August 5, 2022

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Sent via email: info@nirb.ca

Re: Baffinland Response to Comments Received for Baffinland's Production Increase Proposal Extension 2021 Annual Monitoring Report

Dear Guillaume,

On April 1, 2022, the Nunavut Impact Review Board (NIRB or Board) received Baffinland Iron Mines Corporation's (Baffinland) 2021 Annual Monitoring Report (the Annual Report) and the following week Baffinland also provided all Working Group members with copies of the draft marine and terrestrial environment technical monitoring reports. On April 12, 2022, the NIRB requested that interested parties review the 2021 Annual Report and provide comments with respect to their jurisdiction and/or area of expertise on whether the conclusions reached by Baffinland in the 2021 Annual Report were valid as well as comment on the Proponent's compliance status with regard to authorizations that have been issued for the Project Certificate. Following multiple parties requests for an extension for comments, which the NIRB granted until June 30, 2022, the following parties submitted comments:

- Qikiqtani Inuit Association (QIA) - (NIRB Registry ID No. **340485**)
- Government of Nunavut (GN) - (NIRB Registry ID No. **340481**)
- Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) - (NIRB Registry ID No. **340478**)
- Environment and Climate Change Canada (ECCC) – (NIRB Registry ID No. **340480**)
- Fisheries and Oceans Canada (DFO) - (NIRB Registry ID No. **340479**)
- Parks Canada (PC) - (NIRB Registry ID No. **340483 & 340484**)
- Transport Canada (TC) - (NIRB Registry ID No. **340486**)
- Oceans North (ON) – (NIRB Registry ID No. **340482**)

On July 5, 2022 the NIRB provided Baffinland an opportunity to respond to these comments by August 5, 2022. Responses to comments from these Parties can be found in Attachment 1.

Baffinland appreciates the comments submitted by reviewers on the 2021 Annual Report to the NIRB and wishes to thank everyone for their ongoing engagement in the success of the Mary River Project.

Should you have any questions, please do not hesitate to contact the undersigned.

Regards,

Lou Kamermans

Senior Director, Sustainable Development

Cc: Kelli Gillard, Karen Costello, Cory Barker (NIRB)
Megan Lord-Hoyle, Timothy Sewell, (Baffinland)

Attachments

Attachment 1 - Baffinland Response to Reviewer Comments by Agency

Attachment 1

Baffinland Response to Reviewer Comments by Agency

Table A.1: Response to QIA Comments on Baffinland's 2021 Annual Report to the NIRB

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
GENERAL					
1	QIA 2021 AMR GC #1	Several statements in the popular summary are made without providing acknowledgement of their uncertainty for context. For example: • "Weather conditions in 2021 were summarized and compared to average conditions from previous years" (p. 5). No mention was made of equipment failures that weakened these comparisons. • "Results show there is very little difference between dustfall levels at 0.5 and 2.0 m" (p. 5). This is based on only 3 months of what should be a full year or multi-year study. • "A holistic review of the data from the 2021 shipping season does not conclude that the relatively lower numbers of narwhal observed in Eclipse Sound in 2021 is Project-related. Elimination of early season ice-breaking in 2021 further reduced residual uncertainty in that Project shipping is the primary driver of the observed change in narwhal abundance in Eclipse Sound" (p. 6). For clarity the source of this review should be clearly identified, as should the reviewer's relationship to the Proponent. • "Although the total number of narwhal near Bruce Head was lower in 2021, observed behavioural responses of narwhal to shipping appear generally consistent with previous years, meaning that narwhal continue to demonstrate temporary and localized responses to shipping activities, with animals returning to their pre-response behaviour shortly following initial exposure" (p. 6). Roughly half the animals were no longer present, which suggests their behaviour changed. • "…Pond Inlet harvesters were able to fulfill their entire summer [narwhal] quota by the fall" (p. 7). They were able to catch narwhal but at what extra cost in terms of time, effort, and resources? • "Consistent with previous years the results of this program [i.e., the MEEMP and NIS/AIS Monitoring Program at Milne Port] indicate that effects of the Project on the marine environment are within predictions" (p. 8). The extensive radial sampling program for monitoring effects on sediment and benthic infauna was not run in 2021, nor was the zooplankton sampling program, and there were no AIS/NIS settlement plates or baskets to recover.	The QIA requests that Baffinland qualify its statements in the popular summaries and elsewhere to put them in proper context, so readers are better able to understand any underlying uncertainties.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** Popular Summary **Page:** 5-7 (Popular Summary)	The Popular Summary is intended to provide a high-level plain language summary of monitoring results. The level of detail suggested by the Qikiqtani Inuit Association (QIA) reviewer would not be consistent with this goal. For detailed information about specific topics, Baffinland invites interested parties to review all topics of interest in the full supporting Annual Report and monitoring reports.

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		• "Lake Sedimentation monitoring at the Mine Site indicate that sedimentation rates are generally consistent with baseline except in the shallow stations, but accumulation rates at these sites remain well below the proposed low response threshold of 0.15 mm" (p. 8). The 2020-2021 sediment samples for the 2020 to 2021 ice-cover period were lost in transit so in 2021 only the open water data were analyzed.			
2	QIA 2021 AMR GC #2	Baffinland (e.g., p. 27) suggests that the Working Groups' participants lack of "significant experience operating industrial projects, particularly in the complex and challenging Arctic" is a consideration in the provision of advice on Project monitoring, mitigation, and adaptive management. The QIA notes that its technical experts do not need experience operating a mine to apply their expertise on the Arctic marine or terrestrial environments to reviewing Project impact assessments and monitoring and adaptive management plans, and identifying areas for improvement. Nor do they need said experience to acknowledge and carefully consider the significant volume of local knowledge and expertise that is available and has been widely shared with the Proponent and other intervenors. The Proponent also states that some recommendations from the Working Groups "do not properly appreciate or weigh [sic] health and safety concerns and limitations or operational constraints" (2021 AMR, p. 257). The QIA assures the Board that it properly appreciates the issues at hand. Baffinland stresses "the need to retain ultimate authority to reject recommendations that don't meet reasonable criteria for implementation" (2021 AMR, p. 27). Who determines what is reasonable, and under what criteria? The Proponent also notes the need to take the costs or logistics involved in implementing recommendations into account, suggesting that this is rarely done by MEWG members. MEWG members are well aware of the logistics involved, and it is incumbent on the Proponent to provide detailed information to justify arguments against implementing expert-recommended mitigation. Furthermore, costs cannot be treated as an ultimate overriding factor. Everything has a cost, and not all costs are borne by the Proponent, especially those that are ecosystemic and socio- cultural. Baffinland also states that "it is important to distinguish between initiatives that may be of personal interest or curiosity to individual Working Group members, and those that have a reasonable link to the Mary River Project's activities" (2021 AMR, p.176). This is an interesting statement - TEWG and MEWG members would benefit from a greater understanding on what types of recommendations the Proponent considers to be pet projects and not	The QIA requests that the Proponent provide a detailed summary of the criteria used to determine whether the implementation of a recommendation is feasible, including how the different criteria are weighted. The QIA requests that the Proponent provide examples of recommendations that member organizations have made that it considers initiatives that may be "of personal interest or curiosity" to individual members and not a reasonable recommendation to improve Project monitoring and adaptive management (p.176).	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 2.5; 4.6.10 Marine Environment (PC Conditions 76 through 98); 4.8.2 Alternatives Analysis (PC Conditions 178 through 184); APPENDIX E **Page:** 23-27; 245-304; 549-567	Under the Project Certificate (PC), the Marine Environment Working Group (MEWG) is an advisory group to Baffinland. Baffinland has proposed updates to the current Terms of Reference for the MEWG which will outline the criteria Baffinland uses to determine whether the implementation of a MEWG recommendation is feasible. Generally, in determining feasibility, Baffinland will holistically consider input from relevant parties and its own technical experts, health and safety, operational limitations, and financial viability, amongst other factors. To reiterate, Baffinland determines feasibility on a holistic basis with financial cost as only one of several factors considered in making a determination with all criteria equally weighted. Costs are not treated as an "overriding factor." Baffinland provided a detailed status overview of MEWG and Terrestrial Environmental Working Group (TEWG) feedback/requests received since 2018 to the NIRB in 2021 (see Attachment 4, Tables 1 and 2 in Baffinland [2021]; NIRB Registry. No. 333841 and 333851). It is noted that Baffinland requested as part of its June 2022 meetings held with the MEWG (June 14, 22, 29) and TEWG (June 23) that any proposed changes to monitoring programs and mitigation measures being implemented in 2022 should be submitted in writing as formal recommendations to Baffinland. It was made clear that recommendations should be substantiated with rationale including any identified gaps or shortcomings identified from previous results, and with clear explanations showing relevance to identified potential pathways of effects in consideration of Baffinland activities and/or infrastructure. It is also expected that any recommendations being put forward be solutions-oriented. Baffinland notes that no formal recommendations have been received to date by any MEWG/TEWG member or observer following those June 2022 meetings. Reference: Baffinland. 2021. Baffinland Response to NIRB's 2019-2020 Mary River Project NIRB Annual Monitoring Report and NIRB's Recommendations. March 5, 2021.

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		relevant recommendations to improve Project monitoring and adaptive management. PCC 184 requires that the Proponent "collaborate with the Marine Environment Working Group to review the status of compliance with, and implementation of, all of the Terms and Conditions in Project Certificate No. 005 related to marine environmental protection" (p. 567). The MEWG did not review the status of compliance with, and implementation of, all of the Terms and Conditions in 2021.			
3	QIA 2021 AMR GC #3	"Reports that have yet to be issued as final and are awaiting review and feedback from the Terrestrial and Marine Environment Working Groups have not been included as attachments to this report, however, they have been released to the Working Groups for review and comment, to which the NIRB is an observing member" (p. 12). As in 2020, the 2021 Annual Report does not include many of the relevant and necessary reports from the year's marine and terrestrial monitoring programs as Appendices (e.g., Marine Mammal Aerial Survey, Bruce Head, Terrestrial and Marine Environment Annual Monitoring Reports). An important consequence of these overlapping review timelines is that the Annual Report to NIRB does not benefit from reviews of these underlying monitoring reports by the Working Groups. Errors and omissions that might have been caught are entrenched in the Annual Report, while corrections, clarifications, and additions are lost.	The QIA reiterates its 2020 request that the Proponent commit to providing all future draft reports for Working Group review on a schedule that allows the revised reports to be included in the Annual Report to NIRB, which should also reflect any revisions to these reports.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 1.5.2 Supporting Documents and Appendices **Page:** 12	Baffinland is currently reviewing and updating the Terms of Reference for the MEWG and plans to address this recommendation therein. In its review of the MEWG Terms of Reference, Baffinland continues to evaluate the logistics of an adjusted annual meeting schedule and information exchange timelines to accommodate the submission of draft plans (with comments) in conjunction with Annual Report submissions.
4	QIA 2021 AMR GC #4	With reference to Steensby Port and associated infrastructure, the Annual Report notes that no activities are planned in 2022, with the exception of environmental/baseline studies to "support the future development of the southern transportation corridor and Steensby Port, should that be possible" (p.38).	The QIA requests that the Proponent provide an update on these environmental/baseline studies.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** Popular Summary; 3.3 Looking Ahead **Page:** 12, 38	Extensive baseline studies on the biophysical environment were completed in support of the Steensby Project from the mid-2000s to 2012. This included studies of freshwater fish and fish habitat along the South Railway and at Steensby Port, studies of marine fish and fish habitat at Steensby Port and studies of marine mammals along the planned shipping route. While the information and data collected previously is very valuable, updated baseline information is needed to support additional environmental permit applications, including: Authorizations under the Fisheries Act from Fisheries and Oceans Canada (DFO) to authorize work that will result in the harmful alteration, disruption or destruction of fish habitat, and/or the death of fish. Two Authorizations will be required: • An Authorization for impacts to freshwater fish and fish habitat due to construction of the South Railway; • An Authorization for impacts to marine fish and fish habitat at Steensby Port due to construction of the freight dock, ore dock, and island causeway connecting Steensby Island to the mainland;

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					• A Disposal at Sea Permit from Environment and Climate Change Canada (ECCC) to allow for disposal of dredged sediment within the marine environment should this option be considered necessary over land-based disposal following additional investigation (alternatives analysis). The fish and fish habitat surveys proposed for 2022 are the same as those carried out in 2021, and comprise studies in both freshwater and marine environments. The scope of the 2021 and 2022 programs includes: **Freshwater:** • Conduct fish presence/absence surveys at stream crossing and lake infilling sites on the South Railway and access road, and habitat assessments at fish-bearing or potentially fish-bearing locations; • Conduct aerial surveys at proposed quarry sites along the South Railway and access road, and fish presence/absence surveys at waterbodies identified within the quarry boundaries from the aerial surveys; • Detailed habitat survey at Cockburn Lake to collect water depth and substrate information; • Conduct fish presence/absence surveys at stream crossing and lake infilling sites at Steensby Port, and habitat assessments at fish-bearing or potentially fish-bearing locations; • Conduct connectivity surveys between freshwater drainages at Steensby Port that may be affected by proposed in-water infrastructure and the marine environment to assess potential anadromy of Arctic char (fish that live in both freshwater and marine environments); • Collect older/larger Arctic char for strontium analyses to evaluate anadromy from drainages that may be impacted by in-water infrastructure where it cannot be ruled out based solely on habitat surveys (relevant for determining connectivity potential); and • Conduct habitat assessments at proposed water intake sites for dust suppression along the South Railway and access road. **Marine:** Collection of updated marine environmental baseline information for sediment, benthic invertebrates, fish and fish habitat. This may include drop-camera surveys, remote-operated vehicle surveys, sediment grabs. Updated baseline information will be collected at: • Three main sites for proposed marine infrastructure for the project (ore dock, freight dock, island causeway). Sediment samples will also be collected to support a potential Disposal at Sea permit application; • A Reference Site outside the zone of influence of the Project; • Within the Steensby Port area to characterize potential disposal sites for dredged material; and

