

Attachment 1

Baffinland Response to Board Recommendations

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
N/A	Reportable Spills	<p>Pursuant to Terms and Conditions 17, 24, and 46 of the Project Certificate, Baffinland is required to ensure that all Project effluent should satisfy discharge requirements of the relevant regulatory authority as outlined in their Fresh Water Supply, Sewage and Wastewater Management Plan as well as the Metals and Diamond Effluent Regulations Emergency Response Plan prior to discharge.</p> <p>As noted in their 2018 Annual Report, Baffinland stated several exceedances in their effluent from fuel storage run-off areas, the Waste Rock Facility and several other large sewage and fuel related spills outlined in Table 4.3 of their 2018 Annual Report. Baffinland stated when it reported these 44 reportable items that protocols from Baffinland's Sewage and Waste Water Management Plan as well as their Spill Contingency Plan were followed to minimize environmental impacts.</p>	<p>The NIRB is requesting that Baffinland clarify what each of the events were listed in the table and whether there was a discharge or a batch exceedance as it processed the effluent and it did not meet discharge criteria. It is requested that the volumes be reported in litres vs cubic meters for readers. Information related to each of these events, how they were handled and how Baffinland has addressed the issue through changes to site practices, new operations or new equipment remains unclear to the NIRB.</p> <p>Therefore, the NIRB is requesting an update on the 2018 Effluent exceedances as well as any preventative actions taken or adaptive management in plans related to these 44 spills within 30 days of receiving this report and that Baffinland include this information within all its annual reports in the future.</p>	<p>For consistency with Baffinland's Type 'A' Water Licence No. 2AM-MRY1325 volume reporting requirements, spills are reported in cubic metres.</p> <p>Baffinland is unclear on how the NIRB identified a total of 44 spills during 2018. To address this, Baffinland has summarized below what was previously included in Section 4.5.2 of the 2018 Annual Report to the NIRB.</p> <p>During 2018, thirty-six (36) spills were reported to the Northwest Territories-Nunavut (NT-NU) Spill Line, CIRNAC and QIA, including twenty-three (23) sewage/greywater spills, four (4) sediment releases and nine (9) spills involving other operational effluents and materials. Overall, this represented a decrease of 25% when compared to the frequency of reportable spills in 2017. From 2017 to 2018, there was a decrease in the number of spills in all discharge types excluding sewage. In volume, for sewage (both treated and untreated) the amount of discharge released decreased by 92%. Investigations into the cause of spills that occurred on site in 2018 were conducted so that effective long-term corrective actions could be implemented to reduce the frequency of spills at Project sites.</p> <p>As outlined in the Project's Fresh Water Supply, Sewage and Wastewater Management Plan (BAF-PH1-830-P16- 0010), in the event that water quality monitoring indicates that effluent no longer meets the applicable water quality discharge criteria, discharge of effluent will be halted immediately and recirculated back through treatment or to the appropriate containment pond. Troubleshooting and further water quality monitoring are implemented until compliant results are obtained before discharge recommences.</p> <p>In accordance with Baffinland's Spill Contingency Plan, once a potential spill is identified, a spill report is submitted within 24 hours of each spill event. In the time period between sample collection and data availability, appropriate spill prevention and mitigation measures are put in place. These measures are specific to each spill type, and are detailed in each spill follow-up report submitted within thirty (30) days of each reported spill. The follow-up reports include a description of the event, the immediate cause(s), corrective and preventative action(s), photos, and a map showing the location of the spill. The follow-up spill reports and original spill reports are provided in the QIA-NWB Annual Report for Operations, and have also been attached as requested by NIRB in Attachment 2.</p>	Attachment 2: Summary of 2018 Reportable Spills

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
