation Plan. This plan includes provisions for a literature review, prioritizing assessments (for areas such as the identified Hazardous Waste Berm Facility), ESAs and the subsequent remediation and treatment of materials if required. Environmental Site Assessments will include assessment of seasonal flows in the active layer, and remedial actions will be identified and actioned as needed.</p>	<p>(R2-19) CIRNAC acknowledges Baffinland's updated Appendix D6 and associated assessment schedule. CIRNAC recommends the literature review (i.e. Task 6.1 in Appendix D6) and preliminary assessment prioritization (i.e. Task 6.2 in Appendix D6) tasks be accelerated and completed in 2025-2026. Further, CIRNAC recommends the subsequent tasks comprising Task 6.2 – Environmental Site Assessment, Task 6.4 – Remediation of Areas of Potential Concern and Task 6.5 be scheduled in earlier years. It is recommended Task 6.3 begin in 2026/27 pending results of Tasks 6.1 and 6.2, and Task 6.4 beginning in earlier years where possible pending results of Task 6.3.</p>	<p>Shallow surface water within the active layer of permafrost in the vicinity of the hazardous waste berms is monitored annually. Subsurface flow is limited to this active layer, which reaches a maximum depth of approximately 3 m and remains frozen for roughly three-quarters of the year (October–June), as confirmed by thermistor data. Below this layer lies an impermeable permafrost zone estimated to be 600–700 m thick, effectively isolating any aquifers or 'true groundwater' from mining-related activities. As such, contamination of groundwater at depth is not possible.</p> <p>Regarding seepage, any seasonal shallow subsurface movement within the active layer is captured through existing surface water and seepage monitoring programs, including the Surveillance Network Program (SNP) and the Core Receiving Environment Monitoring Program (CREMP). Baffinland will continue to monitor shallow surface water adjacent to the hazardous waste berms at the Weatherhaven site. Additional monitoring locations were installed in 2025, and berms identified with potential seepage concerns during annual geotechnical inspections are no longer in operation and contain no hazardous waste. These berms will be reclaimed as part of final site closure and are being considered for progressive reclamation where appropriate.</p>
20	Interim Closure and Reclamation Plan Version 6		Groundwater Flow and Quality at Mine Port	<p>It is inferred that active groundwater monitoring is not occurring at Mine Port downgradient of the ore stockpile or other areas of potential groundwater contamination sources. While it is understood widespread permafrost limits the presence of groundwater at the Site, it is also noted that the presence of permafrost at/near the Mine Port area may be approximately 3m or more below disturbed/ active areas. Due to the proximity to the receiving environment (i.e., Milne Inlet), it is inferred there is potential for shallow groundwater flowing from these contaminant sources to the receiving environment.</p> <p><b>Recommendation:</b> (R-20) CIRNAC recommends BIMC develop a plan to confirm the presence/absence of groundwater and characterization of the shallow groundwater quality downgradient of contaminant source areas at Mine Port be investigated and reported to CIRNAC. It is also recommended that this plan be implemented during operation to establish current groundwater quality and support the eventual reclamation/remediation activities to meet the ICRP closure objectives, specifically to "ensure chemical stability of the mine open pit, WRF, quarries, and other Project disturbed areas".</p>	<p>Appendix D6 within the ICRP has been drafted in response to historical comments from CIRNAC and other stakeholders. This research plan outlines the schedule and timeline for conducting Environmental Site Assessments (ESA) prior to closure to provide information for the Final Closure and Reclamation Plan. This plan includes provisions for a literature review, prioritizing assessments, ESAs and the subsequent remediation and treatment of materials if required. The ore stockpiles, pits and other areas of potential contamination are included as part of the assessment process.</p>	<p>(R2-20) CIRNAC acknowledges this updated appendix D6 which outlines a preliminary plan for site assessment. Per recommendation (R2-19) above, CIRNAC recommends this plan be implemented in 2025-2026 to quantify groundwater quality at key operational site areas such as Mine Port, the WRF, the Hazardous Waste Berm Facility and Landfill. This data will support and improve efficiency of the eventual reclamation/remediation activities to meet the ICRP closure objectives.