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					• At potential offsite habitat offsetting locations in Steensby Inlet and/or Foxe Basin.
5	QIA 2021 AMR GC #5	In its 2020 Annual Report comments, the QIA requested that Baffinland provide a tracking table that would: • Indicate the frequency of stakeholder engagement • Indicate participants in the stakeholder engagement • Describe key issues and feedback raised and Baffinland has or will address these issues and feedback As in the 2020 Annual Report, Baffinland provides a bullet point list of their engagement activities, for example "Providing regular and ongoing opportunities for the dissemination of Project-related information and receipt of stakeholder input through Baffinland Community Liaison Officers (BCLOs) stationed in each of the five (5) North Baffin communities..." (p.15) and provides summary tables of public and community event dates, types, and topic of discussion (Table 2.1 and Table 2.3). Baffinland mentions that a summary of engagement events is found in Appendix B. Baffinland also mentions that a summary of Inuit feedback from these engagement events that relates to environmental effects is embedded within the relevant ecosystemic and socio-economic project certificate condition discussion within Section 4 (see p. 15 and p. 40), and is also detailed in Appendix B. As the QIA previously stated in its 2020 comments, in the 2021 Annual Report Baffinland has not provided detailed evidence of tracking the comments, concerns, feedback and recommendations of community members and members of the public, as well as how Baffinland responded to the comments, as evidence of the strength of its engagement process. Table 2.1, Table 2.2, and Appendix B, Appendix B.1 in particular, all combined do provide the date, participant, location, event type, and a general description of the topics discussed but does not provide the issues or concerns raised, or how these have been addressed by Baffinland. Baffinland has provided an issue tracking table specific to comments received by the Shipping Monitors (p. 16; Appendix B.2); The QIA would like to see this type of tracking table expanded to all engagement events. It is important that Intervenors and other interested parties have a clear and detailed understanding of how stakeholder comments were gathered, assessed, addressed, and implemented.	The QIA requests that the Proponent provide further evidence of the strength of its community engagement process by providing a tracking table indicating engagement event type, date, participants, discussion topic(s), key issues, feedback and concerns raised by community members and members of the public, where these issues were raised, and how Baffinland has or will address them, and reasons if the issue will not be addressed.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 2.3 Engagement Activities **Page:** 14-20 **Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board, Appendix B, 2021 Engagement Records and Community Comments and Questions [NIRB Registry: 220401-08MN053-2021 Annual Report-App B Engagements-IA1E.pdf) **Section:** Appendix B.1 and B.2 **Page:** B.1 - 8, and Table 1; B.2 - 1-6	The key concerns, comments and questions heard through engagement remain largely focused on three (3) key topic areas including: • Dust: Potential impacts of dust on the terrestrial and marine environment, including aesthetics (i.e., red dust on snow). • Marine environment including marine mammals, with particular focus on seals and narwhal: potential impacts of shipping related activities and/or infrastructure on marine mammals due to noise, and on harvesting activities. • Terrestrial environment, including potential impacts of mining operations (inclusive of trucking) and infrastructure on terrestrial mammals (particularly caribou), birds, and vegetation (e.g., lichen). Other comments/questions relate to job opportunities, and these are included as part of the tracker included in Appendix B.1 (Figure 1) and B.2. Generally, individual comments, questions and concerns requiring specific follow-up are captured through meeting notes, minutes as recorded during the various types of engagements provided in Appendix B. Records from these engagements (whether through informal notes or meeting minutes) are typically uploaded to a software program called StakeTracker © 2022 SustaiNet Software International Inc. These concerns are well known to Baffinland and to the NIRB based on the various intervenor comments we receive as part of the annual reporting efforts and through working group meetings, for which detailed meeting records have been included in the 2021 Annual Report to the Nunavut Impact Review Board (NIRB; see Appendix C). Specific responses to comments provided by various Inuit and stakeholder groups have been included on the NIRB public registry through the many submissions related to the proposed Phase 2 expansion and/or other submissions related to the active Project. This includes a path forward for addressing and/or resolving issues as submitted through the development of commitments should the proposed Phase 2 expansion be approved. Without more certainty on the future of its operations, Baffinland will not be developing action plans on issues unless it is related to current operations or if related to commitments made under current review processes. Notwithstanding, Baffinland places great efforts on addressing concerns related to shipping as one of the key areas of interest, responding efficiently and pro-actively. Specific details for responses on Baffinland's shipping operations were provided as examples given the importance of these topics to the community of Pond Inlet. There is no need to pull a detailed summary from its Staketracker software for every type of comment, question or concern received through every single interaction with Inuit and stakeholders on all other topics, to understand the key topics of interest and how Baffinland has responded. Sufficient information has had already been submitted on the record.

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					Baffinland asks that QIA, as the regional voice of Qikiqtani Inuit, bring forward any additional feedback that they have received through their engagement efforts. Specifically, Baffinland requests that the QIA provide the feedback they have received on Baffinland's current practices if/where additional information or gaps have been identified by Inuit substantiated with specific examples. This will support the Company's understanding of the issue being raised by QIA so that it can consider revising its current processes to better meet the needs of Inuit and other stakeholders. At this time nothing specific has been brought forward by QIA other than what has been identified by Baffinland through its own engagements.
6	QIA 2021 AMR GC #6	The Proponent notes that some Inuit participation in the environmental monitoring program occurred in 2021. According to information provided under PC Condition 101c, Inuit participated in interviews to discuss preliminary monitoring results. Baffinland states they solicited input on program design and program planning for future Monitoring Programs. According to information provided under PC Condition 125a, Baffinland interacts with the Hamlet of Pond Inlet and the HTO "to better understand potential concerns associated with its shipping operations, and includes discussions related to anchorage sites" (p. 408). According to information provided under PC Condition 126, Baffinland has implemented a Pond Inlet-based Shipping Monitor Program, which employees two full-time employees. Baffinland states a total of seven individuals were employed for the 2021 marine monitoring programs and ten were employed as Shipping Monitors (both full- and part- time). It is clear that Inuit take opportunities to participate in marine monitoring. It is less clear the role of Inuit Qaujimajatuqangit in the implementation of these monitoring programs.	The QIA requests that Baffinland describe its plans to improve the role that Inuit Qaujimajatuqangit and Inuit observations play in monitoring of the marine environment.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 3.2.2 Covid-19 Pandemic Table 3.1 (related to PC Conditions 101, 125, 126, 127, 128) **Page:** 32-33	Since June 2020 Baffinland and the QIA have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Organization, the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. Accordingly, the QIA itself is the most qualified to provide an update on the status of its progress in developing the IQ focused systems provided for under the ICA. In parallel with the implementation of the ICA, Baffinland has actively progressed draft revisions to the Terrestrial and Marine Environment Working Groups Terms of Reference that, among other things, provides an additional and potentially central role for the integration of IQ and Inuit observations into the planning of Baffinland's marine monitoring programs. Some elements to highlight include, but are not limited to: • In providing advice to Baffinland, the MEWG must provide written rationale for proposed management measures with specific reference to relevant evidence on which the measures were based, including IQ, local knowledge, western science and industry standard best practices. • In fulfilling its role, the MEWG may support cooperative arrangements between members of the MEWG and Inuit of the Qikiqtani Region in order to protect the environment and the traditional relationship of Inuit with the marine environment. • In addition to the Mittimatalik Hunters and Trappers Organization (MHTO), the Ikajutit Hunters and Trappers Association, Hall Beach Hunters and Trappers Association, Igloolik Hunters and Trappers Association, and Clyde River Hunters and Trappers Organization are invited to participate in the MEWG with full Member status, should they elect to participate. To facilitate participation accessibility for these groups, Baffinland will cover the costs associated with their participation, subject to the finalized MEWG Terms of Reference. To be clear, the measures described above are in addition to the extensive measures Baffinland already has in place to engage with Inuit and apply their IQ and observations in the development, implementation, and analysis of our monitoring programs, including participative research in

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					Baffinland led monitoring, funding towards local community based monitoring programs, local shipping monitor program, beginning and end of season shipping meetings, ongoing community engagement efforts, and funding MHTO and QIA participation in the MEWG.
7	QIA 2021 AMR GC #7	Baffinland provides a template summary sheet (Table 4.2) that is to be completed for "each of the ecosystemic, socio-economic and 'other' terms and conditions … in Sections 4.6 to 4.8" (p. 40). Two items are of particular interest: 'Inuit and Stakeholder Review' and 'Trends'. <u>'Inuit and Stakeholder Review' Item</u> There are two aspects to Inuit and Stakeholder Review that are not clearly identified in the Annual Report. The first aspect is evidence of Inuit and Stakeholder input into the implementation and successful application of the terms and conditions, for example, in relation to such things as the framework, data, monitoring, and analysis required under given terms and conditions. The other aspect is in relation to assessing and verifying Baffinland's self-assessment of compliance status where, in previous years, Inuit parties including the QIA have had different findings regarding compliance status than Baffinland. It is not clear how this has been reconciled by Baffinland through subsequent engagement with those Inuit parties. '<u>Trends' Item</u> Baffinland indicates that they only provide information on "notable" trends (p. 41). However, in the spirit of transparency, all trends should be reported on, especially as: a. what is deemed notable is a subjective determination in many instances; and b. what is deemed notable by Inuit and Baffinland has differed over the years.	The QIA requests that Baffinland report on: • Inuit and Stakeholder input into how the terms and conditions should and have been applied in a given year; • Inuit and Stakeholder input in relation to assessing and verifying Baffinland's self-assessment of compliance status, and how Baffinland engaged with parties that disagreed with previous Baffinland compliance self-reporting and sought reconciliation; and • All trends and change over-time, not just those deemed 'notable'.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.2 Approach to Reporting on Performance **Page:** 40-41 (Table 4.2)	This recommendation inappropriately requests Baffinland to undertake key activities under the NIRB's mandate. The activities described by QIA in the first bullet of its request are undertaken by the NIRB as part of its annual monitoring process, and it would be confusing for Baffinland to duplicate these efforts. The NIRB process solicits public input on the topic of compliance, including holding in-person community meetings and providing opportunities to Inuit and stakeholders for written input. The NIRB's advice, including summaries of feedback received, is provided in the NIRB Annual Monitoring Report. With respect to the second bullet of this request, Baffinland primarily relies on the NIRB process to collect this information. Baffinland takes the information shared with the NIRB into consideration in preparing its self-assessment of compliance included in the Annual Report. Where concerns or disagreements on this topic are expressed through the NIRB process, community engagement or the working groups, Baffinland does its best to resolve them directly and report on resolutions to the NIRB. With respect to the third bullet of this request, Baffinland's interpretation of "notable" trends are those that are potentially identifying trends and change that could have a reasonable potential to be linked to Project-related activities and/or infrastructure. It is not feasible, practical, or appropriate for Baffinland to report on every single observed trend and/or change, as suggested. Reporting on all trends and change over time would inappropriately include all trends related to the environment, rather than identifying trends and change specifically linked to Project-related activities and/or infrastructure. Again, Baffinland relies on the NIRB process to help identify any trend and/or change that reviewers view as "notable". For more information on Baffinland's rationale behind current trend analysis, see Baffinland's response to QIA 2021 AMR GC#8, below. Nevertheless, in an effort to further incorporate Inuit and stakeholder input in its annual review process, Baffinland plans to improve the role Inuit Qaujimajatuqangit (IQ) and Inuit observations play in monitoring of the marine and terrestrial environment in the finalized Terms of Reference for the MEWG and TEWG (under development). For more information, see Baffinland's response to QIA 2021 AMR GC #6, above.
8	QIA 2021 AMR GC #8	Table 4.2 expands on how the Proponent reports on "notable trends". However, in the spirit of transparency, all trends should be reported on including qualitative indicators, for example, Inuit perspective on improvements in communication and engagement. There are some obvious places in the AMR where the Trends section should include graphs to show changes over time. Reporting on PCC 8 is one example.	The QIA requests that the Proponent report on all trends and change over-time, not just those deemed notable by the Proponent.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021	The recommendation as written is too broad and unsubstantiated. One example where a graph would have been helpful is not sufficient to guide an adequate resolution. Baffinland will reconsider the scope of what is included in the standard trend section included for each Project Certificate Condition (PCC) evaluation in future reports to the NIRB, however, additional guidance by the QIA is required to understand what will ultimately resolve this issue. Baffinland currently uses statistical analyses to evaluate trends for quantitative data, for example, for various environmental monitoring programs. This evaluation is completed through numerical and

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				Annual Report Main Body- IA1E.pdf] **Section:** 4.2 Approach to Reporting on Performance **Page:** 40-41	graphical representation. However, this approach does not work for qualitative data. An evaluation of applicable reports, engagement sessions, and meeting records applicable to the topic are evaluated to develop content for the 'trends' information presented. For each PCC a 'trend' section is included, and considerations are provided therein.
9	QIA 2021 AMR GC #9	Baffinland reports that fourteen (14) spills were reported to the Spill Report Line, CIRNAC and the QIA, which is an increase of 8% from 2020. The most common causes for the spills were equipment failure (component malfunction, preventative maintenance), improper operation of equipment, and procedural issues (inadequate procedure or training). It is concerning that the number of spills occurring has increased since 2020. Five of the 14 spills are not quantified.	The QIA requests that the Proponent report the trend on the number of annual reported spills occurring over time. Additionally, Baffinland has stated the most common causes of spills: please elaborate on other causes of spills in this section. For unquantified spills, please provide an estimated amount.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.5.2 Unauthorized Discharges and Spills **Page:** 46	1. Baffinland does detail in Section 4.5.2 of the 2021 NIRB Annual Report the reportable spill occurrences trend for the reporting year from the prior year. Baffinland notes that the 8% increase from 2020 to 2021 was calculating the difference between thirteen (13) spills in 2020 compared to fourteen (14) spills in 2021, thus the 8% increase was characterizing only one (1) more reportable spill occurrence in 2021 from 2020. 2021 was still a significant improvement, with a 44% decrease in spills in 2021 compared to 2019, for example. The reportable spill breakdown in 2021 differed from 2020, and therefore it can be misleading to assess Baffinland's performance by solely comparing spill counts year to year. For example, in 2020 sewage was the most common material released, meanwhile in 2021, sewage spills decreased compared to 2020. Additionally, in 2021, sediment-laden water releases were reported in two separate spill reports, while in 2020 they were reported in the same spill report due to differences year to year in the timing of snowmelt and updates being required in 2021. Baffinland continues to conduct incident investigations to determine the root cause of spills. This approach enables targeted corrective actions such as preventive maintenance plans, daily pre-operational checks of all equipment, spill tray usage bulletins, toolbox meetings, prescribed training sessions, specific product handling and spill reduction plans. Baffinland is also working on implementing the next phase of the Long Term Water Management Plan (Modification No. 13) to address the sediment-laden water releases on site. 2. All of the details of each individual reportable spill, such as the requested information on the cause of the spills, can be found in the individual follow-up spill reports. These reports are included in Appendix E.8.3 of the Type 'A' Annual Report for Operations. Section 4.5.2 of the NIRB Annual Report is intended to summarize overall trends and not provide specifics on each individual event. 3. Similar to previous years, the quantity of the product spilled is unknown and therefore not reported for the five spills, as it was sediment-laden surface water.
10	QIA 2021 AMR GC #10	Baffinland describes the work completed over the year on their Climate Change Strategy. There is sufficient detail and description of the management strategies development undertaken over the year but there is very little description of environmental monitoring conducted to understand climate change in the	The QIA requests that Baffinland provide: • A description of the work they will undertake to assist Inuit in the development of Inuit	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB	To clarify, Appendix G.1 is to be considered a draft version of the Climate Change Strategy that was shared with Inuit and other stakeholders in order to obtain feedback for future consideration into a subsequent draft. Accordingly, Baffinland will be revising/redefining its overarching statement, goals, guiding principles, and supporting actions based on what was heard through these engagements. Baffinland notes that certain elements may change based on the outcome of the