N/A	Terrain Stability Issues	<p>During the commenting period on the 2018 Annual Report the NIRB received comments from QIA and CIRNAC regarding the status of borrow pits, Tote Road, and site infrastructure related to the impacts of permafrost thaw. The NIRB observed these areas and had similar concerns and all parties agree that it is important to have Tetrattech Engineering continue to include these in the monitoring program. However, CIRNAC commented specifically that permafrost does not appear to be a priority through the geotechnical program as there appears to be no review or comments on available ground temperature monitoring data. QIA commented that it was not aware of how permafrost was monitored and what localized permafrost degradation along the Tote Road and Mine Haul Road do not include any information related to location or investigations. As the maintenance of Permafrost integrity is of utmost importance for the site reclamation, it is important to understand Baffinland's approach to permafrost monitoring.</p>	<p>The NIRB requires Baffinland develop maps and tables indicating the location and degree of permafrost degradation and submit them to the NIRB within 30 days of receipt of this report.</p> <p>Further, if it does not exist, the NIRB requests a timeline to develop a permafrost monitoring plan or inform the NIRB where the information can be found on permafrost monitoring at the Mary River Mine Site. This program should include, but is not limited to, a program to collect data from ground temperature cables installed at the mine site and port site in order to monitor conditions in constructed infrastructure. The NIRB expects either the information or the timeline to develop a permafrost monitoring program within 30 days of receipt of this report.</p>	<p>Baffinland has provided the requested tables that indicate the location and degree of permafrost degradation at the Tote Road and Borrow Sources (see Attachment 3). These were developed in 2014. Additional mapping completed in 2019 will be included in the recommendations report prepared by Tetra Tech (discussed below), which is forthcoming.</p> <p>In development of the Final Environmental Impact Statement (Baffinland, 2012), between 2006 and 2008 more than fifty ground temperature monitoring instruments (thermistor cables) were installed and monitored to determine typical ground temperatures in the overburden soils and bedrock in the Project area. This baseline has been used to inform specific design considerations as the Project has advanced over the years. During the modification process for new waste or water retention facilities, Baffinland supplies required construction stability information including test pitting or bore hole data to interveners. Existing infrastructure, such as bridge crossings on the Tote Road are evaluated by a professional engineer registered in NT-NU bi-annually, the results of which are captured in Appendix G of the Annual Report to the NIRB (Bi-Annual Geotechnical Inspection Reports).</p> <p>NIRB has noted that "CIRNAC commented specifically that permafrost does not appear to be a priority through the geotechnical program as there appears to be no review or comments on available ground temperature monitoring data". Baffinland wishes to clarify that the Company is continuously mitigating potential impacts to permafrost as a result of Project activities. For example, specific permafrost degradation areas adjacent to the Tote Road and borrow locations were reinforced with armour stone and slope redesigns during 2018 through general road maintenance programs and through the continuance of the Tote Road Earth Works Execution Plan.</p> <p>To support further characterization of stability associated with permafrost degradation, in September 2019 Baffinland retained Tetra Tech to evaluate areas of potential permafrost degradation at the Mine Site, Milne Port and along the Tote Road. Tetra Tech was also retained to assess borrow pits and problematic areas identified by both internal parties and external regulators including QIA, CIRNAC, and NIRB. Additionally, Baffinland has conducted bi-annual geotechnical inspections since the start of Project operations, which evaluates the stability and any potential subsidence as a result of permafrost degradation.</p> <p>Following receipt of the Tetra Tech report, Baffinland will review the outcomes and recommendations to assist in prioritizing higher risk areas and determining an appropriate schedule and required actions for additional monitoring and mitigation.</p>	Attachment 3: 2014 Tetra Tech Tote Road and Borrow Source Evaluation

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1	Dust	<p>At the time of the August 2019 site visit, the NIRB staff noted that dust emissions, including visible dust plumes generated from the crusher plant were significantly reduced in comparison to previous monitoring years. Proper engineering designs and controls have been implemented by Baffinland and have reduced emissions at the crusher plant as well as the addition of chutes to further enclose particles during ship loading. During the March 2019 site visit, NIRB staff noted significant dust deposition around the site and on the sea ice at Milne Inlet resulting from Ore stockpiling activities; however, in August of 2019 as much as the sea ice was melted prior to the visit, dust around the site appeared to be reduced with notable reduction in dust being disbursed by ship-loading activities. However, dust at Milne Port and along the Tote Road continue to be an ongoing concern.