</p>	<p>Groundwater quality is generally not considered to be at risk in the Project area (FEIS 2012) because the extensive permafrost layer acts as an impermeable barrier, preventing or limiting the migration of contaminants to "groundwater" located below (see additional details in the response to Comment R2-19). Baffinland conducts an annual "groundwater" monitoring program at the landfill facility to better understand natural groundwater chemistry and identify any potential project-related effects. The current scope of monitoring at the landfill and hazardous waste berms satisfies the intent of the program, and there are no plans at this time to expand it to other infrastructure.</p> <p>Baffinland's design criteria, as submitted and approved in the design packages for the Ore Stockpile and associated ditching, were developed to eliminate the potential for seepage. Water conveyance structures are keyed into the permafrost and graded to maintain continuous flow. Containment ponds have been constructed downgradient of the facility, and potential interactions from the facility are comprehensively evaluated through the Surveillance Network Program (SNP) and the Marine Environmental Effects Monitoring Program (MEEMP).</p>



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Comment #	Reference	Section #	Topic	CIRNAC Comments and Recommendations (March 7th, 2025)	BIM Responses / Comments (July 11, 2025)	CIRNAC Response (August 6, 2025)	Baffinland Response (August 2025)
21	Interim Closure and Reclamation Plan Version 6		Waste Rock Facility Water Discharge Quality	<p>Mitigation strategy for prevention of acid generation and metal leaching from the WRF is permafrost aggregation. The water quality model was updated in 2023 and assumes that flow from the WRF only occurs via direct runoff or as shallow interflow within the waste rock active layer. Groundwater is not considered. The purpose of the model was to forecast future WRF pond chemistry from 2023 through 2026 based on reach data and mine plans. The model does not consider closure conditions, downstream water discharge toxicity, or environmental assimilative capacity within the receiving water environments. The report mentions treatment is not predicted to be required when strictly considering the Metal and Diamond Mining Effluent Regulations (MDMER) defined parameters arsenic, copper, nickel, lead and zinc. However, the report states results are not representative of discharge to the receiving environment, or the final discharge point regulated under MDMER.</p> <p>One of BIMCs Closure Principle and Abandonment Goal as stated in the ICRP v6 section 2.5.2, is to achieve the "Recognized Closed Mine" under MDMER and ensure no requirements for long-term active care, which includes water quality discharge meeting the Schedule 4 maximum authorized concentrations and acute lethality testing. Table 5.1 of the ICRP states that at present, water quality predictions for the WRF discharges and receiving waterbodies indicate that risk-based criteria and/or risk management strategies may be required. Suggesting some post closure exceedances of the regulatory guidelines. It is inferred water quality modeling and aquatic risk assessment will be required for BIMC to meet regulatory requirements and closure goals and objectives as outlined in the ICRP. Furthermore, these progressive measures may support the refinement of the ICRP during future revisions and improve future reclamation efficiency. <b>Recommendation:</b> (R21) CIRNAC recommends that BIMC update the operations geochemical model to include the conservative loading estimates under various closure scenarios. In addition, CIRNAC recommends that BIMC review of the assimilative capacity of the receiving water environment and confirmation that no acute toxicity would present with the completion of an interim aquatic risk assessments to support the statements made on the aquatic effects monitoring program.</p>	<p>Appendix D3 outlines the proposed research plan for waste rock stockpile seepage water quality. Modelling for the WRF was last updated in 2023, and will be monitored through several regulatory mechanisms throughout the life of the project. As CIRNAC notes, Baffinland acknowledges in Appendix D3 that additional modelling (which includes source term development) is required to ensure closure criteria are met. Specifically, there will be an initial model update in 2027 for near term closure (as stakeholders have requested this) and a second model update in 2028 for the life of mine scenario, with an update schedule every 10 years thereafter.</p> <p>To prepare for this model update, Baffinland is currently assessing monitoring data and source terms for the WRF, as accurate and representative inputs are a requirement for accurate modelling. These additional data sources will be described and defined in the 2025 QIA/NWB Annual Report for Operations, which can be reviewed by CIRNAC and other regulators and stakeholders.</p>	(R2-21) CIRNAC acknowledges Baffinland's response and considers this recommendation in progress. CIRNAC continues to recommend these data be discussed/incorporated in the future model updates and 2025 QIA-NWB Annual Report for Operations.	Comment noted.