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		region, and to therefore be able to set "environmental priorities of concern for action planning" (p. 54), understand "community and regional vulnerabilities" (p.54), and develop "climate scenario analysis" (p. 54). Despite Baffinland's Climate Change Strategy identifying monitoring of climate change and risks as one of the goals of the Strategy (Appendix G.1, Goal 2) and Baffinland's methods indicating the use of scientific data and Inuit Qaujimajatuqangit in environmental monitoring of climate, there is only mention of monitoring temperature and tidal data. It is unclear why Baffinland has yet to develop Inuit Qaujimajatuqangit-defined climate-related criteria and include those in the 'comprehensive' environmental monitoring program that is currently implemented. It is also not clear from the discussions under PC Conditions 2 and 4 whether and how Inuit Qaujimajatuqangit will be integrated into understanding community and regional vulnerabilities and into developing climate scenarios. Further, it is unclear what is the status of climate scenarios development, and whether community and regional vulnerabilities have been identified. Are the climate action strategies purely driven by a focus on mine works and activities that contribute to climate change or is there a refinement of actions to address these community and regional vulnerabilities, to the extent that there is overlap between the mine and these vulnerabilities? Overall, the QIA disagrees with Baffinland's interpretation that the Compliance Status of PC Condition 4 is "not applicable". The PCC calls for Baffinland to "endeavour to include the participation of Inuit from affected communities and other communities in Nunavut when undertaking climate-change related studies and research" (p. 61). If no such efforts have been made by Baffinland, the PCC should be labeled "non-compliant"; if efforts can be demonstrated to have been made and be ongoing, this should be labeled as "in progress"; given the importance of ongoing climate change monitoring and management efforts, this status of this PCC should never be deemed "not applicable"; that is in effect an admission of failure. Under PC Condition 4, it seems valuable and appropriate to include discussion of trends in the data Baffinland is collecting through their climate-related monitoring, bench-marked against predictions made in the FEIS, as well in relation to climate scenarios Baffinland may have developed.	Qaujimajatuqangit-defined climate-related criteria to be applied in relation to the Project's Climate Change Strategy. The description should include a timeline for their incorporation into the environmental monitoring program that is currently implemented and proposed for the future of the Project. • A description of how and where Inuit Qaujimajatuqangit will be used to inform climate scenario development and to understand community and regional vulnerabilities. The description should include a timeline for the climate scenario development and when community and regional vulnerabilities and environmental priorities will be established. The QIA requests that Baffinland include discussion and analysis of trends in their climate-related monitoring under PC Condition 4 in future annual reports.	Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.1 Meteorology and Climate (PC Conditions 2 and 4) **Page:** 52-56, 61-62 **Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board, Appendix G.1, Climate Change Strategy Framework – Draft" [NIRB Registry: 220401-08MN053-2021 Annual Report-App G.1 Climate Change Strategy-IA1E.pdf] **Section:** Goal 2 **Page:** 3	future of Baffinland's operations once there is more certainty on the path forward given that different elements will require long-term planning. As described in the section, the purpose of completing the first set of engagements, which included feedback from Qikiqtani Inuit Association (QIA), Hunter and Trapper Organizations (HTOs) and concerned individuals, was to seek feedback on Baffinland's draft and obtain guidance for priorities. Once the climate change strategy is finalized, it is Baffinland's intent to further map out next steps so that concrete actions may be developed. Development and implementation of next steps will undoubtedly require additional engagements with Inuit representation from the QIA. As the regional voice of Nunavut's Qikiqtani Inuit, Baffinland expects and welcomes QIA's insights as it works to further refine a path for the future. It is for this reason that QIA was engaged in 2021 on this very important topic. With the current uncertainty of Baffinland's operations into the future, Baffinland is unable to further elaborate on exactly what next steps may entail as one of the more recent drivers for amending the strategy was to develop it in consideration of a long-term project that would then be capable of incorporating the monitoring of potential trends over time. Baffinland disagrees with QIA's position that by indicating Not Applicable that the Company admits failure. Development of a corporate Climate Change Strategy is a critical milestone for setting the vision for the future by establishing key priorities and guiding principles in order to provide a framework for the development of practical and impactful actions. Again, it is Baffinland's expectations that the QIA will share their knowledge on how and where Inuit Qaujimajatuqangit should be used to inform climate change scenario development (in the context of best practices that is relevant to established climate scenario methodologies) and to understand community and regional variabilities. Baffinland will explore how best to compile internal environmental variable datasets available to Baffinland based on data collection efforts completed to date as part of future monitoring efforts. Should QIA have specific information to share that is of importance to Inuit based on their own engagements or monitoring program completed to date, Baffinland requests that this data be shared when available for Baffinland's consideration.

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11	QIA 2021 AMR GC #11	Greenhouse gas (GHG), SO_2 and NO_x emissions are reported for PC Condition 6 (pp. 64-65). Are vessel emissions included in these calculations, and if not, why not? PC Condition 9 (pp. 75-76) reports on greenhouse gas emissions generated by Project activities and is expected to include aircraft use associated with the Project and fuel consumption measured by Baffinland's purchase and use, plus fuel used by contractors and sub-contractors. How do the GHG emissions reported break down by source (aircraft, tote road trucking, vessels, Proponent vs contractor use, etc.)?	The QIA requests that the Proponent provide the additional details on emissions sources as required under the relevant Project Certificate Conditions.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.1 Meteorology and Climate (PC Conditions 1 through 6); 4.6.2 Air Quality (PC Conditions 7 through 12) **Page:** 47-65, 69-74	As outlined in Section 4.2.4 of Environment and Climate Change Canada's (ECCC, 2020) Technical Guidance on Reporting for Greenhouse Gas (GHG), the emissions from transportation to and from a facility (i.e. airplanes or vessels) are not to be reported. Reference: Environment and Climate Change Canada (ECCC), 2020. Facility Greenhouse Gas Report – Technical Guidance on Reporting Greenhouse Gas Emissions – 2020 Data (which is applicable to 2021 reporting). Available at: https://publications.gc.ca/collections/collection_2021/eccc/En81-29-2020-eng.pdf
12	QIA 2021 AMR GC #12	Continuous ambient air quality monitoring equipment is set up at Milne Port and the Mine Site to monitor sulphur dioxide (SO_2) and nitrogen oxides (NO_x) levels. In 2021 there was a data gap in the SO_2 monitoring due to an Internal Pump failure.	The QIA requests that the Proponent describe the steps they will take to ensure air quality monitoring equipment is in good working order and operating correctly.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** Popular Summary; 4.6.2 Air Quality (PC Conditions 7 through 12) **Page:** 5 (Popular Summary), 69-74	Baffinland has implemented corrective actions to continue to improve the reliable collection of weather data and prompt detection of any equipment issues. Critical spares have been identified and inventoried, and procured to ensure they are readily available on site. Baffinland is increasing the frequency and quality of Quality Assurance / Quality Control (QA/QC) audits to include monthly data audits. Baffinland is continuing to improve on-site capacity to complete physical equipment inspections internally, which will enable an increase in frequency of the inspections. Baffinland will continue to ensure equipment inspections and maintenance are completed by a qualified individual.
13	QIA 2021 AMR GC #13	The Proponent acknowledges that Inuit community concerns have been raised relating to noise (p.84). Baffinland describes the monitoring that has been conducted, provides a general overview of the sound levels recorded at the three distances from the project, and gives a general indication of temporal variability. Baffinland has also concluded that the sound levels beyond immediate vicinity of the project area are unlikely to cause	The QIA requests that Baffinland provide a list of specific Inuit concerns related to Noise and Vibration and how they have been addressed, whether and how Inuit have verified the effectiveness of any measures to	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-	Baffinland has no records of specific concerns identified by Inuit related to the current operation and noise and vibration. It is also worth noting the noise monitoring was conducted in 2020 and the comment and request are irrelevant to the 2021 NIRB Annual Report.

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		"significant wildlife disturbance" (p.85) or significantly affect wildlife distribution or behaviour (p. 92). Baffinland has not provided any information on how the impact of noise, sound level or other noise characteristic, may affect other users, e.g., hunters. Noise and vibration can impact culture and land use and need to be investigated if there are Inuit concerns.	reduce concerns, and what plans, if any, Baffinland has to involve Inuit sensory metrics related to noise (against natural background conditions and Inuit observations of what is normal, acceptable, and unacceptable).	08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.3 Noise & Vibration (PC Condition 14b) **Page:** 90-91	For the 2022 Terrestrial Environment Monitoring Program, the Project has retained noise monitoring experts — who were involved in characterization of baseline noise estimated and effects predictions — to evaluate Project-related noise at the Project. Since June 2020 Baffinland and the QIA have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of IQ and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to Inuit Qaujimajatuqangit (IQ) and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.
14	QIA 2021 AMR GC #14	In the discussion on PCC 162, Baffinland identifies a communications protocol "to be implemented during the 2021 shipping season". The same was stated in the 2020 Annual Report It is not clear how this protocol has been used during communications about shipping or if it is being effective.	QIA requests that the Proponent provide a description of any incidences, near misses, or concerns communicated by Inuit and Stakeholders via the communications protocol, and provide commentary on the effectiveness of the communications protocol.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.7.7 Culture, Resources & Land Use – (PC Conditions 162 and 164) **Page:** 513 - 515	See response to QIA 2021 AMR SE #32.
TERRESTRIAL ENVIRONMENT					
15	QIA 2021 AMR TE #1	PC Condition 10 states that the Proponent shall update its Dust Management and Monitoring Plan. This update shall include items such as plans for monitoring the first few kilometers of the rail corridor leaving the mine site, monitoring dustfall at intervals along Milne Inlet Tote Road, and taking all adaptive management measures described in its Dust	1. The QIA requests that Baffinland provide evidence that the 'short' monitors accurately reflect conditions at ground level. If the short monitors continue to miss	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB	The QIA's request on dustfall sampling height and suggestion that Baffinland is not sampling dust on vegetation is not supported by evidence. We encourage the Qikiqtani Inuit Association (QIA) to refer to previous responses in various Terrestrial Environmental Working Group (TEWG) meetings, reflect on responses provided during the Phase 2 hearing, and acknowledge the answers, provided again, below. The same question has been asked repeatedly, yet the same question here is not sufficiently