</p> <p>During the comment period for the 2018 Annual Report, the Qikiqtani Inuit Association, the Government of Nunavut, and Crown-Indigenous Relations and Northern Affairs Canada expressed concerns related to the dust program at the Mary River site. In the subsequent written response to items discussed during the 2019 August site visit, Baffinland stated it had conducted a micro trial of Dust Stop in August 2019 on the Mine Site and Tote Road from km 103.5 to 97 to determine efficacy of the product on site. Baffinland observed improved dust suppression through the application zones and Dust Stop also showed signs of water shedding during rain events supporting road sealant and application lifespan. In September 2019 once additional Dust Stop was received, Baffinland stated it would be implementing an expanded trial in order to assess success in a larger area and if</p>	<p>The Board requires that within 30 days Baffinland submit the design of the experiment including the method, areas selected for trial, observations, timeline and evidence of conclusion for the expanded dust trial which commenced in September for the Mary River Project. Further, if applicable Baffinland is required to report in its 2019 Annual Report to the NIRB an updated its Air Quality and Noise Abatement Management Plan (2017) and Roads Management Plan (2017) with the results of the experiment and the plans should clearly indicate when application of dust suppressants (including water) should be completed.</p>	<p>As previously described in Baffinland’s follow-up submission to the NIRB summer site visit (provided on August 26 and September 27, 2019, respectively), Baffinland has taken several measures to reduce dust onsite. Baffinland continues to implement changes to its existing monitoring and mitigations to effectively identify and control impacts of dust deposition. This includes but is not limited to:</p> <ul style="list-style-type: none"> • Evaluate new technologies and equipment retrofits to reduce potential local sources of dust. • Evaluating effectiveness of new dust suppressants in an Arctic setting. • Upgrading monitoring to address regulator concerns and to collect new parameters. • Continuing to engage with regulators and the community. <p>In 2018 specific actions taken by Baffinland for dust management include continual development of new dust suppression alternatives at Milne Port such as redesigning the ore pads to position fines in the centre and lump ore around the margins, installation of downwind fencing and proper positioning of the conveyors to minimize distances when stock piling. Calcium chloride and water has also been applied on road surfaces throughout operations to mitigate dust emissions. Based on feedback received from communities, the QIA and other regulators, Baffinland actioned an implementation plan for testing new dust suppression products with increased durability and longevity for site infrastructure.</p> <p>The use of Dust Stop, produced by Cypher Environmental was first trialed in August of 2019. Dust Stop is an approved product for dust suppression under Nunavut’s Environmental Guideline for Dust Suppression on unpaved Roads. Dust Stop is expected to have a longer lasting durability for both traffic and rainfall impact, as it promotes a hard, competent water repellent surface when properly applied.</p> <p>The 2019 trial involved an initial application of the product along a 4 km stretch (from km 103.5 to km 97) of the Tote Road. A representative from Cypher Environmental was onsite to instruct the road maintenance personnel on the use and application of the product. Baffinland has attached two documents from Cypher Environmental which outlines the method and recommendations for application (Attachment 5). These instructions and methods were followed by Baffinland staff. Improved dust suppression was visually observed over a three-day period throughout the application zones and the product also showed signs of water shedding during rain events supporting improved road sealant and application lifespan (see Attachment 4). Two initial applications of the product along the entire tote road (24 hrs apart), followed by routine application to maintain the coating on the roads every two weeks, is planned for 2020.</p> <p>Baffinland will amend the Air Quality and Noise Abatement Management Plan (2017) and</p>	<p>Attachment 4: Dust Stop Trial Summary</p>

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		deemed successful, Baffinland would procure more to be delivered in the 2020 sealift.		Roads Management Plan (2019) with the results of the expanded trial application and comprehensive procedures for the application of dust suppressants on site as needed.	