22			KM105 Pond Change of Designation and Function	<p>KM105 Pond was designed to provide a robust engineered system to manage Total Suspended Solids (TSS), however recurring non-compliances for TSS are observed in this catchment area. KM105 Pond has not been functioning as designed and does not provide enough residence time for flow to facilitate settling. An alternative system has been placed, which comprises an in line chemical dosage further upstream of the pond, followed by a check dam, and finally the current pond has been designated as polishing pond. It has been reported that the alternative system works. CIRNAC notes there are no design criteria details, inflow and outflow water chemistry data or description as to whether the system is temporary or permanent.</p> <p><b>Recommendation:</b> (R-22) CIRNAC recommends BIMC update the ICRP to provided additional closure details on permanent engineered surface runoff water management sedimentation systems across the mine including KM105. CIRNAC recommends that additional details on the design criteria for this check dam, inflow and outflow water chemistry data and description as to whether the system is temporary or permanent be provided in 90 days.</p>	<p>The design of the water control structures at KM105 is not complete. These details will be added the next revision of the ICRP after they are developed.</p> <p>A summary from the 2024 QIA-NWB Annual Report for Ops - Appendix E.13 (2023 Responses) and January 22, 2025 "Follow-up Spill report" is provided below for information:</p> <p>"Baffinland submitted a comprehensive KM 105 Pond Seepage report on January 22, 2025 which detailed the full summary of activities related to the KM 105 Pond, including mitigation measures planned for 2025 to address seepage from the pond facility. Water management measures within the KM 105 facility footprint below and above the dam is planned in 2025 which involves improving sediment control measures for the runoff flowing from the valley infrastructure through two processes for sediment removal: filtration and settling, both enhanced with chemical addition at the inflow. The surface water runoff flowing into the KM 105 Pond will be treated using a chemical dosing system. This system, which has been in operation since 2024, has demonstrated significant improvements in water quality. The flocs generated by this chemical treatment will be retained by a rock filter berm constructed within the KM 105 Pond containment, allowing for enhanced settling within the pond and filtration through the berm. The planned approach aligns with the International Erosion Control Association (IECA) guidelines for instream control following designs defined within the Mine Site Water Management Plan within Modification 13. The treated water will then flow into the existing downstream pond of the KM 105 dam. This pond will function as a polishing pond, enhanced with silt curtains to facilitate the settling of any remaining fine sediment. Finally, the effluent from the polishing pond will flow through an engineered structure as the final control point, where flows and water quality will be recorded. Due to winter construction constraints, some of these features will need to be installed following 2025 freshet. The discharge location is planned to be relocated once engineering for a new FDP is complete. A Construction Summary Report (CSR) will be submitted to the NWB within ninety (90) days following completion of the FDP, in accordance with Part D, Item 17 of the Type 'A' Water Licence, and in accordance with the Commercial Lease. Finalized details will be incorporated in the next revision of the ICRP."</p>	(R2-22) CIRNAC acknowledges the design of the water control structures at KM105 is not complete. Once complete it is understood associated closure details will be incorporated in to the next revision of the ICRP.	Baffinland acknowledges that the design of the water control structures at KM105 is ongoing. Once finalized, the associated closure details will be incorporated into the next revision of the ICRP.
23	Interim Closure and Reclamation Plan Version 6		KM105 Pond Seepage Quantity Monitoring	<p>Since July 2022, the seepage has been observed every year from the KM 105 pond but there have been no monitoring reports on quantity of the seepage. Continuous monitoring for quality control is missing. In addition, it is inferred multiple sources of seepage exist and more detailed monitoring plans based on the periodical (seasonal or monthly) quantities are considered required, in addition to water quality.</p> <p><b>Recommendation:</b> (R-23) CIRNAC recommends the development of additional investigation plan(s) and periodical monitoring plans to further characterize seepage quantity and seepage sources to inform operations and refinement of the ICRP.</p>	<p>The design of the water control structures at KM105 is not complete. These details will be added the next revision of the ICRP after they are developed.</p> <p>MS-11 is not an active monitoring location currently due to the seepage experienced from the dam, however, due diligence water quality sampling was conducted at proxy sample locations to fully characterize the water quality of the seepage. Note however that collection of samples representative of actual effluent water quality of the seepage was found to be difficult due to the inconsistent nature of seepage flow, and sediment resident of the tundra combined with low magnitude flows associated with overland (sheet) flow. Results were reported on a monthly basis as per required frequencies and included within QIA-NWB Type 'A' annual reports. Discharge quantity was estimated through daily flow measurements and pressure transducers installed at the downstream hydrology station following the onset of consistent warmer conditions and ice free conditions. As part of the due diligence monitoring program, samples were also collected at downstream monitoring locations to assess receiving environment conditions. In conjunction with due diligence water quality monitoring, supplemental internal sampling was also completed throughout the process to inform operational decisions, including water treatment dosage requirements; thus also supporting refinement of the ICRP. Plans for 2025, as described above, include designing of the discharge location once engineering for a new FDP is complete.</p>	(R2-23) It is reported that design of modification and mitigation measures at KM105 is ongoing. In the meantime, it is understood seepage is continuing. CIRNAC recommends seepage water be sampled weekly during operations phase as stated in the license.	