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		Management and Monitoring Plan if monitoring indicates that dust in the ambient air or dust deposition from the increased traffic is greater than initially predicted. Baffinland identifies that dust management and monitoring measures continue to be implemented at the Mine site, Port site, and Tote Road. They added 14 dustfall monitoring stations in 2021: four additional monitors at Milne Port, four new monitors along the rail alignment, and six 'short' monitors installed at 0.5 m to compare the difference between dustfall at the standard height of 2.0 m and dustfall closer to the ground. Additionally, in 2020 Baffinland began conducting satellite imagery analysis to measure the extent of dustfall extent and relative magnitude within a 20 km buffer of the Project Development Area. Mitigation measures include installation of equipment at the Crusher Facility, application of a product called Dust Blockr along the Tote Road, and application of a product called DusTreat on Milne Port stockpiles. Baffinland has certainly made changes to its Dust Management and Monitoring Plan as a response to concerns identified by the QIA, the TEWG, and the MHTO. However, these changes have not fully addressed those concerns. First, it is not clear that the 'short' monitors placed at 0.5 m accurately reflect the amount of dust settling on the ground. Baffinland reports in the 2021 TEAMR that "no difference was found in the dustfall measured at a standardized height of 2.0 m and at 0.5 m" (2021 TEAMR, Table 0, p. v). This result is used as evidence that the 2.0 m height across all monitoring stations captures the amount of dust falling at ground level. Baffinland does not give any rationale for choosing the 0.5 m height and provides no evidence that the amount of dust collected in the 'short' monitors is commensurate with the dust that collects at ground level. As the QIA suggested in comments provided on the 2020 NIRB Annual Monitoring Report, one way to measure the amount of dustfall collecting at ground level is with snow core samples. These samples will show how much dust collects at the surface of the snowpack between snow events. Second, contrary to Baffinland's assertion that dustfall mitigations are successful, the results of the passive dustfall sampling show that concentration and extent of dustfall continues to be above FEIS predictions	dust that is being moved by wind at the ground level, QIA requests that Baffinland include another approach to gauge accumulation over time at ground level. 2. The QIA requests that Baffinland identifies that current mitigation measures are insufficient for dust management or provide clear evidence that they are working. QIA expects that the forthcoming Dust Audit will result in more effective mitigation measures. 3. As in the review for the 2018, 2019 and 2020 Monitoring Reports, the QIA requests that Baffinland develop daily triggers for dust mitigation measures, using clear thresholds for when mitigation measures will be used. 4. As in the review for the 2018, 2019 and 2020 Monitoring Reports, the QIA requests that Baffinland develop a community-based monitoring program for impacts of dust to key values, including establishing culturally-relevant thresholds for dustfall, Inuit observations, and IQ-enriched monitoring. 5. The QIA recognizes that Baffinland has implemented actions as an attempt to control dust generation throughout the Project. However, the QIA is concerned with the implication that as long as dustfall continues to be measured within an annual	Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.2 Air Quality (PC Condition 10) **Page:** 77 **Document Name:** Mary River Project Terrestrial Environment 2021 Annual Monitoring Report (2021 TEAMR) **Section:** 7 **Page:** 35-91 **Document Name:** Appendix G.29 Air Quality Memo	reworded to determine if another answer is required. Therefore, a background on the question and previous responses is provided below. Beginning in a 2018 TEWG meeting (2018-12-11), the Government of Nunavut (GN) began suggesting that dustfall be collected at heights lower than the American Society for Testing and Metals (ASTM) standard 2 metres. The Nunavut Impact Review Board (NIRB) asked if there was anything limiting Baffinland from sampling at heights lower than the standard (2019-06-20 TEWG meeting). The QIA and the GN supported putting dustfall collectors at heights lower than the standard (2020-02-26 TEWG meeting). The GN reiterated that request, and it was supported by the QIA (2020-06-24 TEWG meeting). The MHTO asked about sampling at heights other than 2 m (2020-12-10 TEWG meeting). During the third Phase 2 hearing, NIRB's Executive Director asked why Baffinland was not sampling at heights other than the standard 2 m (NIRB, 2021), with a follow-up written request to address this request (Baffinland, 2021). In addition to the feedback provided to the TEWG when the previous requests were made, Baffinland responded to the NIRB request clarifying that 1) standard height dustfall collection is implemented at all other Nunavut mining projects, and 2) Baffinland acknowledges the TEWG requests, but that there is no technical justification for sampling at heights other than the recognized ASTM standard (response to NIRB-9; Baffinland, 2021). 1. There are no dustfall collectors sufficient for sampling at ground level. Attempts at sampling at ground level at the Meadowbank project were made, but ECCC (the regulatory authority for passive dustfall sampling) specifically requested that Agnico Eagle stop sampling at ground level and follow the ASTM standard (Walker, 2020). Reasoning for keeping the collectors at the standard 2 m elevation, described in ECC-TC 3 for the Whale Tail Pit expansion project (ECCC, 2019) include *"…Sampling close to the ground also increases the chances that measured dustfall can be influenced by accumulated snowfall and interference by wildlife. Therefore, to remove the possible biases in data… the dustfall sampling method should be consistent with the ASTM method and consistent across all sites."* 2. Acknowledged. Baffinland recognizes that dustfall mitigation is challenging, and we will review the forthcoming Dust Audit. 3. The request for daily dustfall mitigation triggers was addressed in 2018, 2019 and again in 2020. The QIA is encouraged to review and acknowledge those responses. 4. Baffinland would like to highlight that a pilot snow sampling program was carried out in conjunction with Intrinsik in late 2020. The preliminary results were included in Baffinland's response to the NIRB Annual Monitoring Report 90 Day Recommendations, on January 28th, 2022. This memo is publicly available on the NIRB registry. (NIRB Registry No. 337797.

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		at most monitoring sites. According to Table 7-4 of the 2021 TEAMR, in 2021 20 monitoring sites have results above FEIS predictions and 6 have results within FEIS predictions. This means that 77% of sites are collecting more dust than predicted. Dustfall measurements have consistently been over FEIS predictions year over year. The satellite imagery analysis showed that dustfall extent increased between 2020 and 2021 at some locations. According to section 7.4.3 of the 2021 TEAMR, dustfall extents decreased between 2019 and 2021 at Milne Port. At the mine site satellites showed localized increases in dustfall concentration and an increase in the southern and northwestern extents compared to previous years. Along the Tote Road, dustfall extents and concentrations in 2021 increased from 2020. Baffinland states, "Given the available data for the satellite imagery analysis, the efficacy of DustBlockr as a summer suppressant cannot be assessed through this method" (2021 TEAMR, p. 78). None of these results were presented in the 2021 NIRB Annual Monitoring Report. It is curious, given the information on continued high amounts of dustfall presented in the 2021 TEAMR, that Baffinland states in the 2021 NIRB Annual Monitoring Report, "results demonstrate the ongoing effectiveness of reducing dust generation from crushing and ore stockpiling and tote Road traffic, despite an increased production level of up to 6 Mtpa at the Project and the volume of Tote Road traffic" (p. 78). Baffinland is hypothesizing that general stability in dustfall measurements between periods of low production and periods of high production mean that mitigations area working. However, there have been increases in the extent and concentration of dust at certain locations, as stated in the paragraph above. Baffinland should conduct further analysis on the correlation between production and dustfall across all locations in the RSA as a test of the hypothesis. QIA does not consider dustfall mitigations to be successful when measures continue to be above FEIS predictions and show no significant decreases. Finally, Baffinland does not discuss the effect of helicopter flights on dust dispersion. In the 2021 TEAMR, Baffinland identifies that low flying helicopters likely contaminated at least two samples (2021 TEAMR, p. 47). QIA is concerned about the potential for low flying helicopters to disperse dust over Inuit areas of importance. The QIA has consistently requested that Baffinland design a dustfall monitoring program that addresses Inuit concerns regarding concentration	general range, even if that range is higher than predicted in the FEIS, that Baffinland is compliant with the Project Certificate Conditions. **The Project Certificate Conditions require Baffinland to stay within the predicted range.** The QIA is concerned that the continual deposition of dust on the land and on the ice may be causing long term and potentially significant damage to the ecosystem. Baffinland has stated that mitigations are working, but has provided evidence contrary to that statement.		5. As above, the QIA is encouraged to review and acknowledge previous responses to this request and if additional information is still required to provide additional details to their request. References: Baffinland Iron Mines Corporation (Baffinland), 2021. Post-Hearing Question Responses Phase 2 Proposal – Mary River Project. NIRB Registry No. 334146. Oakville, Ontario, Canada. 339 pp. Environment and Climate Change Canada (ECCC), 2019. Agnico Eagle Mines Ltd. – Whale Tail Pit Expansion Project – Final Environmental Impact Statement (FEIS) Addendum Technical Review Submission. NIRB File 16MN056, NIRB Registry No. 324975. 42 pp. Nunavut Impact Review Board (NIRB), 2021. Hearing Volume 4: Phase 2 Development Project Proposal - Mary River Iron Ore Mine NIRB File Number 08MN053. Nunavut Impact Review Board Transcripts, Iqaluit and Pond Inlet, Nunavut. Karen Costello comments, Page 736–737. NIRB Registry No. 333448 Walker, E. 2020. ECCC Comments RE: 03MN107/16MN056 – Agnico Eagle Mines Ltd. – Meadowbank Gold Mine and Whale Tail Pit Projects - 2019 Annual Report. NIRB File: 03MN107/16MN056, NIRB Registry No. 330678. Environmental Protection Operations Directorate, Prairie and Northern Region, Yellowknife, Northwest Territories, Canada. 15 pp.

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		and extent of dustfall across the landscape. In 2019 and 2020, the request included the following modifications: a. re-examining dustfall locations based on where dustfall is predicted to be highest; b. pairing dustfall and vegetation monitoring; c) monitoring dustfall on vegetation; c. included some monitoring stations at lower levels (paired with stations at the 2 m height) to determine how much dustfall is being missed. Baffinland has not re-examined dustfall locations based on where dustfall is predicted to be highest, has not paired dustfall and vegetation monitoring, has not monitored dustfall on vegetation. Baffinland has included lower-level monitors paired with those at the 2 m height, but has not provided evidence that a height of 0.5 m accurately reflects ground-level concentrations. The height of 0.5 m provides an interesting comparison to the 2 m height, but does not address the concern of dustfall accumulation at ground level as a result of wind. Through the review of the 2020 Annual Monitoring Report, the QIA requested that a full dust audit of sources be undertaken, overseen by NIRB, and tied to project conditions that can be evaluated annually to ensure dust levels are gradually decreasing over time. In the 2021 Annual Monitoring Report, Baffinland indicates that in 2021 they initiated a third party audit of current and future dust sources to propose control improvements. This auditor is working with a Dust Audit Committee, which includes representatives from each of the five North Baffin communities. The QIA expects that this audit will help identify more effective ways to reduce dust dispersion from the project.			
16	QIA 2021 AMR TE #2	PC Condition 14 (b) states that the Proponent shall mitigate potential impacts of noise to wildlife and people during project operations. The 2021 Terrestrial Environment Annual Monitoring Report indicates that noise monitoring was initiated in 2020 but did not occur in 2021. Table 10 in Appendix G.3 (pg. 35 of 42) outlines Noise Performance Indicators and Thresholds. The table states that the Indicator is "Noise level at fenceline", and the threshold is 40 dBA. QIA interprets this to mean that if noise is measured above 40dBA at the project fenceline, then it is above threshold and action must be taken. However, Baffinland seems to use a threshold of 40dBA 1.5 km from fenceline, which is inconsistent with Table 10 in Appendix G.3. It is more consistent with guidance from the	The QIA continues to request improvements to the Proponent's current approach relative to impacts of noise and vibration on wildlife, to ensure compliance with PCC 14(b) and PCC 60. The QIA requested these during the review of the 2020 AMR and found that the response from Baffinland did not satisfactorily address QIA concerns:	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.3 Noise and Vibration (PC	The QIA is correct that Baffinland addressed the same series of questions in response to the 2020 Annual Report (QIA 2020 AMR TE #3; Baffinland, 2021). However, QIA has not reworded these questions or provided new information for Baffinland to determine if new answers are required. As such, the following additional information is provided as a best effort to address the QIA's comment: 1. Areas identified as sensitive to disturbance were mapped by Inuit in the baseline studies (EDI, 2012), protection measures identified in the caribou protection measures that were jointly developed by Baffinland and QIA (QIA and Baffinland, 2014), and mapping was updated in the contemporary knowledge mapping exercise (Prno, J., 2017). "Sensitive" areas are found through the Mary River Terrestrial Regional Study Area. The QIA is encouraged to refer to the extensive traditional knowledge-based mapping available in the baseline reports.

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		Alberta Energy Regulator's Directive 038, which states that permissible sound levels (psl) should not exceed 40 dBA (nighttime) at 1.5 km from the facility fence line. Since noise monitoring was not complete in 2021, the QIA is referencing 2020 data. Table 0 in the 2020 Terrestrial Environment Annual Monitoring Report gives a description of the noise monitoring program that was initiated in 2020: "Nine Autonomous Recording Unites were deployed at various distances from Project areas to examine Project-related noise and potential effects on wildlife… the operational threshold for Project-related noise is 40 dBA 1.5 km from the facility fence. Ambient noise was typically below 40 dBA at 1.5 km from all Project areas and below 40 dBA at 3 km from all Project areas. Project-related noise was typically not audible at 3 km from the Project" (2020 TEAMP, pg. xvi). Table 5-5 of the 2020 TEAMR (p. 28) Indicates that the 10th percentile of all measurement sites were above the 40 dBA threshold. This means that the typical recorded measurement of sound were above threshold at all project areas and at all distances. During the review of the 2020 Annual Monitoring Report, the QIA stated its concern about the effects of noise and vibration on wildlife, how it was not clear if the results of the 2020 pilot noise monitoring program exceeded the FEIS, and how the Air Quality and Noise Abatement Management Plan did not take into account sensitive timing windows. The QIA suggested that "additional mitigations be developed, based on the predicted zone of influence, particularly within sensitive timing windows for species of concern" (pg. 11). In the response to these comments, Baffinland stated "the noise monitoring results matched the original prediction that Project-related noise would be audible at 1.5 km from the PDA. Expected noise levels were a component of the conservatively estimated zone of influence used in the FEIS impact assessment" (p. 9). According to Table 5-5 of the 2020 TEAMR, however, current noise levels are exceeding the threshold at 1.5 km from the PDA. According to Table 10 of the AQNAMP, this is cause for mitigative action. PC Condition 60 states that the proponent shall mitigate impacts to wildlife from explosions. The methods for this mitigation involve scanning the area for wildlife and if wildlife is present and could be harmed by the activity, blasting will not occur. Baffinland states, "No wildlife has been knowingly	6. In addition to the current noise stations, identify highly sensitive areas for noise around the Project (e.g., calving areas; post-calving areas for caribou; nesting areas) and monitor noise levels in those locations; 7. Initiate a monitoring program for vibration around the Project area; 8. Integrate noise levels and vibration levels into the re-estimation of the zone of influence around the mine, particularly with respect to North Baffin caribou. 9. Consider additional mitigations based on the predicted zone of influence, particularly within sensitive timing windows for species of concern. 10. Summarize noise levels from monitoring work conducted to date relative to the 40 dBA for psl. Review research emerging from the last 15 years to determine whether a more conservative psl should be the appropriate threshold for introducing mitigations.	Condition 14b) and 4.6.8 Terrestrial Environment (PC Condition 60) **Page:** 90, 215 **Document Name:** Appendix G.3 Air Quality and Noise Abatement Management Plan **Section:** 5.3, Table 10 **Page:** 35 **Document Name:** Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2020 Annual Monitoring Report (210707-08MN053-QIA Comments Re 2020 Annual Report-IA1E.pdf) **Page:** 10 **Document Name:** Response to Comments on Baffinland's 2020 Annual Report to the NIRB August 11, 2021 (210811-08MN053-Baffinland Response to 2020 Annual Report Comments-IA1E.pdf) **Document Name:** Alberta Energy Regulator, 2007.	Given the Project's terrestrial environmental setting and the potential for disturbance, Project Conditions were developed to manage noise and overhead flight-noise disturbance. Baffinland is not planning additional noise monitoring specific to areas other than those included in the 2020 and ongoing 2022 noise monitoring work. 2. Baffinland will not be monitoring vibration in the Project area. There are no known management-response triggers applicable to environmental management. 3. As previously answered, noise levels are incorporated within the zone of influence used for impact assessment. The QIA is encouraged to review the answers provided in response to the 2020 QIA 2020 AMR TE #3, part 3. 4. All practical mitigations have been considered and are documented throughout various project documents. 5. As requested in 2020, the Terrestrial Environment Annual Monitoring report was updated to address this request. The QIA is encouraged to review the answers provided in response to the 2020 QIA 2020 AMR TE #3, part 5. QIA's open ended literature review request is unclear. As recognized experts with professional obligations, our third party experts regularly review literature relevant to their areas of expertise in order to ensure they provide informed advice on these topics. A very large volume of literature has been made available on this topic over the past 15 years. If the QIA reviewer is aware of any specific literature to bring to Baffinland's attention, we would be pleased to review it and provide our views through the TEWG. We encourage the QIA to clarify in our next TEWG meeting if additional information is being requested of Baffinland. References: Baffinland Iron Mines Corporation (Baffinland), 2021. Baffinland Response to Comments Received for Baffinland's Production Increase Proposal Extension 2020 Annual Monitoring Report. NIRB Registry 336441. 195 pp. EDI Environmental Dynamics Inc. (EDI), 2012. Terrestrial Wildlife Baseline Report: Appendix 6F, Volume 6 — Terrestrial Environment, Mary River Project, Final Environmental Impact Statement. NIRB File No. 120221-08MN053, NIRB Registry No. 285910 to 285913. Prepared for Baffinland Iron Mines Corporation, Toronto, Ontario. 103 pp.) Prno, J., 2017. Mary River Project — Phase 2 Proposal, Technical Supporting Document No. 03: Results of Community Workshops Conducted for Baffinland Iron Mines Corporation's Phase 2 Proposal. NIRB File No. 181003-08MN053, NIRB Registry No. 320557. Prepared for Baffinland Iron Mines Corporation by Jason Prno Consulting Services Ltd., Peterborough, Ontario