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2	Fish Passage and Sampling	<p>Pursuant to Term and Condition 47 of the Project Certificate, Baffinland is required to ensure that all Project infrastructure in watercourses are designed and constructed in such a manner that they do not unduly prevent and limit the movement of water in fish bearing streams or rivers. In their 2018 Annual Report, Baffinland has noted that 2 crossings (CV-111 and BG-29) contained physical obstructions and a total of seven (7) culverts were perched. Of those seven (7), one (BG-50) prevented fish passage. Board Recommendation #8 from 2018 relates to concerns regarding fish crossing at that same culvert (BG-50), despite receiving an update from Baffinland referencing general repairs of crossings to fish bearing streams, culvert BG-50 remains an outstanding concern.</p>	<p>The Board requests Baffinland continue to maintain connectivity for fish species present in streams and ensure that all existing culverts are functional. Baffinland shall provide the Nunavut Impact Review Board with a summary of how it has consulted with Fisheries and Oceans Canada and modified its fish habitat monitoring program and updated associated to address issues related to culvert perching and fish passage problems along the Tote Road.</p>	<p>As part of continuous Tote Road upgrades initiated since 2013/2014 Baffinland has undertaken annual assessments of water crossing infrastructure along the Tote Road with the objective of maintaining connectivity for fish at water crossings, and ensuring that all existing culverts are functional. Results from these assessments and associated works are reported annually to DFO at the end of each calendar year. Additionally, consultation with DFO occurs throughout the year on site-specific issues as needed (see Attachment 5).</p> <p>As reported in the Mary River Project Early Revenue Phase - Tote Road Upgrades, Fish Habitat Monitoring 2018 Annual Report (Baffinland, 2018) Baffinland undertakes annual assessments of water crossing infrastructure along the Tote Road with the objective of maintaining connectivity for fish at water crossings, and ensuring that all existing culverts are functional. As noted by NIRB, some concerns were identified in 2018, however, Baffinland wishes to clarify that corrective actions were implemented upon observation. Remedial actions were summarized in the Tote Road monitoring report submitted to DFO (see information related to corrective actions undertaken for CV-111, BG-50 and BG-29 Attachment 5).</p> <p>Subsequent to direction provided by ECCC in the summer of 2016, Baffinland has implemented various works to minimize the potential for sedimentation and erosion. A Tote Road Earthworks Execution Plan (TREP) was developed in April 2017 (Golder 2017) to address outstanding concerns (e.g., damaged culverts, embankment erosion, etc.). The TREP outlines the planned sedimentation mitigation measures to be completed throughout 2017 to 2019.</p> <p>Baffinland will continue to address outstanding or new fish passage concerns identified during the annual water crossing assessments and/or via additional direction provided by DFO.</p>	<p>Attachment 5: Summary of Corrective Actions and Correspondence with DFO</p>
3	Fish Passage and Sampling	<p>Term and Condition 48(a) requires Baffinland to provide plans to conduct additional surveys for the presence of Arctic char in freshwater bodies and implement ongoing monitoring of Arctic char health in areas affected by the Project in consultation with the Mittimatalik Hunters and Trappers Organization (MHTO). While Baffinland noted a significant effort to capture and assess the health of Arctic char in associated water bodies through its 2018 Annual Report and has methodologies outlined in its Aquatic Effects Monitoring plan, there has</p>	<p>The Board requests Baffinland provide the summary of consultation with the Mittimatalik Hunters and Trappers Organization in 2018 to conduct this required consultation toward the Arctic char monitoring framework and how it has updated the monitoring plan to incorporate this feedback especially to better understand where fish would be present to enable actual observations to be collected. The submission should also include information regarding the timeline and anticipated activities including consultation and implementation of the sampling program in 2019 are to be provided within 30 days.</p>	<p>Baffinland has not undertaken consultation with MHTO specific to the AEMP, however meetings with the MHTO to discuss the Project and associated environmental effects monitoring activities do occur regularly throughout the year. For example, as reported in the 2018 NIRB Annual Report Appendix B Community Engagement Records, a Community Group Meeting was held with the MHTO on 7 June 2018 where several comments related to fish health and water quality were discussed.</p> <p>Furthermore, to support community led monitoring initiatives Baffinland is also providing \$200,000.00 annually (in accordance with IIBA Article 17.8) to the MHTO. In 2019, the MHTO utilized community-based monitoring funding from Baffinland to undertake an Arctic char sampling program at six different sampling locations. The Arctic char samples collected will be sent to a laboratory for body burden (metals) analysis and to compare</p>	<p>N/A</p>