<p>Baffinland has engaged external engineering expertise to evaluate practicable water management strategies for KM105 in 2025. While recognizing that the dam's engineering solutions to date have not fully mitigated seepage, the review concluded that focusing on water management within the facility footprint, both upstream and downstream of the dam, is the most effective interim approach rather than attempting to eliminate seepage entirely. Additional grouting was deemed unreliable due to the potential for frozen ground to thaw and create new seepage pathways.</p> <p>Baffinland's priority is to enhance sediment control and water treatment measures, which will involve two processes for sediment removal: filtration and settling, both enhanced with chemical addition at the inflow. Surface water runoff from the valley infrastructure is treated through a chemical dosing system, in operation since 2024, which has shown significant improvements in water quality. The treatment generates flocs that are captured by two rock filter berms constructed within the KM105 Valley, providing enhanced settling and filtration prior to the dam. Treated water then flows into a natural settling pond, upgraded with silt curtains to improve fine sediment settling, before discharging at MS-11, which is located upstream of fish-bearing habitat and described in a Water Licence modification request in the 2024 Annual report.</p> <p>A continuous discharge weir structure is currently in early design stages to serve as the final control point at MS-11. Weekly seepage monitoring, as required under the Water Licence, will continue during the operations phase.</p>
24	Interim Closure and Reclamation Plan Version 6		KM105 Pond Water Management Systems	<p>Water management systems at the Project consist of infrastructure to support supply of freshwater, management of sewage and wastewater treatment systems and surface water management ponds. One of the surface water management ponds proposed for closure is KM105. According to Section 5.3.8 of the ICRP, the overall closure objectives for the KM105 Sedimentation Pond are to re-establish the natural drainage of the KM105 Pond area, and to ensure long-term physical stability by limiting future erosion within the drainage path. The report noted that KM105 Sedimentation Pond will be decommissioned once runoff from the catchment area consistently meets applicable discharge.</p> <p><b>Recommendation:</b> (R-24) CIRNAC recommends that BIMC revisit the decommissioning of the KM105 pond as per the Canadian Dam Association guideline as the pond/berm is likely a designated dam requiring special decommissioning procedure.</p>	<p>Baffinland acknowledges that a site-specific decommissioning plan for the KM105 dam is required. A closure concept memorandum for the KM 105 dam was provided in Appendix A of the 2024 Work Plan on December 1, 2023 and is attached here as Appendix A for reference. Section 5.3.8.5 of the ICRP has been updated with specific activities required at closure for the KM105 Pond.</p>	(R2-24) CIRNAC acknowledges the update to the ICRP and has reviewed the closure concept memorandum; this recommendation is considered closed.	Closed
H	Interim Closure and Reclamation Plan Version 6		Progressive Landfill Cell Reclamation	<p>The ICRP document states that during operation and closure activities "project landfills will be progressively covered with overburden, as cells are completed."</p> <p><b>Recommendation:</b> (R-25) CIRNAC recommends BIMC include documentation of this being completed to-date (if available) to confirm feasibility and procedure. If this has not been completed to date, it is recommended a more detailed plan be included to outlining confirmation that these are non hazardous landfills and the methods for decommissioning and reclamation.</p>	<p>The volume of cover material placed on each lift is an assumption and is incorporated into the updated surfaces that are reported on within our Commercial Lease reporting to QIA.</p> <p>The Landfill Maintenance and Operation Manual (BIM-5200-MAN-0002), Section 5.3.2 Placement of Final Cell Cover, documents how soil for intermediate and final cover should be placed (Rev 0: 2015).</p> <p>Section 5.3 of the Manual is provided below:</p> <p><b>5.3 COVER SOIL</b> <b>5.3.1 EXCAVATION</b> <i>Excavation of soil for cover material shall only be made from designated "borrow" areas. Working cover stockpiles are to be placed within the perimeter of the approved landfill pad where they will be accessible to the working face. However, they are not to be located where they may block truck travel or filling operations.</i></p> <p><b>5.3.2 PLACEMENT OF FINAL CELL COVER</b> <i>Use of soil for intermediate and final cover should be placed in the following manner:</i> <i>a. When using a dozer, push cover soil up the slope and feather it out as evenly as possible. Do not permit the tracks of the equipment to spin as you traverse the compacted slope. This action will tear up the waste and it may be necessary to compact the waste again in order to reapply the cover material.</i> <i>b. When a cell or portion of a cell has reached the final planned grade and width, a final cover of compacted soil should be placed. A minimum of 0.3 m of cover shall be placed over the deck and 0.1 m over the slope of the cell. Use no more fill than necessary.</i></p>	(R2-25) CIRNAC acknowledges this procedure is listed in the Landfill Maintenance and Operation Manual, however it is also considered a closure activity related to operations and should be included in the ICRP. CIRNAC recommends Baffinland include the plan with reference to the operation manual within the ICRP to outline the methods for landfill decommissioning and reclamation. CIRNAC also recommends a thicker cover be installed over landfills during decommissioning. Currently, a compacted 1-metre cover is considered industry standard to remove the exposure pathway for wildlife (i.e., burrowing animals and shallow rooting plants), and humans. Furthermore, cover systems typically involved engineering design to achieve a target infiltration rate. Detailed risk assessment may also be completed if contaminated materials are present within the landfill to confirm toxicity and exposure pathways. These additional studies may support a reduced cover design. As a conservative measure, it is recommended Baffinland update the procedure to include a 1-meter cover over landfills during progressive reclamation.	As identified in Appendix D4, a 1-D thermal model for the landfill will be completed in 2027. Baffinland will consider adjustments to the planned final cover thickness if warranted based on the results of future thermal modelling.