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		harmed or disturbed by blasting activities during construction." It is not clear how the mitigation is being tracked and reported. Does blasting occur during sensitive timing windows, such as the nesting period for birds? The current mitigative approach does not appear to account for sensitive timing windows or wildlife that is difficult to detect visually. The QIA remains concerned about the effects of noise and vibration on wildlife use around the Project area. The impacts of noise and dust on a zone of influence around the mine footprint was not adequately considered in the original impact assessment conducted for the MRP, and continues to be a key area of uncertainty. The initiation of noise monitoring at three locations (the Mine Site, the Tote Road, and Milne Port) in 2020 is a start; however, the QIA has some concerns with how the data have been interpreted. It is not clear how monitoring stations for noise were identified. It would make sense for these monitoring stations to be located in areas that are particularly sensitive to noise, such as caribou calving or post-calving habitat near the road, footprint, or common helicopter flight lines. Other mines have noted that zones of influence can extend much further from mines than the sites currently being monitored for noise (e.g., Golder 2017). This and other relevant research should inform the locations of noise monitoring stations relative to the mine, particularly given that one of the primary concerns with respect to wildlife is specific to North Baffin caribou. The QIA additionally notes that the Proponent has not undertaken a monitoring effort relative to vibration. No data are available on current levels of vibration in around the Project site; this information is critical to incorporate into estimating the zone of influence around the mine. Baffinland stated in its reply to comments on the 2020 AMR that vibration monitoring is already occurring around the project area – Baffinland points to the work that is undertaken to satisfy PCC 14. However, the vibration monitoring occurs only inside of buildings and is interpreted only in the context of how vibrations affect humans. This is not adequate for understanding how vibrations from the project are affecting wildlife.		Directive 038: Noise Control.	Qikiqtani Inuit Association (QIA) and Baffinland Iron Mines Corporation. (Baffinland), 2014. Joint Statement of the QIA and Baffinland to the Nunavut Planning Commission and the Nunavut Impact Review Board regarding Appendix I of the North Baffin Regional Land Use Plan.
17	QIA 2021 AMR TE #3	PC Condition 16 states, "The Proponent shall ensure that the water related infrastructure or facilities that are designed and constructed, including the modification of culverts, diversion of watercourses, and diversion of runoff into watercourses along the railway, access roads, port sites, the Milne Inlet Tote Road, and other areas of the Project site, are consistent with those proposed in the FEIS and FEIS Addendum in terms of type, location, and	The QIA requests that Baffinland build the Tote Road as proposed in the FEIS and FEIS Addendum in terms of type, location, and scope and that the requirements of all relevant regulatory	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-	The author has not provided any additional information to support the comment since it was submitted to the Nunavut Impact Review Board (NIRB) last year, or indicated any specific deficiencies with Baffinland's previous response. The NIRB did not advise Baffinland to provide any additional information or take specific actions on this topic following the submission of the 2020

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		scope and that the requirements of all relevant regulatory authorities are satisfied advance of constructing those facilities" (p. 97). The QIA disagrees with Baffinland's statement of compliance. The Tote Road has never been built to the presented designs as approved in the FEIS Addendum. The QIA notes this remains a concern and has been highlighted year after year.	authorities are satisfied in advance of constructing those facilities. The QIA notes this is the same request as last year.	08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.4 Hydrology and Hydrogeology (PC Condition 16) **Page:** 97-98	Annual Report and so our understanding is that it considered our responses sufficient. Baffinland has no additional information to provide at this time. Baffinland welcomes QIA to clarify if they are seeking any new or additional information from Baffinland regarding this concern.
18	QIA 2021 AMR TE #4	PC Condition 17 states, "The Proponent shall develop and implement effective measures to ensure that effluent from project-related facilities and/or activities, including sewage treatment plants, ore stockpiles, and mine pit, satisfies all discharge criteria requirement established by the relevant regulatory agencies prior to being discharged into the receiving environment" (p. 99). The QIA disagrees with Baffinland's statement of compliance. Baffinland had four discharges of non-compliant effluent at MP-03, MP-04, and MP-04A. A number of these non-compliance were attributed to potential sampling errors. Due to these exceedances, this PC Condition (PCC) is considered non-compliant. The QIA notes this is an ongoing concern and additional quality control measures should be investigated and implemented.	The QIA requests that Baffinland to continue to improve their sampling procedures to provide better confidence in monitoring results. The QIA notes this is the same request as last year.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.4 Hydrology and Hydrogeology (PC Condition 17) **Page:** 99-98	Baffinland agrees with the statement of compliance, as the goal of the PC Condition is to develop and implement effective measures to ensure effluent satisfies discharge criteria requirements, not to satisfy discharge criteria 100% of the time. Baffinland has effective measures in place to maintain compliant discharges (all staff undertaking monitoring undergo sampling specific training programs, and are provided Baffinland's Management Plans, and Standard Operating Procedures). QIA's request is noted, and Baffinland is committed to researching and implementing ongoing improvements including improvements to processes and inspections and maintenance programs, to ensure the continuous improvement of effluent and wastewater management practices and procedures. However, Baffinland notes there was a decrease in non-compliant effluent discharges from 2020 to 2021. The four (4) non-compliant discharges in 2021 were of different nature (different parameters at different facilities) than 2020, and thus Baffinland's response to them remains adequate.
19	QIA 2021 AMR TE #5	PC Condition 18 states, "The Proponent shall carry out continued analyses over time to confirm and update, accordingly, the approximate fill time for the mine pit lake identified in the FEIS" (p. 103). The QIA disagrees with Baffinland's statement of compliance. Baffinland states that mining activities have not yet created a pit at Deposit No.1 and as such Tasks 1 and 2 of the reclamation research program for the Open Pit flooding timeline outlined in Appendix D.2 of the ICRP cannot commence until an Open Pit has formed and active dewatering is occurring. The QIA notes that it witnessed dewatering of Deposit 1 during its 2020 Environmental Audit and that Baffinland confirmed verbally during the 2021 Environmental Audit that ponding occurs with pumping to the Waste Rock Facility. The QIA disagrees that Deposit 1 is currently not a pit. As such, this PCC is deemed non-compliant until such time that analysis occurs.	The QIA requests Baffinland treat Deposit 1 as an Open Pit or provide evidence to the contrary. The QIA notes this is the same request as last year.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.4 Hydrology and Hydrogeology (PC Condition 18) **Page:** 103	The author has not provided any additional information to support the comment since it was submitted to the NIRB last year, or indicated any specific deficiencies with Baffinland's previous response. The NIRB did not advise Baffinland to provide any additional information or take specific actions on this topic following the submission of the 2020 Annual Report and so our understanding is that it considered our responses sufficient. Baffinland has no additional information to provide at this time. Baffinland welcomes QIA to clarify if they are seeking any new or additional information from Baffinland regarding this concern.

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20	QIA 2021 AMR TE #6	In the 2020 AMR, Baffinland identified that "observation of seepage from the Waste Rock Facility surface water management pond (WRF Pond)" suggested that the WRF liner had become compromised. Baffinland suggest that several corrective actions were required over a four year period (2017 – 2020). There is no mention of water quality concerns connected with WRF in 2021.	Can Baffinland confirm that all corrective actions tied to the non-compliant effluent discharges at the Waste Rock Facility have been successful?	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.4 Hydrology and Hydrogeology **Page:** 101 **Document Name:** Baffinland Iron Mines 2020 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 210506-08MN053-2020 Annual Report-IA2E.pdf] **Section**: 3.2.4 Waste Rock Facility	There were no water quality concerns connected with the Waste Rock Facility (WRF) in 2021. All corrective actions associated with the WRF Pond seepage identified in 2017 were addressed over the 2017 to 2020 period, as reported in the 2020 NIRB Annual Report. The facility is operating as designed, and ongoing maintenance and surveillance is occurring as prescribed by the Type 'A' Water Licence.
21	QIA 2021 AMR TE #7	PC Condition 19 states, "The Proponent shall ensure that it develops and implements adequate monitoring and maintenance procedures to ensure that the culverts and other conduits that may be prone to blockage do not significantly hinder or alter the natural flow of water from areas associated with the proposed mine. In addition, the Proponent shall monitor, document and report the withdrawal rates for water removed and utilized for all domestic and industrial purposes" (p. 104). The QIA disagrees with Baffinland's statement of compliance. Baffinland exceeded the daily water withdrawal limits defined in the Type 'A' Water Licence two times for dust suppression based on operational limitations. As such, this PCC is deemed non- compliant until the measures taken by Baffinland to prevent Water License exceedances are implemented and proven to function as intended.	The QIA Requests that NIRB assess Baffinland's measures taken to reduce water withdrawal exceedances and monitor the effectiveness of those actions. The QIA notes this is the same request as last year.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.4 Hydrology and Hydrogeology (PC Condition 19)	Baffinland achieved near total compliance in 2021 with the daily water withdrawal limits stipulated in the Type 'A' Water Licence. Baffinland agrees with the originally reported statement of compliance, as the goal of the PC Condition is to monitor, document and report withdrawal rates. Baffinland has effective measures in place to maintain compliant withdrawal rates. As a result of effective controls implemented in 2020 and early in 2021, prior to the initiation of dust suppression activities for the year, Baffinland demonstrated a 94% decrease in exceedances of the total daily water volume withdrawal limits for dust suppression purposes over 2020. The controls that were implemented that lead to such a successful improvement were both administrative and operational and included: • Installation of signs at dust suppression water sources that indicate to operators the daily water use limits in numbers of truckloads per day. • Redesign of the water truck operator log, which indicates to operators when the maximum daily volume of water is collected from each source based on the number of water truck loads filled.

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				Page: 104-106	• Installation of waterproof storage systems at each water source to house the daily water use logs. The installation of the waterproof storage systems enabled the use of a common log sheet for all operators (as opposed to individual log sheets in individual trucks) which improved tracking between different operators using the same source on the same day. The two (2) water volume withdrawal exceedances for dust suppression purposes that did occur in 2021 were administrative in nature; they resulted from a water use accounting issue, which occurred because the water use limits are daily limits and do not correspond with operator work shifts which occur over two (2) partial days. In 2020, a third party consultant reviewed the dust suppression water withdrawals to assess the effect of the daily water withdrawal exceedances on instantaneous flows of streams and lake outflows at several locations, including at KM 32 Lake, using estimated mean monthly and 10-year low flows (Knight Piésold, 2021), and concluded that the exceedances in 2020 were not environmentally significant and are not expected to adversely affect stream flows, lake flows, fish, or fish habitat. Water withdrawal exceedances of the daily limits for dust suppression in 2021 were of significantly less volume when compared to the 2020 exceedances. (Refer to Appendix G.20 of the 2021 NIRB Annual Report for the Knight Piésold memo). At the onset of the 2022 dust suppression season, an internal memo was issued outlining the importance of adhering to the approved daily water volume withdrawal limits for dust suppression purposes, and the process for recording information in the water truck log check sheets to improve the quality of information provided by water truck operators. If there is a future need to implement additional actions to further address daily water withdrawal usage for dust suppression, administrative and operational controls will be reviewed and adjusted as necessary to ensure adherence with approved limits. Reference: Knight Piésold Ltd., 2021. Technical Memorandum: Review of 2020 Dust Suppression Water Withdrawals, Mary River Project. Prepared by Knight Piésold Ltd. for Baffinland Iron Mines Corporation. Reference No. NB102-00181/65-A.01. April 23, 2021.
22	QIA 2021 AMR TE #8	Baffinland notes that public consultation continues to "not reveal any significant concerns from affected communities about specific impacts that changes to the topography and landscape have had on the aesthetic value of the Project area" (p. 124). Baffinland describes their method for soliciting this information through engagement events. Based on the discussion provided in the results, it appears Baffinland passively seeks input on aesthetic value, and any impacts from changes to the topography and landscape. The passive method described will have limited efficacy in characterizing aesthetic value, as it does not specifically	The QIA requests that Baffinland design and conduct a research program in collaboration with Inuit that will be more effective at defining aesthetic value and exploring impacts to aesthetic value and management thereof. For example, it seems critical to understand what level and nature of visible dust (especially on snow and ice) triggers aesthetic avoidance by	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf]	Since June 2020 Baffinland and the QIA have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of IQ and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation.