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		<p>been little indication of this work being performed in consultation with the MHTO.</p>		<p>concentrations to Health Canada guidelines, where guidelines exist. Should the MHTO wish to share these results with Baffinland, they may be incorporated into future monitoring reports, and if relevant and agreed upon with the MHTO, may influence future studies conducted by Baffinland or the MHTO.</p> <p>The Core Receiving Environment Program, a component study of the AMEP that addresses fish populations, is implemented annually in August during the open water season. To address outstanding requirements for PC Condition No. 48(a) Baffinland is committed to facilitating a meeting with MHTO in 2019 prior to the field program in August to review the components of the AEMP and seek feedback.</p>	
4	Marine Mammal Monitoring Protocol	<p>Baffinland is required pursuant to Terms and Conditions 110 and 111 of the Mary River Project Certificate to develop a monitoring protocol to prevent impacts to marine mammals from Project shipping activities in consultation with the Marine Environment Working Group (MEWG), and to determine appropriate early warning indicators that will ensure rapid identification of negative impacts along the shipping routes. Baffinland has several marine monitoring programs outlined in their Shipping and Marine Wildlife Management Plan as well as their 2018 Annual Report; however, none of these documents clearly outline the required protocol and the 2018 Annual Report does not include any information regarding the timeline to complete the plan nor how feedback from the MEWG would be incorporated into any marine plans. In the meeting minutes that Baffinland included in the 2018 Annual Report, it is noted that several MEWG meeting discussions have revolved around this topic of early warning indicators for marine mammal health and development of thresholds; however, to date, no definitive conclusions have been provided.</p>	<p>The Board requires that within 30 days Baffinland provide a definitive update and a timeline for the development of the early warning indicators of negative impacts associated with vessel noise and activities on marine mammals with the Marine Environmental Working Group. Further, Baffinland is required to report in its 2019 Annual Report to the NIRB the specific indicators being developed noting how the Marine Environmental Working Group has been involved in identifying such indicators for use, including a description of how the indicators are to be used to inform marine mammal-vessel interactions.</p>	<p>A summary of all activities undertaken by Baffinland and the MEWG to-date with respect to the development of EWIs has been included as Attachment 6. This summary demonstrates meaningful efforts by Baffinland to illicit feedback from MEWG members and the MHTO on the identification of the most suitable variables to use as EWIs to achieve compliance with PC Conditions No. 110 and 111.</p> <p>Baffinland also notes that marine mammal monitoring data on the following variables are currently being collected:</p> <ul style="list-style-type: none"> - Relative abundance and distribution - Group composition (e.g. gender ration, mother/calf pairs to infer calving rates_ - Change in behaviour (e.g. travel speed, change in direction, distance from shore, etc.) - Mortality - Underwater noise levels - Narwhal vocal behaviour (e.g. call rate, proportional call use, call frequency) - Narwhal abundance, distribution and density in the RSA - Dive behavior - Surface Movement <p>Long-term datasets on these variables allow Baffinland to assess the EWIs against past years, complement trend analysis and inform the implementation of additional adaptive management measures if thresholds (pending their establishment with the MEWG) for these indicators are reached. Therefore, it is important to clarify that the only forward-looking work with the MEWG that remains is finalizing the variables that will be carried forward as EWIs and the establishment of thresholds for these indicators. A timeline for finalizing this work with the MEWG has been included in Attachment 6.</p> <p>Baffinland also notes that although EWIs have not yet been formally established Baffinland has responded proactively to community concerns by adopting additional</p>	Attachment 6: EWI November 2019 Update

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				mitigation measures and adapting its marine mammal monitoring programs based on MEWG feedback.	
5	Survey of Baseline Metal Levels in Foraging Caribou	Term and Condition 35 requires that Baffinland undertake monitoring of baseline metal levels in organ tissue from caribou harvested within the local study area prior to commencing operations. In their 2018 Annual Report as well as the Terrestrial Environment Mitigation and Monitoring Plan, Baffinland indicated that due to the low population of caribou near the Project, they deem that this condition is not applicable to the current monitoring period. In respect of the current limitations imposed on caribou hunting by the Government of Nunavut since January 1st, 2015, the Board still expects that once the ban is lifted, these experiments and participation from either regulatory agencies or the Terrestrial Environmental Working Group be completed.	The Board requests Baffinland to develop a timeline in conjunction with the Government of Nunavut, the Mittimatalik Hunters and Trappers Organization and other Terrestrial Environment Working Group members to complete development of a sampling protocol and study methodology to monitor baseline metals in organ tissue from caribou and/or other wildlife harvested in the regional study area. The timeline is due in 30 days and a complete update on the implementation of the program is expected in the 2019 Annual Report.	