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26	Interim Closure and Reclamation Plan Version 6	Table 8.1, Section 9 and Table 9.1	Post Closure Environmental Monitoring and Reporting Frequency	<p>Table 8.1, Section 9 and associated Table 9.1 in the ICRP version 6 highlight "high-level" schedules for closure activities. Monitoring activities to assure environmental compliance and to oversee the impact on the closure activities and waste and water management strategies are only inferred per the "Closure and Post-Closure Monitoring and Reporting Activities" line item in Table 8.1. These are then elaborated on in Section 9 which highlights key monitoring program and the proposed site locations to be targeted post closure. Section 9, states "Post-closure monitoring would be completed for a period of five (5) years, with a final monitoring assessment completed ten (10) years following".</p> <p>The monitoring frequency listed indicates annual monitoring from Years 1 to 8 which includes approximately 3 years of Final Closure activities followed by 5 years of post closure activities. This is then followed by a 10-year gap with one final monitoring year in Year 18.</p> <p><b>Recommendation:</b> (R-26) CIRNAC recommends the ICRP post closure monitoring plan be updated to include more frequent monitoring events and for a longer duration. 15 years post closure longterm monitoring and maintenance is considered a reduced timeframe compared to longterm monitoring plans for other active and abandoned mine sites in Canada. CIRNAC suggests plans be between 20 and 50 years for monitoring.</p>	<p>Baffinland notes CIRNAC's request, and notes that the current monitoring program was included as part of the approved FEIS, and is in alignment with closure guidance for Nunavut.</p>	<p>(R2-26) CIRNAC acknowledges the current post closure monitoring plan is based on the FEIS. However, it is noted the FEIS was completed in 2012 and mine closure guidance continues to improve. Fifteen years post closure long-term monitoring and maintenance is considered a reduced timeframe compared to more recent long-term monitoring plans for other active and abandoned mine sites in Canada. CIRNAC continues to recommend a more conservative approach for plans to be between 25 and 50 years for monitoring.</p>	<p>Baffinland reiterates that the current monitoring program was developed as part of the approved FEIS and is in alignment with published closure guidance for Nunavut (Mine Site Reclamation Policy for Nunavut (CIRNAC, 2002)). As outlined in this policy, "the duration of the required monitoring phase will be reviewed and confirmed at the time of closure and will depend on the risks associated with the potential impacts on the environment". Baffinland remains committed to reassessing the monitoring duration at closure, in alignment with the Nunavut policy. At this time, there is no technical or regulatory basis to extend the monitoring period to 25–50 years.</p>
27	Interim Closure and Reclamation Plan Version 6	Table 9.1, Section 9.6	Environmental Site Assessment Plan, Frequency, and Approach	<p>The ICRP (Table 9.1) includes high-level planning for future Environmental Site Assessments to occur approximately 1 year prior to the initiation of closure activities (i.e., Year 0), and during the final year of closure activities (i.e., Year 3).</p> <p>Furthermore, in Table 9.1, the "Aquatic Monitoring and Reporting Program" is only scheduled as "Site-Wide" for three years during closure activities followed by a reduction in the monitoring areas. During the proposed post-closure monitoring period, the aquatic monitoring and reporting program is only planned for the Mine Site (i.e., Years 4, 5, 6, 7, 8, and 18). This suggests no post closure aquatic environment monitoring will be completed at other Site areas requiring remediation/reclamation. Previous comments have pointed out that the current modeling suggest there may be water quality issued post closure so a reduction in monitoring events seems premature at this point in the closure planning process.</p> <p>Further information on the methodology for Environmental Site Assessments is listed in Section 9.6, stating "A Phase 1 and 2 Environmental Site Assessment (ESA) will be conducted at the onset of closure for areas where there is the potential for contamination with petroleum hydrocarbons or other parameters. The objective of the Phase 1 and 2 ESAs will be to determine areas of focus for final closure activities and to demonstrate conformance with CCME contaminated sites guidelines or site-specific risk-based criteria at the Mine Site, Mine Port, Tote Road and Steensby Port."</p> <p>These comments suggest that limited to no pre-closure characterization or identification of contamination is planned during operation. Furthermore, suggesting limited to no background or pre disturbance characterization of onsite media (e.g., soil, groundwater, surface water, etc.). Completing baseline soil and groundwater characterization at potential contaminant sources during operation can focus and refine closure plans. This may include interim Phase 1/2 ESAs to identify and target areas of potential environmental concern prior to the initiation of closure activities. BIMC has shown commitment to progressive reclamation; completing contaminant source and background soil and groundwater characterization for key Site area (ex. Mine Port and Steensby Port) prior to closure activities may improve the ICRP plan and show a commitment to reclamation planning. Furthermore, soil and groundwater characterization during operation may support the development of risk-based criteria prior to closure and improve efficiency of reclamation activities and future revisions to the ICRP.