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		engage Inuit on aesthetic value. Baffinland has received comments relating to "aesthetic concerns related to the use of dust- laden snow" (p. 124), so the passive method is not unfruitful, but it could be made much more effective and robust to actively engage on this topic.	Inuit, and how this avoidance impacts on ability and willingness to harvest, travel through, gather water from, and enjoy areas impacted by aesthetic alterations. The QIA requests that the results of this research are integrated into both dust management planning and reclamation planning and design. The QIA also requests, as required by the IIBA, a detailed engagement plan be shared with the QIA so the 2022 consultation efforts can be assessed, commented on and revised accordingly.	**Section:** 4.6.5 Ground & Surface Conditions (PC Condition 27) **Page:** 124-125	Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the PIP Renewal. Updates will be provided to the NIRB and reviewers as they become available.
23	QIA 2021 AMR TE #9	PC Condition 33 states that the Proponent shall include relevant monitoring and management plans within its environmental management system and the terrestrial environment management and monitoring plan. The current Terrestrial Environment Mitigation and Monitoring Plan is found here: https://www.baffinland.com/media-centre/document-portal/. The plan does not seem to have been updated since 2016.	The QIA requests the Proponent to provide an updated Terrestrial Environment Mitigation and Monitoring Plan that at a minimum describes the current terrestrial monitoring program, including providing a table showing changes to these programs over time based on input from the TEWG. Given the disconnect between findings of monitoring programs and adaptive management responses, the QIA further requests that proposed changes to the TEMMP during the MRP Phase 2 review be incorporated into a new version of the plan to ensure a direct linkage between thresholds and responses, including a series of thresholds and responses based on Inuit Qaujimajatuqangit.	Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.6 Vegetation (PC Condition 33) **Page:** 145 **Document Name:** Terrestrial Environment Mitigation and Monitoring Plan Rev 1 (baf-ph1-830-p16-0027-r1---terrestrial-environment-mitigation-and-	Baffinland will ensure that the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) is updated during the next annual review period to include a summary of changes to the dust monitoring program since 2016. Changes to terrestrial monitoring programs are reviewed on an annual basis with Terrestrial Environmental Working Group (TEWG) members, including Qikiqtani Inuit Association (QIA), prior to the completion of field programs. Baffinland advises that the QIA please refer to meeting minutes from the TEWG to assess changes that have occurred for various monitoring programs. At the time of this report, the Phase 2 operation has not been approved therefore any monitoring edits pertaining to Phase 2 are irrelevant. Baffinland will continue to respond based on the current approved Project.

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				monitoring-_2017-01-25-05.pdf) **Section:** 4.3 Summary of 2021 Compliance with Conditions **Page:** 61 **Document Name:** Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2020 Annual Monitoring Report (210707-08MN053-QIA Comments Re 2020 Annual Report-IA1E.pdf) **Page:** 13	
24	QIA 2021 AMR TE #10	PC Condition 34 states that the Proponent will monitor metals concentrations in both soils and vegetation, particularly caribou forage at varying distances from the PDA to compare metal concentrations in soil and vegetation between near (impacted) and far (control) sites. Baffinland states in the 2021 AMR: "Values were below or within an acceptable range for soil-metal concentrations. Lichen-metal concentrations had some discrete increases at the Project, but all sample locations were below or within an acceptable range for lichen-metal concentrations" (pg. 139). An inspection of the 2021 TEAMR show that lichen-lead concentrations have had a significant increase from baseline and that the mean concentration is above the indicator value (Tables 8-19 and 8-20, pp. 121-122). This is at odds with the statement that values are within an acceptable range. During the review of the 2020 AMR, the QIA raised concerns that areas most likely to have high levels of metals may not get sampled and requested that Baffinland "summarize how dustfall is quantified at each of the vegetation monitoring sites, to understand how representative the vegetation sampling locations are in areas that have reported high dustfall". Baffinland responded that "Site sampling locations have been selected, refined, and	The QIA requests that Baffinland: 1. Provide evidence that soil and lichen sampling sites overlap with areas of high concentration of dust. 2. Provide an analysis and discussion on the relationship between dust concentration and soil- and lichen-metal concentrations and how metals may be building up in soils and lichen over time.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.6 Vegetation (PC Condition 34) **Page:** 138 **Document Name:** 2021 Terrestrial Environmental Annual Monitoring Report DRAFT for TEWG	1. Sampling locations are informed by methods described in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP). Rationale for the siting of sampling locations is provided in the 2021 Terrestrial Environmental Annual Monitoring Report (TEAMR) and all previous annual reporting versions (EDI, 2022). Monitoring history and changes in sampling procedures (i.e., accounting for recommendations from NIRB and the Terrestrial Environmental Working Group (TEWG)) are itemized under Section 8.1.1.1 of the 2021 TEAMR. Sampling locations (including soil/lichen metal sampling locations and nearby permanent dustfall monitoring sites) are presented on Map 8-1; Georeferencing for these sites is provided in Appendix C. Based on previous TEWG discussions (e.g., 26 February, 2020, 11 December, 2018, 22 March, 2018, and others) regarding the potential relationship between dustfall and soil/lichen metals, the ongoing soil/vegetation metals monitoring program has emphasized the soil and lichen sampling in proximity to permanent dustfall sampling locations. Likewise, similar sampling distance categories (Near, Far, Reference) for these locations have been applied with intention is cross-referencing any potential directional trends. In the 2020 TEAMR (EDI, 2021), a preliminary cross-disciplinary evaluation of dustfall and soil/veg metals data was completed. Refer to Appendix I of the 2020 TEAMR). No meaningful and/or unifying data trends were identified.

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		updated to capture Project effects. This includes 'reported high dustfall' areas and 'areas with sensitive (and/or) important plants.' We consider that the sampling design (that is supported by statistical power analysis) is robust and representative of potential sensitive environments" (pg. 13). It is not clear how site sampling locations have been 'selected, refined, and updated' to make sure soil and vegetation in areas with high dustfall are being sampled. The 2021 TEAMR states, "sampling distances were informed by the results of the dustfall monitoring program." Baffinland then cites the EDI 2015 TEAMR, which is missing from the Baffinland Download Library website. There is no information presented to suggest that sampling locations were selected based on anything but distance from project foot print. Baffinland states in the response to the QIA 2020 AMR TE #2 that "the vegetation and soils base metals monitoring program has been designed to align and facilitate comparisons with the dustfall monitoring program (Section 6) to assess metals uptake in vegetation and soils related to Project activities. Efforts have been made to streamline the sampling locations and study design to facilitate comparisons between these respective monitoring programs to bridge interpretations of the effects of dustfall on soil-metal and lichen-metal concentrations and align any triggers and corrective actions" (pg. 7). The QIA recognizes that dustfall is likely to be higher in areas closer to the project footprint. However, given the landscape features, wind direction, etc., there is likely to be variability of dustfall concentration within and between those distance categories. This is evidenced by the satellite derived dustfall extent and concentration maps included in the 2021 TEAMR (pp. 80-89). Additionally, the QIA is not convinced that the dustfall monitors are accurately measuring concentrations of dust at ground level. Furthermore, Baffinland has not presented an analysis that compares the results of the dust monitoring program with the results of the soil and vegetation monitoring program. In the 2014 Annual Terrestrial Monitoring Report, EDI completed an analysis that showed correlations between metal content in dust and metal content in lichen and soil (pg. 68), however, to our knowledge, there has been no analysis of dust amount and metal content in soil and lichen.		**Document Name:** Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2020 Annual Monitoring Report (210707-08MN053-QIA Comments Re 2020 Annual Report-IA1E.pdf) **Page:** 15 **Document Name:** Response to Comments on Baffinland's 2020 Annual Report to the NIRB August 11, 2021 (210811-08MN053-Baffinland Response to 2020 Annual Report Comments-IA1E.pdf) **Page:** 13-14	2. Explanations and rationale about, e.g., discrete and/or isolated spikes of soil-metals and lichen-metals are provided in Section 8.1.2 Results and Discussion of the 2020 TEAMR (if/where warranted) to contextualize data trends. It should be noted that most of the sampled soil and lichen have been at or below analytical detection limits suggesting generally low metals concentrations. So far, where soil/lichen metal spikes have been recorded, it cannot be differentiated whether increases in metal concentrations is associated with or caused by Project related effects or the possibility that the sampling locations are naturally rich in certain metal constituents. These potential trends are actively being monitored with emphasis on Far/Reference sites for comparison with background values. Reference: Environmental Dynamics Inc. (EDI), 2021. 2020 Mary River Project Terrestrial Environment Annual Monitoring Report - Prepared for Baffinland Iron Mines Corporation. April 2021. Environmental Dynamics Inc. (EDI), 2022. Draft 2021 Mary River Project Terrestrial Environment Annual Monitoring Report - Prepared for Baffinland Iron Mines Corporation. February 2022.

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25	QIA 2021 AMR TE #11	PC Condition 35 requires that the Proponent undertake monitoring of baseline metal levels in organ tissue from caribou harvested within the LSA. In the 2020 AMR, Baffinland outlined efforts to collaborate in regional data collection efforts and stated that it is a collaborator in an approved Northern Contaminants Program (NCP) project for the 2020-2021 fiscal year. In the 2021 AMR, Baffinland indicates that the last time samples of Baffin caribou were collected was in 2020. These samples are still undergoing analysis. Baffinland also states that the Northern Contaminants program is currently the most effective means to complete this monitoring. In Baffinland's response to Comments on the 2020 AMR, they stated that tissue sampling is low because it is dependent on hunter participation and coordination around the GN sampling program.	The QIA requests that Baffinland review their approach for ensuring awareness of the program to the TEWG for discussion about how to increase Inuit participation in this voluntary program.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.6 Vegetation (PC Condition 35) **Page:** 141 **Document Name:** Comments on Baffinland Iron Mines Corporation's Mary River Project (08MN053) 2018 ,2019, and 2020 Annual Monitoring Reports (190607- 08MN053-QIA Comments-IA1E.pdf; 200728-QIA Comments-IA1E.pdf; 210707- 08MN053-QIA Comments Re 2020 Annual Report-IA1E.pdf)) **Page:** 14, 15 **Document Name:** Response to Comments on Baffinland's 2020 Annual Report to the NIRB August 11, 2021 (210811-08MN053-Baffinland Response to	Baffinland is supporting the Government of Nunavut's tissue collection program covering all of Baffin Island and reporting efforts. This question is best directed to the Government of Nunavut (GN). Baffinland continues to encourage the GN to present their ongoing research efforts to the Terrestrial Environmental Working Group (TEWG).

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				2020 Annual Report Comments-IA1E.pdf) **Page:** 14	
26	QIA 2021 AMR TE #12	During review of the 2019 Mary River Annual Monitoring Report, the QIA commented that despite community discussions regarding reclamation and vegetation, there was no indication that Inuit Qaujimajatuqangit (IQ) was informing Baffinland's revegetation pilot program or that Inuit had any involvement. The discussion regarding PC Conditions 39 and 40 in Baffinland's 2020 and 2021 Annual Monitoring Reports include a descriptions of desktop research conducted on potential reclamation techniques that can be used to meet the reclamation land use goals, as well as a field program that is being conducted to assess reclamation techniques on two categories of mine disturbance type. The Proponent notes that results indicate natural revegetation does occur at the project site although the sample size is small. Baffinland does not describe Inuit involvement or if IQ has informed this program, for example in defining reclamation goals, end land uses, the reclamation techniques, or the criteria and measurements to determine reclamation success. This remains an outstanding concern for the QIA.	The QIA continues to request that the Proponent provide a detailed description of how Inuit have been and will be engaged in progressive and end-of-life reclamation planning. Inuit should be involved in the development of the programs that are used to identify progressive and end-of-life reclamation techniques. The QIA requests that the Proponent describe if and how IQ has informed revegetation studies, plans, and programs. The QIA notes Baffinland stated in their 2020 Annual Report that they would be establishing more test plots across the landscape (p. 155). How was Inuit input and IQ utilized to identify test plot locations? Baffinland is also requested to identify whether and how Inuit will be involved in all future reclamation planning and projects.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.6 Vegetation (PC Conditions 39 and 40) **Page:** 148-151	Qikiqtani Inuit Association (QIA) notes that the 2020 Annual Report indicates further test plots would be established. These further test plots are described in the 2021 Annual Report under Project Certificate (PC) Condition No. 39 (page 148), and are further detailed in Appendix G.15. Revegetation surveys and reclamation test plots were established in 2019 and in 2021. All study areas are described in the 2021 Annual Report under PC Condition No. 39 (page 148) and are further detailed in Appendix G.15 of the 2021 annual report to the NIRB. Briefly, revegetation study areas and reclamation test plots focus on areas of the Project Development Area that have been previously disturbed, discontinued and/or inactive, and not likely to be used as part of future operations. Test plot locations were further selected to represent different ecotypes and (to the extent possible) different natural revegetation timeframes: ranging from 1-Year Post-Disturbance, 5-Years Post-Disturbance and up to >60 Years Post-Disturbance. These studies have relied on the Project's environment, construction, and operations personnel to characterize the types of disturbance on the landscape. Baffinland's Interim Closure and Reclamation Plan describes the proposed creation of a Mine Closure Working Group. The role of this Mine Closure Working Group will be to facilitate the integration of community representation and technical expertise by drawing on Inuit knowledge, arctic experience for similar mining operations, and discussion of alternative uses for decommissioned facilities into the reclamation options for various Project components. Implementation of the Mine Closure Working Group will require development of a mandate and/or terms of reference in consultation with the QIA. Baffinland looks forward to working with the QIA on this initiative.
27	QIA 2021 AMR TE #13	The Report states that the Inuit communities are concerned about sensory disturbance on caribou, collision with trains and trucks, interruption of movement (e.g., by the railway), effect of disturbance on caribou who are in a low abundance cycle, impact on caribou calving areas, and caribou eating vegetation with dust (p.173). Baffinland concludes that they have low confidence of potential effects on regional caribou population due to caribou being in a low abundance cycle (Table 4.18, p.174). Elsewhere Baffinland describes activities undertaken to monitor and build understanding of wildlife and habitat e.g., PC Condition 51, and to develop mitigation, e.g., PC Condition 52 and 53.	The QIA requests that the Proponent describe if and how IQ has informed terrestrial environment monitoring design, the analysis and interpretation of results, and conclusions.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment	Baffinland has answered this question on multiple occasions starting at least as early as response to QIA 5 on the 2017 NIRB Annual Report, (Baffinland, 2018). Additionally, as part of the Phase 2 submission, Baffinland summarized how Inuit Qaujimajatuqangit (IQ) has been incorporated throughout the project, including monitoring programs, in Table 2 of Baffinland, 2019. IQ and the Mary River Project Phase 2 Proposal. Appendix 13 to the Technical Comment Responses submitted March 2019 (upload data March 25, 2019). The question has not been sufficiently re-worded to allow Baffinland to determine if another answer is required. The author has not provided any additional information to support the comment since it was previously submitted, or indicated any specific deficiencies with Baffinland's previous response.