<p>As described in the Annual Report to the NIRB, PC Condition No. 35 has been discussed with the TEWG several times, however, a clear plan for collaboration has yet to be established among working group members. Baffinland insists that collaboration with other stakeholders and interested parties (e.g. the GN and MHTO) is critical for the development of a final timelines and the successful implementation of this monitoring program.</p> <p>In an effort to address Board Recommendation No. 5, EDI (on behalf of Baffinland) recently met with the Primary Investigator for The Northern Contaminants Program. Baffinland believes that this potential collaboration is the most beneficial way to address the requirements of PC Condition No. 35, as monitoring results would be analyzed by a third party on a regional scale and will contribute data to an Arctic-wide program. A Standard Operating Procedure for the tissue collection and analysis is included in Attachment 7. Another benefit of this approach is that there are no sample kits are required for this procedure, which reduces previous implementation challenges.</p> <p>A proposed timeline, subject to agreement and participation of external parties, is as follows:</p> <ul style="list-style-type: none"> • January to March 2019: Establish an agreement between Gamberg Consulting, Baffinland, the GN and the MHTO for the collection and analysis of organ tissue for North Baffin caribou in 2020 through the Northern Contaminants Program. • March to June 2020: Schedule an in-person meeting between Gamberg Consulting and the MHTO to provide an overview of the research conducted through the Northern Contaminants Program and to discuss and plan for the collection of organ tissue samples by local hunters. • TBD: Hunters wishing to participate collect and submit organ samples as instructed whenever caribou are harvested. • TBD: Samples analyzed in the lab and results reported and presented in person. <p>Further updates of work undertaken in 2019 related to PC Condition No. 35 will be included in the 2019 Annual Report to the NIRB.</p>	Attachment 7: SOP for Caribou Tissue Sampling

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6	Groundwater Management	<p>Term and Condition 17, 20, and 23 of the Project Certificate states that Baffinland is required to develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater resources. In the 2018 Annual Monitoring Report, Baffinland indicated that a groundwater monitoring program was implemented at various Mine Site locations and select water samples collected downstream of active quarries showed elevated levels of ammonia and nitrate levels when compared to baseline measurements and furthermore that the 2018 groundwater monitoring sample sizes were very low resulting in a limited data set and a limited ability to identify long-term trends. To date, the management plan has not been completed nor has there been any timeline presented by Baffinland to complete this plan and groundwater monitoring has not been that successful to date. The Plan should include a consistent, site-wide groundwater monitoring program for all major project facilities likely to affect groundwater resources (mining, landfill, etc.) as well as increased sampling efforts for the Groundwater Monitoring Program as currently it is not able to identify any trends.</p>	<p>The Board requests Baffinland develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater. This management plan should include consistent and site-wide groundwater monitoring program for all major project facilities likely to affect groundwater resources. This program should have an increased sampling effort for the Groundwater Monitoring Program with incorporation of information from other northern mine sites and should closely monitor water samples collected for elevated chemical levels and apply mitigations when exceedances are noted.</p>	<p>Following review of the comments pertaining to Baffinland’s 2018 Groundwater Program provided by the Board, it should be noted that there several incorrect references to both groundwater and surface water results as presented in Baffinland’s 2018 NIRB Annual Report. To clarify the Board’s interpretation of the results, Baffinland has outlined the corrections below.</p> <p>In reference to the Board’s comment, “In the 2018 Annual Monitoring Report, Baffinland indicated that a groundwater monitoring program was implemented at various Mine Site locations and select water samples collected downstream of active quarries showed elevated levels of ammonia and nitrate levels when compared to baseline measurements”. The information referenced in the above comment refers to surface water run-off results, not groundwater results. As outlined in PC Condition No. 20 of the Annual Report to NIRB (Section 4.6.4, page 77), “During 2018, surface water runoff downstream of active quarries and mining areas were monitored for the water quality parameters outlined by the Type A Water Licence, including parameters related to explosives residue, such as ammonia and nitrate. Although select water samples collected downstream of active quarries and mining areas showed elevated ammonia and nitrate levels in comparison to baseline concentrations, the majority of samples were below the established Canadian Council of Ministers of the Environment (CCME) water quality guidelines for ammonia and nitrate (CCME, 2010; CCME, 2012)”. In reference to the 2018 groundwater results, there was <u>no</u> indication of elevated ammonia or nitrate.