</p> <p><b>Recommendation:</b> (R-27) CIRNAC recommends additional frequency and/or rationale be provided in the ICRP to justify the frequency of the Environmental Site Assessment(s) and reduction of the Aquatic Monitoring Program from "Site-Wide" to only occurring at the "Mine Site" post closure (i.e., Years 4 to 18). In addition, it is recommended that BIMC complete baseline soil and groundwater characterization at potential contaminant sources during operation and target areas of potential environmental concern prior to the initiation of closure activities through progressive reclamation.</p>	<p>Baffinland does not agree that aquatic monitoring plans such as the AEMP should extend beyond the mine site. That is the current extent of the AEMP. The railway will be monitored with a similar SNP level program and Steensby Port with a marine monitoring component. The current AEMP is designed to characterize potential changes associated with the Project at the Mine Site where there are multiple stressors that have potential for impacts to the freshwater receiving environment.</p> <p>The 2019 MLWLB/GNWT Guidelines for Aquatic Effects Monitoring Program (March 2019) provides guidance for how monitoring is incorporated into a water license. There are three broad options identified: management plans, surveillance network programs (SNP), and aquatic effects monitoring programs. As the guideline outlines, these methods of monitoring (ascending in complexity) correspond to the project impacts. Specifically, when there are multiple stressors, more conservative methods of monitoring are required (such as an AEMP). Currently, there is an AEMP in place at the Mine site, with surveillance network program level monitoring along the Tote Road, with Mine Port also having Marine Environmental Effects Monitoring as a result of port activities. In line with these guidelines, Baffinland believes that surveillance network program monitoring along the rail is appropriate (a transportation corridor similar to the Tote Road), and at Steensby Port, surveillance network program monitoring combined with the Marine Environmental Effects Monitoring program will be appropriate (in compliance with Project Certificate conditions and Fisheries Act authorization requirements).</p> <p>Baseline data has already been collected and assessed as part of the FEIS. The available supplemental baseline data will be integrated in relevant management plans.</p>	<p>(R2-27) CIRNAC acknowledges some baseline data has been collected as part of the FEIS in 2012 and other data is regularly collected and presented in the NIRB and QIA-NWB Annual Reports. CIRNAC continues to recommend additional rationale be provided in the ICRP to justify the frequency of the Environmental Site Assessment(s) and reduction of the Aquatic Monitoring Program from "Site-Wide" to only occurring at the "Mine Site" post closure (i.e., Years 4 to 18). Furthermore, per recommendation R2-26 above, CIRNAC recommends a minimum of 25 years post closure monitoring and maintenance.</p>	<p>Baffinland notes that the Aquatic Effect Monitoring Program (AEMP) has historically been implemented at the Mine Site and has never been applied site-wide. As such, there is no reduction in the effort of monitoring proposed at Steensby and along the railway corridor.</p> <p>As previously noted, the MLWLB/GNWT 2019 AEMP Guidelines outline industry standards for aquatic monitoring, identifying three key monitoring types that may be incorporated into a water licence:</p> <ul style="list-style-type: none"><li>-Management Plans: monitoring required under specific management plans</li><li>-Surveillance Network Program (SNP) – monitoring at key locations on the project site, often to ensure compliance with specific water licence conditions, e.g., end-of-pipe discharge)</li><li>-Aquatic Effects Monitoring Programs (AEMPs) – monitoring for project-related effects in the aquatic environment</li></ul> <p>Baffinland maintains an industry leading and comprehensive Tote Road Monitoring Program as part of its Roads Management Plan. This program acts as a surveillance-level monitoring program for the transportation corridor, and focuses on a single source of effects: erosion and sedimentation. Monitoring results are binary: if guideline exceedances occur, impacts are attributed to specific water crossings, and mitigation is implemented. Detailed aquatic effects monitoring is not required for linear infrastructure where sources of effects are limited.</p> <p>Aquatic effects monitoring is a step up from this. The simplest example is environmental effects monitoring (EEM) under the Metal and Diamond Mining Effluent Regulations (MDMER). The reason EEM programs are applied to mine effluent discharges is that these discharges can have several elevated metals, high/low pH, or other water quality characteristics that in combination have an effect that is greater than, deleterious substance exceedance of the corresponding Schedule 4 discharge limit. The AEMP at Mary River is again a step up from the EEM program prescribed under the MDMER in that it is designed to assess effects in the aquatic environment from multiple stressors on the aquatic environment that is predicted to occur from the FEIS. At the mine, this includes but is not limited to the discharge of mine effluents and treated sewage, as well as crushing/processing ore dust deposition and as such is the only Project Facility that warrants a freshwater AEMP. Multiple stressors also occurs in the marine environment at Mine Port, and the Marine Environmental Effects Monitoring Program (MEEMP) is designed comprehensively monitor the impacts of multiple stressors.</p> <p>The Steensby Port Facility freshwater environment will be monitored under the licence Surveillance Network Program (SNP) similar to Mine Port. The Steensby transportation corridor will be monitored under a management plan similar to the Mine Inlet Tote Road, as the potential stressors are binary in nature to be undertaken at select representative locations along the railway. Marine monitoring at Steensby Port is expected to have a comparable MEEMP in the marine environment.</p> <p>Supplemental baseline data for the Steensby transportation corridor is currently being collected to support ongoing monitoring and management.</p>