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		Inuit and Inuit organizations' participation in monitoring activities has been described, for example in PC Condition 49. However, it is unclear how IQ has informed the understanding of wildlife populations and habitat. For example, was Inuit Qaujimajatuqangit (IQ) used to make conclusions on the effects on caribou regional population, and place confidence in the prediction? Also, it is unclear whether Inuit and community 'monitoring' has been utilized. For example, do the incidental observations noted on p. 201, 209, and 219 only come from Baffinland monitoring activities, or have Inuit and community observations been included?		(PC Conditions 49 through 64) **Page:** 173 - 221	Baffinland welcomes QIA to clarify if they are seeking any new or additional information from Baffinland regarding this concern. References: Baffinland Iron Mines Corporation (Baffinland), 2018. Baffinland Response to Reviewer Comments on the 2017 NIRB Annual Report. Letter report submitted to NIRB [no NIRB Registry No.]. Oakville, Ontario. 49 pp. Baffinland Iron Mines Corporation (Baffinland), 2019. Inuit Qaujimajatuqangit (IQ) and the Mary River Project Phase 2 Proposal. Appendix 13 to the Technical Comment Responses submitted March 2019 (upload data March 25, 2019) NIRB Registry No. 323801.
28	QIA 2021 AMR TE #14	Baffinland provides general context to their cooperation and support of regional initiatives with the Government of Nunavut, e.g., North Baffin Island caribou surveys (population and composition), including collaring, and the surveys relating to metals composition in caribou tissue. These regional surveys explore population and health. The PC Condition directs Baffinland to also give special consideration to harvest programs, but there is no mention of studies relating to harvest programs. The PC Condition also directs Baffinland to consider, and cooperate with, as appropriate, community-based initiatives. There is no discussion of whether there are any relevant community-based initiatives underway or in development in the region.	The QIA requests that Baffinland describe availability of studies related to harvest programs and whether there are any relevant community-based initiatives underway or in development in the region. If any of these are available, the QIA requests a description from Baffinland on whether and how they intend to incorporate, and cooperate with, these harvest program studies and/or community-based monitoring initiatives. If any of these are not available, the QIA requests a gap analysis from Baffinland on whether and what regional study initiatives are missing that would help better understand and mitigate Project-induced impacts.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 51) **Page:** 183-184	Baffinland has been requesting through both Marine Environment and Terrestrial Environment working groups (MEWG and TEWG) including the most recent June 2022 meetings that member and observer participants share relevant programs that are being implemented that may be of relevance to Baffinland's operations or contribute to a larger body of knowledge in the region. It is expected that Baffinland's working group members, including Qikiqtani Inuit Association (QIA), would be able to share information when it becomes available as participating member experts. Although Baffinland is aware that some initiatives have been launched by the Qikiqtaaluk Wildlife Board (e.g. Community Monitoring of Caribou; see https://www.qia.ca/cbc-news-6-inuit-guardian-groups-to-receive-4-3m-in-federal-funding/) with federal funding, as well as the various community-based initiatives led by the QIA (e.g., Pond Inlet Wildlife Monitoring since 2017 https://www.qia.ca/community-based-monitoring-in-pond-inlet/; Pond Inlet Nauttiqsuqtiit "Guardian" Program since 2020 through the Tallurutiup Imanga Inuit Impact and Benefit Agreement; https://www.qia.ca/blog-harvesting-with-the-pond-inlet-nauttiqsuqtiit/), no data has been released to Baffinland on the findings of these initiatives, nor has the data been synthesized in a public report. Also, Baffinland notes that it is not the only party responsible for the collection and/or dissemination of information, especially when the data in question did not originate with Baffinland. Unless data is shared with Baffinland in advance of public dissemination or a request is made to collaborate on community initiatives, Baffinland may not be the appropriate party to manage the data in question. Representative parties of the TEWG and MEWG, or other active contributors to relevant socio-economic working groups, are expected to proactively share data if it of interest to do so. QIA has not provided either working group an update or information regarding any relevant community based initiatives underway. We encourage and welcome QIA to share any information to help inform the question posed. Baffinland would like to reiterate that publically available harvesting data shows that both caribou and narwhal quota limits are being met in the area closest to Mary River Project activities and infrastructure.

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					Recently, the Qikiqtaaluk Wildlife Board stated that caribou populations rise and fall in cycles that are connected with the availability of their main source of food, lichen. Accordingly, caribou quotas will be increasing for years 2022 on Baffin Island suggesting that there are too many caribou for lichen to recover (https://nunatsiaq.com/stories/article/more-baffin-island-caribou-will-be-harvested-this-year-but-how-many-more-is-in-debate/#:~:text=The%20Government%20of%20Nunavut%20is,and%20the%20spring%20of%202022) following recommendation brought forward by the Qikiqtaaluk Wildlife Board. With regards to narwhal harvesting rates, Baffinland provided a summary of all narwhal harvest data from 2001 to 2021 for Pond Inlet (see Document No. 339608 on NIRB public registry). Both total narwhal harvest and per capita narwhal harvest data was included, showing Average Narwhal Harvest data has increased by 176% for the period covering years 2015-2021 in comparison to data available for the 2001-2014 harvest period (144 harvested narwhal versus 82, respectively). In consideration of Average per Capita Narwhal Harvest, rates have also increased over the years that Baffinland has been in operation, showing an increase of 144% for years 2015-2021 in comparison to years prior (0.082 versus 0.056, respectively). These numbers suggest that narwhal have been available for consumption since the Project started. Baffinland requests that QIA provide a summary of the various programs it has supported over the years, including the Pond Inlet Wildlife Monitoring - Community Based Monitoring led by QIA and funded through Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), and the recent initiatives related to the Tallurutiup Imanga Inuit and Impact Benefit Agreement. The aim of the project is to gather information on the health, well-being and abundance of wildlife surrounding Pond Inlet. The aim of the project is to gather baseline data on the health, well-being and abundance of wildlife surrounding Pond Inlet. Baffinland also asks that the NIRB request from working group members and observers that all studies of relevant interest either led by or known to working group members and observers be shared through the Working Groups for the Company's consideration. Lastly, it is important to mention that QIA took the lead working with the Community of Pond Inlet to complete a Country Food Baseline Report as determined by the Inuit Certainty Agreement (ICA). Baffinland provides funding for this initiative. As indicated in Baffinland's submission to the NIRB on June 20, 2022 ((see Document No. 339608 on NIRB public registry), results have yet to be released by the QIA. Baffinland is committed to integrating the findings of this report into its own monitoring programs, annual reports and adaptive management plans where relevant.
29	QIA 2021 AMR TE #15	In relation to PC Condition 49, the QIA has concerns that the TEWG must become a more effective forum for providing input into the Proponent's monitoring programs and mitigations. While some recommendations have been adopted by Baffinland, the Proponent has not been adequately responsive to concerns related to incorporation of IQ into decision-making,	Requests have been put forward to improve the TEWG as part of the Phase 2 project; however, these measures should also be adopted as	**Document Name:** Baffinland Iron Mines 2020 Annual Report to the Nunavut Impact Review Board [NIRB	In its ongoing review of the TEWG Terms of Reference, Baffinland is considering the following elements relevant to the QIA's technical comment: • establishing an Independent Chair to facilitate all TEWG meetings and information exchange between TEWG members and observers; and

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		ineffectiveness of caribou monitoring programs, concerns related to helicopter compliance monitoring, and concerns related to dustfall monitoring. Specific recommendations have been put forward to improve the TEWG (see below); these must be adopted to ensure compliance with this PC Condition. The timing of meetings in relation to key decision points throughout the year is still problematic. No meeting was held before the field season in 2022, so there was no ability for TEWG members to comment on proposed monitoring before it is implemented (e.g., noise monitoring). Additionally, the Terms of Reference has yet to be finalized. Finally, an IQ-based CRLU monitoring program is required to properly consider IQ in identification of mitigation measures.	part of the currently approved Project. They include: • Improved timing of meetings to ensure that advice from the TEWG can be incorporated into the upcoming field season; • Proponent to provide information well in advance of meetings, so TEWG members can a) inform the development of the agenda; b) come to the meetings prepared to have specific discussions about programs / issues of concern (i.e., more of a workshop format than a presentation format) • Revise and adopt new terms of reference, including requirement for Proponent to adhere to advice from TEWG on issues of key uncertainty (e.g., monitoring of impacts to caribou / caribou avoidance of the project / assessing the zone of influence around the mine); • Incorporating IQ / developing a community-based monitoring approach to complement existing science-based monitoring programs.	Registry: 210506-08MN053- 2020 Annual Report-IA2E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 49) **Page:** 185-188 **Document Name:** Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2018 Annual Monitoring Report (190607-08MN053-QIA Comments- IA1E.pdf) **Page:** 15	• clarification on Baffinland's required action(s) in response to TEWG recommendations; and specific reference to required incorporation of Inuit Qaujimajatuqangit (IQ) and Community Knowledge (CK), when available. Additionally, in its ongoing review of the TEWG Terms of Reference, Baffinland continues to evaluate the logistics of facilitating the incorporation of TEWG advice prior to the upcoming field season.
30	QIA 2021 AMR TE #16	PC Condition 53 requires Baffinland to take steps to prevent caribou injury and mortality connected to the road and the railway. PC Condition 53 (b) specifically identifies a requirement to identify monitoring and mitigation measures in areas where the railway, roads, trails and flight paths pass through caribou calving areas. In the 2021 AMR, Baffinland discusses caribou monitoring programs undertaken in 2021. These include 24 Height-of-Land surveys, deployment	The QIA requests the following from Baffinland: 1. The QIA notes that Baffinland has not developed a monitoring protocol that is sufficient to capture impacts to caribou, including avoidance of the project area. Given the continued reliance	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021	1. The QIA is incorrect and misleading reviewers by stating that "…Baffinland has not developed a monitoring protocol sufficient to capture impacts on caribou." The QIA was part of the June 24 and December 10, 2020 TEWG meetings discussing the study design and protocol to monitor and assess impacts of the Project on caribou. They also provided comments on the draft report on December 3, 2021. The final design was submitted as Appendix G.23 of the 2021 Annual Report — Caribou Monitoring | Triggers and Recommendations (EDI, 2022). The monitoring protocol sufficiently captures potential impacts on caribou and was distributed to all members of the TEWG, including the QIA on October 6, 2021. The report identified the

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		of remote cameras at six of the Height-of-Land survey stations, snow track surveys and a statement of support for regional monitoring efforts. The QIA has consistently put forward concerns about gaps and deficiencies in caribou monitoring survey efforts. The QIA maintains that Baffinland is not employing an effect way to monitor local caribou response to the road/road traffic and is making misleading statements about incidental observations about caribou movement around the road. The QIA notes that the time spent conducting the Height-of-Land surveys has increased significantly and that wildlife cameras have been set up at six different survey sites. Overall, these efforts fall short of the goals to help address gaps and study design deficiencies associated with the HOL surveys. Inuit knowledge holders have previously raised the need to re-evaluate HOL survey sites. This has not been explored. While the time spent conducting surveys has increased by 10 to minutes, it is not clear how much this increase in effort actually increases the likelihood of observing caribou. It is not clear why remote cameras were deployed at only 6 of the 24 HOL stations. Baffinland states that the cameras were deployed at "relatively even distance intervals to optimize wildlife observations along the Tote Road" (p. 143). However, 24 HOL survey sites were originally identified because it would take all 24 sites to get a representative sample of the activity around the Tote Road. The selection of HOLs 1, 3, 4, 6, 10, and 16 also seems arbitrary. The selection of stations should be based on best available IQ and western science and should be described in detail in annual reports. Baffinland states in the 2021 AMR: "In 2020, caribou were confirmed to have crossed the Tote Road in three of the four incidental observations in January, suggesting that the road did not act as a barrier to movement in those instances" (pg. 191). As the QIA stated in Comments on the 2020 AMR, this is not sufficient evidence to draw the conclusion that the road is not acting as a barrier. In the 2021 AMR, the statement is especially misleading, because it suggests that three out of four caribou crossed the road in January 2020. However, the 2020 AMR states that this was actually one caribou that crossed the road three times. No other information is given about this observation. Baffinland continues to state that the monitoring program in place is sufficient. In their Response to 2020 Annual Report Comments, Baffinland states that they have a commitment to supporting regional monitoring	on HOL surveys and the statement that a continued lack of data from these surveys reflects low caribou numbers rather than avoidance of the project area, the QIA requests that Baffinland test the effectiveness of HOL surveys outside of the project zone of influence to determine detection levels at areas that are not impacted by mining activity. This is particularly important given that Inuit observations indicate caribou avoidance of the project area due to disturbance. Until a satisfactory monitoring protocol for identifying impacts to caribou from the project is developed, the QIA considers Baffinland to be out of compliance with PCC 53. 2. Provide more detailed information about incidental caribou sightings, in particular locations and group sizes. An approach to report out on caribou sightings and collect basic information about behaviour and condition should be developed. 3. In the absence of an effective approach for monitoring impacts to caribou from the Project, Baffinland is requested to develop an approach to identify the zone of influence around the PDA and increase reliance on IQ to proactively develop mitigation measures that reduce impacts to caribou.	Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 53 and 54) **Page:** 188-196 **Document Name:** Comments on Baffinland Iron Mines Corp.'s Mary River Project (08MN053) 2020 Annual Monitoring Report (210707-08MN053-QIA Comments Re 2020 Annual Report-IA1E.pdf) **Page:** 22-23 **Document Name:** Response to Comments on Baffinland's 2020 Annual Report to the NIRB August 11, 2021 (210811-08MN053-Baffinland Response to 2020 Annual Report Comments-IA1E.pdf) **Page:** 20 – 22 **Document Name:** Mary River Project Terrestrial Environment 2021 Annual Monitoring Report (2021 TEAMR) **Section:** 9.4.1	method of data collection, study area(s), and the minimum number of caribou necessary to implement an effective collaring program to evaluate a zone of influence. As discussed in the NIRB Annual Report, the Height of Land (HOL) surveys provide an indicator of caribou densities in the Regional Study Area (RSA); the survey is not designed to assess avoidance behaviour. The report also mentions that aerial surveys will be conducted to determine whether enough caribou are present to 'trigger' the impact monitoring study — this has been reiterated in the last two TEWG meetings. Baffinland's consultant has already submitted a research permit to the GN regarding this survey, which will be conducted either in Fall 2022 or Spring 2023 (pending further discussions on the GN comments during the June 23, 2022 TEWG meeting). 2. Baffinland has an explicit protocol established for encounters with, and incidental observations of, caribou. The incidental observation form used by personnel includes general information on location and counts of caribou per observation. Personnel also collect information on behaviour and the road/traffic conditions for each observation where warranted. These observations do not disturb caribou. Baffinland will consider methods of collecting better location information on where caribou are sighted. 3. The QIA statement ignores the study design already presented (see above), which specifically addressed the information requirements (more caribou) for a zone of influence study. Further, Baffinland will certainly incorporate IQ into developing further mitigation measures once an impact monitoring study is initiated and once the subsequent data are collected, analysed, and interpreted. The degree of mitigations will need to be informed by the study of project impacts. 4. Baffinland will ensure that the next update of the TEMMP includes changes to terrestrial monitoring programs since 2016. Baffinland would also like to highlight that changes to terrestrial monitoring programs are reviewed on an annual basis with TEWG members, including QIA, prior to the completion of field programs. Baffinland advises that the QIA please refer to meeting minutes from the TEWG to assess changes that have occurred for various monitoring programs. Additionally, Baffinland would like to highlight that QIA's request addresses the development of a railway. This pertains to the Phase 2 expansion proposal, which has currently not been approved at the time of this report and any monitoring edits pertaining to Phase 2 are irrelevant. Baffinland will continue to respond based on the current approved Project. Reference: EDI Environmental Dynamics Inc. (EDI), 2022. Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board Appendix G.23: Caribou Monitoring Triggers and Recommendations Report. NIRB Registry No. 338492. Prepared for Baffinland Iron Mines Corporation. 28 + app. pp.)