</p> <p>The 2018 groundwater program involved installation of shallow groundwater wells up-gradient and down-gradient of the Non-Hazardous Waste Landfill using drive point piezometers. A copy of the 2018 Groundwater Monitoring Program Report (submitted as Appendix E.11 of the 2018 QIA & NWB Annual Report for Operations) can be found in Attachment 8.</p> <p>Baffinland notes that implementing a groundwater program in a permafrost-rich environment presents significant methodological challenges including quantifying groundwater direction, flow and interpretation of groundwater quality. Additionally, groundwater flow dynamics are driven primarily by the permafrost table elevations rather than soil stratigraphy, resulting in significant challenges to determine flow direction and gradient.</p> <p>Baffinland agrees with NIRB that an expansion to the groundwater monitoring program is required to gain a better understanding of natural groundwater chemistry at the Project site. Due to the challenges associated with sampling methodologies for groundwater data collection in a permafrost environment and the challenges in interpreting this data, however, long-term trends will likely not be identified even with an expanded dataset.</p>	<p>Attachment 8: 2018 Groundwater Monitoring Program Report</p>

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				<p>Despite these operational challenges, Baffinland is committed to retaining groundwater consultants that are specialized in Arctic environments, to further assess the current program and provide recommendations in 2020.</p>	
7	Waste Management	<p>During the March and August 2019 NIRB site visits, it was observed again that the current fence at the landfill was insufficient in containing wind-blown debris and not sufficient to eliminate carnivore access to the area. Pursuant to condition 64, Baffinland is required to have complete fencing around their landfill unless it can present an alternative to a fence to the Board for consideration. The Board notes that the Waste Management Plan (2018) submitted to the NIRB stated that the landfill only required a fence for windblown debris which does not match the project certificate requirements for this Project. The NIRB staff on the 2019 site visits noted that the condition of the fencing around the landfill had not improved compared to previous years as Baffinland has yet to install a complete long-term fence as recommended by the NIRB in 2014, 2015, 2016, 2017 and 2018. Further in 2019 NIRB staff observed wildlife (e.g., foxes) scavenging within the landfill and noted it in the 2019 August Site Visit Report. NIRB staff discussed during the site visit the lack of a fence and Baffinland committed to submitting plans for the construction of a fence to enclose the landfill and commence construction as materials were on the 2019 sea lift; on August 26, 2019 Baffinland submitted the plans for a full fence around the landfill in its written response to the NIRB following the site visit.</p>	<p>The Board requires Baffinland install the fence around the landfill immediately and once the fence is constructed Baffinland will submit a final report to the Nunavut Impact Review Board which includes photos, modifications during construction, and inspection schedule.</p> <p>The Board requires Baffinland submit an updated Waste Management Plan to reflect the requirement of a wildlife fence specifically for carnivores and to limit wildlife attraction to site within 30 days. Subsequently Baffinland shall provide information regarding the maintenance of the fence within each Annual Report.</p>	<p>Baffinland is committed to minimizing impacts to wildlife through onsite Project activities, and is fully committed to operating the Landfill in accordance with Baffinland's NWB approved Waste Management Plan. As the Board has previously been made aware, significant effort was undertaken in both 2018 and 2019 to improve onsite management and segregation of waste with the objective of minimizing human-wildlife interactions at the landfill and other locations across the Project site.</p> <p>It is Baffinland's understanding that the intent of PC Condition No. 64 has been met as reported in the 2018 NIRB Annual Report. It is also noted that the Board had previously assigned Baffinland a status of "complete" in 2017, with respect to PC Condition No. 64.</p> <p>Nevertheless, it is acknowledged that input from the NIRB site visits conducted in years prior to 2018 have resulted in recommendations to improve the condition of fencing at the landfill facility for the purpose of reducing windblown debris, to which significant effort has been expended to date.</p> <p>As discussed during the NIRB summer site visit in 2019 and in the August and September submissions to NIRB, in an effort to reduce windblown debris, Baffinland is committed to operating the Mine Site Landfill as per the approved Waste Management Plan. A 275 metre fence was installed on the west side (downwind) of Cell 1 in the fall of 2018 to address concerns of potential wind-blown debris sourcing from the landfill to the tundra. The fence also repurposed over 800 used tires as part of Baffinland's used tire disposal and recycling initiative. The fence captures windblown debris from the landfill effectively (see Attachment 9).</p> <p>In 2019, after procuring additional materials on the summer sealift, Baffinland fully enclosed the active cells at the landfill in accordance with the Landfill Fence Design that was submitted to NIRB on August 26, 2019. Images of both the completed fencing and the Landfill fence design have been included as Attachment 9. Maintenance inspections of the fence will be incorporated in ongoing inspections of the Landfill.</p> <p>Baffinland will continue to work with the QIA, CIRNAC and NWB to assess future recommendations for the Landfill operation as per the approved Waste Management Plan. Baffinland will not be updating the approved Waste Management Plan as the plan specifies how wastes are to be managed at the Project, and is not intended to provide specifics on infrastructure or design considerations. Additionally, all domestic wastes containing food, or items in contact with food (e.g. wrappers) are secured in animal-</p>	Attachment 9: Landfill Enclosure Design and Completion Photos