28	Interim Closure and Reclamation Plan Version 6	9	Risk Assessment Plan and Schedule	<p>Section 9.0 includes an incomplete sentence/statement within paragraph two: "Additional activities, such as human health and ecological risk assessment." No other mention of human health or ecological risk assessment is included in the closure planning schedules presented in Sections 8 and 9.</p> <p>Based on the ICRP Site-wide closure objectives, it is noted that water quality predictions suggest some contaminants may exceed the Type A Water Licence effluent criteria. This suggests risk assessment and a risk management plan for post closure may be required.</p> <p><b>Recommendation:</b> (R-28) CIRNAC recommends that a risk assessment plan and schedule be incorporated into the ICRP to address potential risk management scenarios during closure.</p>	<p>Baffinland has updated this sentence in paragraph two of Section 9.0 to indicate that "human health and ecological risk assessments may be completed, if required." Baffinland will also perform progressive Environmental Site Assessments at selected high priority locations as mine operations continue. Details of this program including priority areas and schedule of research and assessment activities are located in Appendix D6. Baffinland will report on any new ESA and/or Human Health and Ecological Risk Assessment (HHERA) results on an annual basis to the NIRB (as per Project Certificate No. 005), the NWB (as per Type A Water Licence 2AM-MRY2540) and the Landowner (as per Commercial Lease Q13C301).</p>	<p>(R2-28) CIRNAC acknowledges Baffinland has updated the ICRP sentence in Section 9.0 and has indicated a commitment to perform progressive ESA's. It is also understood that the Annual Reports via the NIRB and the QIA-NWB serve to capture new ESA's and HHERA results as they become available. However, for this interim plan, CIRNAC recommends a more detailed risk assessment plan be incorporated to address potential risk management scenarios during closure. Risk assessment is considered an integral part of closure planning, especially in remote areas where contaminated materials are managed on-site. Until proven otherwise, it is anticipated that risk assessments will be required and a plan should be prepared within the ICRP.</p>	<p>ICRP Section 9.0 and Appendix D6 outlines the plan to perform progressive ESAs and incorporate new ESA and HHERA results as they become available through the Annual Reports submitted to NIRB and QIA-NWB.</p> <p>While Baffinland recognizes the importance of risk assessment in closure planning, the ICRP is designed as an interim, adaptive plan. As such, site-specific risk assessments will be conducted progressively, informed by ongoing monitoring and ESAs. CIRNAC notes that HHERA's should be required "until proven otherwise" which is inconsistent with historical site assessment in Nunavut and technical guidance regarding when an HHERA is appropriate. An HHERA is only scientifically needed in specific circumstances, which has not been demonstrated as needed by closure research and ESA results to date. The requirement for an HHERA will be assessed as part of the ongoing assessment and development of the Baffinland Closure and Reclamation Plan. At this time, the need for risk assessments has not been demonstrated, however that does not preclude their need depending on future ESA results. Detailed, formalized risk management planning will be developed and incorporated at the appropriate stage in alignment with closure design, regulatory requirements, and site-specific data, ensuring that all potential risks associated with the management of contaminated materials are effectively addressed.</p>
29	Waste Rock Facility Thermal Model		ARD Reactions at Low Temperatures	<p>The only ML/ARD prevention planned for the WRF is the freezing of the waste rock to prevent the sulfides to react with oxygen. To verify the continuous freezing of the waste rock the temperature within the waste rock was modelled also taking climate projections into account. The temperature limit used under which the waste rock is safe (i.e., no ML/ARD occurring) is set in these models to 0°C. The publications cited above, suggest that tailings may consume oxygen at substantially lower temperatures. The studies from Elberling were performed on Baffin Island; oxygen consumption was considered most likely linked to ARD. ARD occurring in permafrost zone of the WRF has the potential for the production of acidic and metal burdened waters (which will also have a lower freezing point due to the higher osmolality). Furthermore, ARD in the permafrost zone of the WRF may impact the thermal regime in the WRF potentially leading to larger depth of the WRF to be unfrozen in the summer months.</p> <p><b>Recommendation:</b> (R-29) CIRNAC recommends a discussion on the lower temperature limit on ARD activity be incorporated into the thermal modelling revision(s) and incorporated into the ICRP.</p>	<p>The industry standard methodology is to use 0°C, which is why it has been selected for the Mary River Project and other locations throughout the North. Baffinland acknowledges some academic research has been conducted that shows in certain circumstances ML/ARD production can occur below freezing, however this research is limited and has not been updated in 20 years, providing a limited comparable dataset for review.