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
				<p>proof storage bins or seacans until incinerated or backhauled, there are no food wastes deposited at the landfill.</p>	
8	Cross-Cultural Training	<p>During the Final Hearing for the original Mary River Project in 2012, the Board expressed concerns regarding the lack of cross-cultural training provided to non-Inuit staff as Baffinland was not certain where the majority of the staff for the site would be coming from. Since the project was originally approved, NIRB continues to be concerned about the ongoing frustration from Nunavut communities resulting from Baffinland not meeting its local hiring targets in addition to challenges with retention of these local hires. The Board would like to stress the importance of cross-cultural training provided by Baffinland to non-Inuit staff to ensure an inclusive work environment for all employees.</p>	<p>The Board requires Baffinland to provide a detailed description of their cross-cultural training programs for employees. This document should include a description of the current programs offered as well as how they were developed and whether or not Inuit were consulted prior to, or as part of, the program development. Baffinland shall provide a discussion on the success and challenges associated with this program to date and include the rationale for determining the overall effectiveness of cross-cultural training programs implemented, and how the program's effectiveness will be evaluated in the future. The Board requests this information to be provided to the NIRB within 30 days.</p>	<p>Baffinland would like to address the comment from the Board where it was indicated that the Board is concerned about the ongoing frustration from Nunavut Communities related to local hiring targets before addressing the request for additional information related to cross cultural training. Since 2017, the company has seen marked growth in Inuit employment both in terms of the total number of Inuit employed and in overall number of hours worked. Inuit employed as a percentage of the total workforce is an important indicator, but it does not provide an accurate understanding of the total number of Inuit benefiting from employment at Mary River.</p> <p>Since 2013, Baffinland has been delivering on-line Cultural Awareness training as a mandatory requirement for all employees and contractors working at the Mary River Project. This training includes key messages and input from Baffinland's management team, Cultural Advisors, the Head of Northern Affairs and several other Inuit employees. The training program was developed by engaging a third party resource along with Baffinland's management and employees in 2013. If an employee is re-hired or has been absent from the workplace for a period of more than one hundred and eighty days (180), it is required that the training be completed again by all personnel arriving at site as part of their employment.</p> <p>In 2017 a <i>Respectful Workplace Program</i> was developed to provide training to all employees and contractors. This training covers various aspects of building a respectful workplace but focuses specifically on diversity, and cultural awareness</p> <p>Leadership and Coaching Modules were delivered to supervisors, superintendents and managers at site in 2019. Leadership and Coaching Modules focused on providing management with the skills to lead a diverse workforce, and focused on working with Inuit specifically.</p> <p>A new initiative was developed in in 2018-2019 to further focus Baffinland's overall Cultural Engagement Programming at the Project. This initiative is called the <i>Inuit Cultural Engagement (ICE) Program</i>.</p>	Attachment 10: Cross-Cultural Training Summary Report

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
				<p>Cultural training programs are continually evaluated by Baffinland management. Effectiveness of these programs are central to Baffinland’s values and critical in the continued success of Baffinland’s efforts to develop and maximize Inuit workforce participation at the Project. Further, the Mary River Inuit Impact and Benefit Agreement provides oversight to Cultural Training Programs at Mary River. IIBA Article 11, “Workplace Conditions”, ensures that the Company and the Qikiqtani Inuit Association have in place appropriate measures to ensure effective cross cultural training is in place at the Project.</p> <p>A detailed report describing the above efforts and preliminary results of some activities have been included in Attachment 10.</p> <p>Baffinland believes that it has a robust Cultural Training Program in place at the Mary River Project. However, the Company knows that it must continually improve this programming to ensure its effectiveness on site. Whether through formal evaluations (e.g. surveys) or through informal feedback during training program delivery, Baffinland remains committed to continually improving in this area.</p>	