</p> <p>Baffinland commits to research the applicability of the cited paper and considering the potential implications of the temperature as part of the model development. The proposed thermal research program is described in Appendix D4, and discussion regarding assessment of this issue has been added.</p>	<p>(R2-29) CIRNAC recommends Baffinland perform a validation of the target temperature at which the oxidation of the sulfide minerals becomes negligible. A value of 0°C might be adequate as an initial assumption but it has to be validated with oxygen consumption tests. For reference, this has been completed for the Rankin Inlet, Nanisivik, Raglan and Meadowbank sites (Meldrum et al., 2001; Kyhn and Elberling, 2001, Coulombe et al., 2013 and Boulanger-Martel, 2020 respectively). For these four sites, the target temperature was between -5°C and 0°C. The 0°C value was only considered for the Meadowbank site. The three other sites had a negative target temperature. These documents are listed below for reference.</p> <p>References: Meldrum, J., Jamieson, H. &amp; Dyke, L. 2001. Oxidation of mine tailings from Rankin Inlet, Nunavut, at subzero temperatures. Canadian Geotechnical Journal, 38, 957-966. Kyhn, C. &amp; Elberling, B. 2001. Frozen cover actions limiting AMD from mine waste deposited on land in Arctic Canada. Cold Regions Science and Technology, 32, 133-142. Coulombe, V., B. Bussière, J. Côté, and M. Paradis. 2013. Field assessment of sulfide oxidation rates in cold environment : case study of the Raglan Mine. Northern Latitudes Mine Reclamation Workshop and 38th Annual Meeting of the Canadian Land Reclamation Association, Whitehorse, YK, 32-42. Original publication in French. Boulanger-Martel V., Bussière B., Côté J. 2020. Thermal behaviour and performance of two field experimental insulation covers to control sulfide oxidation at Meadowbank mine, Nunavut. Canadian Geotechnical Journal, 58(3): 427–440.</p>	<p>It is recognized that oxidation can persist below freezing under certain site conditions, as indicated in the referenced Rankin Inlet, Nanisivik, and Raglan studies. However, there are notable differences with the Mary River Project. For example, at Rankin Inlet the tailings were exposed for 30 years at the shoreline before burial, and were frequently flooded by seawater. This combination of decades of oxidation and episodic flooding leading to saline pore water is in stark contrast to conditions at the Mary River Project, which has a waste rock dump in the Arctic interior, away from the coast and large water bodies, and strict waste deposition guidelines designed to ensure quick progressive freeze back of placed waste and limit pathways for oxygen and water ingress.</p> <p>Baffinland commits to research the applicability of the cited papers. As communicated previously, Appendix D4 has already been updated to complete background research on the applicability of this topic to the Mary River Project setting. This assessment will be completed during the next update to the WRF thermal model.</p>
30	Interim Closure and Reclamation Plan Version 6	Table 5.1	Qualified Professional Requirements	<p>Table 5.1 within the ICRP defines a "Qualified Professional" as "assumes a minimum of 3 years experience in a relevant field".</p> <p><b>Recommendation:</b> (R-30) It is recommended the definition of a qualified professional be updated within the ICRP to better match industry standards. A Qualified Professional typically refers to a registered professional or accredited practitioner. It is recommended this include licensed/ accredited individuals with a professional designation in good standing (e.g., CSAP, P.Eng, P.Geo., P.Ag., P.Chem., P.Bio, etc.).</p>	<p>Baffinland agrees to update these requirements. The definition of Qualified Professional has been updated in the footnote to Table 5.1 as per the recommendation. The definition has also been added to the Glossary of Terms.</p>	<p>(R2-30) CIRNAC acknowledges the updated definition of a qualified professional; this recommendation is considered closed.</p>	<p>Closed</p>

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Comment #	Reference	Section #	Topic	CIRNAC Comments and Recommendations (March 7th, 2025)	BIM Responses / Comments (July 11, 2025)	CIRNAC Response (August 8, 2025)	Baffinland Response (August 2025)
31	Interim Closure and Reclamation Plan Version 6		Decommissioning Plan for Buildings and Equipment Containing Hazardous Materials	Reclamation plans do not include hazardous building materials surveys. It is note that hazardous materials may be taken off-Site or placed in on-Site landfills during closure activities. However, a plan for characterizing hazardous materials is not included. <b>Recommendation:</b> (R-31) CIRNAC recommends a plan for hazardous building material survey(s) by a qualified person be incorporated into the ICRP to support decommissioning/ reclamation planning.	As part of design specifications for the Mary River Project hazardous materials (e.g. asbestos) are excluded for use as part of design criteria. In addition, the sitewide ESA will assess the potential for an assessment of hazardous materials to be required. However, given the age of the mine, and the design criteria used for the buildings, Baffinland believes at this time carrying a separate line item for this task is unwarranted.	(R2-31) CIRNAC acknowledges that design specifications exclude the use of hazardous materials and that sitewide ESAs will include assessment of potentially hazardous materials. CIRNAC recommends this rationale be included in the ICRP to provide clarity.	Baffinland agrees to include the statement regarding the exclusion of known hazardous building materials as a design criteria for the site in the next revision of the ICRP.