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		efforts once they are initiated by the GN: "Baffinland has been willing, through a Memorandum of Understanding [sic] with the GN, to contribute to a broader and strategic north Baffin Island caribou research program" (pg. 21). 2020 incidental observations recorded 11 caribou from seven groups (notably suggesting lower group size numbers than those used in the regional collar analysis above). 2021 incidental observations recorded 104 caribou from 33 groups. There is no other information given about these caribou or where they were in relation to the project, only that they were outside of the PDA. Baffinland uses snow track surveys to evaluate the effectiveness of caribou crossings. The QIA remains concerned that these snow track surveys are not proven to be an effective survey method. The survey methods need to be tested to ensure that they are being carried out consistently across monitoring personnel. There has been no work to interpret the snow track survey results in the appropriate context (e.g. compare to weather data, wildlife seasonal movement patterns and known corridors). Furthermore, Baffinland has not yet developed a threshold of significance to measure survey results against. What percentage of road deflections by species should be considered significant? PC Condition 54 requires Baffinland to update their Terrestrial Environmental Management and Monitoring Plan to include details of the methods and rationale for conducting monitoring, description and justification of means of determining effect and proposed analysis to support any conclusions drawn, details of monitoring and mitigation activities. Baffinland has yet to update the TEAMMP. In the Response to the 2020 AMR Comments, Baffinland states, "Changes made to monitoring programs have been identified in each terrestrial environment annual monitoring report…the TEMMP is a living document… while a formal update to the TEMMP has not been completed, the process and outcomes that would be captured within updates to that Plan have been realized" (pp. 21-22).	Baffinland is requested to update the Terrestrial Environment Annual Monitoring Plan to include changes made to monitoring programs since 2016. See request related to PCC 33.		
31	QIA 2021 AMR TE #17	PC Condition 54d(vii) requires Baffinland to include in the Terrestrial Environmental Management and Monitoring Plan details of a hunter harvest survey to determine effects on caribou populations and potential effects on caribou behavior.	The QIA requests that the Proponent describe the hunter harvest survey and how this information has been used to establish a pre-construction baseline,	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB	Project Certificate (PC) Condition No. 54 (f) refers to a hunter harvest study. As noted in the NIRB Annual Report, the study details are provided in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP), Section 4.5.3 (Caribou Mortality) and 4.5.4 (Caribou Health). Both sections note that Baffinland track the number of hunters visiting the Project accommodations, as well as the number of harvested caribou when those individuals choose to share information. This

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		Baffinland has not included a discussion of the hunter harvest survey, even at high level, presumably to maintain confidentiality. It is unclear whether a hunter harvest survey was conducted and whether and how IQ has been used "to determine the effect on caribou populations and potential effects on caribou behaviour resulting from increased human access caused by upgrades to the Milne Inlet tote road (and any other roads if they are shifted from private to public use) and increase local knowledge of the mine site, including establishing pre-construction baseline harvesting data" (NIRB 2020, condition 54d(vii)).	and to determine the effect on caribou populations and behaviour.	Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Conditions 54d(vii)) **Page:** 201-203	information is summarized in the human use activity log (summarized in the Terrestrial Environment Annual Monitoring Reports). The TEMMP acknowledges that a harvest study requires the collaboration of local Hunter and Trapper Organizations (HTOs), the Government of Nunavut Department of Environment (GNDoE), and the QIA. Caribou health monitoring is noted in the TEMMP as a regional monitoring program that has been and could be led by the GNDoE. This program has been discussed in numerous TEWG meetings, dating back to March 4 and 5, 2013 TEWG meeting where the QIA stated that the *"…QIA is going to work with HTO particularly in Pond Inlet to initiate a Harvest Study to understand where people hunt, what and where they harvest, and document all others observations related to hunting activities. QIA and BIM to report back to the Group on best method for collecting harvest information (i.e., BIM may consider improving information included on Mary River log)".* The QIA seemingly did not pursue that commitment. The pre-construction baseline on harvest was available from the Nunavut Wildlife Management Board Harvest Study (Priest, H. and Usher, P.J., 2004). Information from that study is summarized (with a harvest location map) in the wildlife baseline study (EDI, 2012). Historical harvest information was fundamental to Baffinland's understanding of the caribou population cycle on Baffin Island. To better understand the importance that Baffinland placed on historical harvest information, the QIA is encouraged to familiarize themselves with the project materials already put on file with the Nunavut Impact Review Board and address any additional questions with Baffinland if outstanding questions remain. Reference: EDI Environmental Dynamics Inc. (EDI), 2012. Terrestrial Wildlife Baseline Report: Appendix 6F, Volume 6 — Terrestrial Environment, Mary River Project, Final Environmental Impact Statement. NIRB File No. 120221-08MN053, NIRB Registry No. 285910 to 285913. Prepared for Baffinland Iron Mines Corporation, Toronto, Ontario. 103 pp. Priest, H. and Usher, P.J. 2004. Nunavut Wildlife Harvest Study. Nunavut Wildlife Management Board, Iqaluit, Nunavut. 822 pp. (http://www.nwmb.com/inu/publications/harvest-study/1824-156-nwhs-report-2004-156-0003/file)
32	QIA 2021 AMR TE #18	Re: Inuit involvement in field monitoring: the Proponent states that "incorporation of Inuit in field monitoring programs is an important aspect of the programs (pg 201)." Baffinland describes that funding for two-full-time on-site Environmental Monitors hired by the QIA are fully integrated into the Site Environmental Team. Inuit have participated in snow track surveys, Height of Land surveys, vegetation, and raptor monitoring. Baffinland also states that "the implementation of a community-based monitoring program" will be carried out through the Mary River IIBA. Because Baffinland has stated this within the 2021 AMR, the QIA assumes	The QIA requests that all future Annual Reports include a summary of progress on the implementation of the community-based monitoring program referenced under PCC 57(b).	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf]	Project Certificate (PC) Condition No. 57(b) requires Baffinland to "report annually regarding its terrestrial environmental monitoring efforts", including "a description of the involvement of Inuit in the monitoring program." While PC Condition No. 57(b) requires Baffinland to describe the involvement of Inuit in the monitoring program, that requirement does not include a requirement for an independent community based monitoring program or an additional summary or evaluation of progress regarding independent Community-Based Monitoring (CBM) program implementation. Baffinland may provide information to the NIRB made available to Baffinland regarding the CBM programs funded under the Wildlife Research provisions of Article 17 of the Mary River Inuit Impact and Benefit Agreement (IIBA). However, Baffinland notes QIA's co-approval role in approving

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		that Baffinland considers a community-based monitoring program to be an instrumental part of compliance with this PCC. The QIA agrees. The inclusion of Inuit in existing monitoring programs is not sufficient. According to the 2021 draft TEAMR, COVID-19 restrictions prevented Inuit participation in terrestrial monitoring programs in 2021. Inuit are expected to be able to participate again in 2022.		**Section:** 4.6.8 Terrestrial Environment (PC Condition 57) **Page:** 200-205 **Document Name:** Mary River Project Terrestrial Environment 2021 Annual Monitoring Report (2021 TEAMR)	proposals for this CBM funding, and for receiving reports. To that end, Baffinland would not be reporting anything QIA has not equally received.
33	QIA 2021 AMR TE #19	PCC 57 requires annual reporting of "An assessment and presentation of annual environmental conditions including timing of snowmelt, green-up, as well as standard weather summaries" (p. 200). In 2021, Baffinland reported "Both the Mine Site and Milne Port experienced precipitation equipment malfunctions which made comparisons to previous years difficult" (2021 AMR, p. 202). "Precipitation data before late August is unreliable at both the Mine Site and Milne Port due to obstructed rain gauges" (2021 TEAMR, p. 6). "Until August 24, the rain gauge [at the Mine Site] was blocked. It is possible that this blockage began as early as October 2019. This casts uncertainty on a large portion of the year's data" (2021 TEAMR, p. 8). Figures 4-1 and 4-2 illustrate the April through August gap left in the 2021 precipitation record from the Mine Site (2021 TEAMR, p. 9). "The Milne Port meteorological station suffered from similar technical problems to the station at the Mine Site, with its rain gauge becoming obstructed as early as August 2020. This blockage was cleared on August 22, 2021. As such, data from August 2020 to September 2021 are considered unreliable" (2021 TEAMR, p. 10). "It may be the case that the blockage at the Milne Port rain gauge was severe enough to cause some, but not all, days of rainfall to go undetected, or that the summer of 2021 was unusually dry at this location" (2021 TEAMR, p. 10). Malfunctions of weather monitoring equipment also occurred in 2018, 2019, and 2020. These weather measurements are important for interpreting other monitoring data and therefore underlie a broad range of monitoring study conclusions. Persistent and protracted losses of weather data weaken the assessment of interannual trends in dustfall, dust control measures, and the interpretation of satellite imagery. In 2021 the weather dataset was excluded from	The QIA requests that Baffinland ensure reliable collection of weather data and prompt detection and remedy of any issues that arise in 2022 and for the duration of the Mary River Project.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 57) **Page:** 200-205 **Document:** Mary River Project Terrestrial Environment 2021 Annual Monitoring Report (TEAMR) (2021_BIM_Terrestrial_AMR Draft for TEWG.pdf) **Section:** Executive Summary; 4 **Page:** pp. i + ii; 6, 9, 10	Baffinland has implemented corrective actions to continue to improve the reliable collection of weather data and prompt detection of any equipment issues. Critical spares have been identified and inventoried, and procured to ensure they are readily available on site. Baffinland is increasing the frequency and quality of Quality Assurance / Quality Control (QA/QC) audits to include monthly data audits. Baffinland is continuing to improve on-site capacity to complete physical equipment inspections internally, which will enable an increase in frequency of the inspections. Baffinland will continue to ensure equipment inspections and maintenance are completed by a qualified individual.

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		calculations of the relationship between the dustfall concentrations from the passive dustfall monitors and the satellite digital imagery due to the issues with the precipitation measurements (TEAMR 7.4.2.2 Dustfall Concentration Estimation, p. 74). Incomplete weather monitoring data also weaken the interpretation of monitoring data from a variety of other terrestrial and freshwater monitoring programs.			
34	QIA 2021 AMR TE #20	The Proponent states that they "regard engagement and consultation with Inuit and incorporation of Inuit in field monitoring as an important aspect of the programs" (p.201). Baffinland further describes the variety of ways Inuit have been involved, ranging from participation in working groups via the MHTO to data capture. However, it is not clear on whether IQ has been incorporated in a meaningful way into such things as understanding the terrestrial ecosystem, trends, natural variability (PCC 58a), cumulative effects (PCC 58 d), and adaptive management. Barriers to Inuit participation, aside from COVID-19, and to meaningful incorporation of IQ are not described, for example situations where IQ and western science contradict one another.	As previously stated in the 2019 Annual Report review, the QIA requests the development of a parallel community-based monitoring program that builds opportunities for IQ knowledge transfer and integrates the harvester, tissue sampling and wildlife monitoring; Baffinland should provide a status update on its efforts to build any enhanced community-based monitoring programs or Inuit-controlled monitoring programs.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 57b and 58) **Page:** 200-205; 207	Since June 2020 Baffinland and the Qikiqtani Inuit Association (QIA) have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.
35	QIA 2021 AMR TE #21	Part (c) of PC Condition 58 states that Baffinland must include information on "measured levels of dustfall (fugitive and finer particles such as TSP) on lichens and blueberries, and ash content of caribou fecal pellets" (pg. 206). The spirit and intent of this PCC is that Baffinland document the amount of dustfall affecting species of concern. Baffinland refers to information presented under PCC 10, 34, and 54. The QIA has already outlined many concerns it has identified with dustfall monitoring in the sections above, which include: • No evidence that the monitoring program accurately captures dust amount at ground level; • Questionable evidence that dust suppression methods are working; • Evidence that helicopters are spreading dust around the site; • Little evidence that sites for lichen and soil sampling coincide with areas of high dust concentration.	The QIA requests: 1. Baffinland develop a strategic sampling approach targeting known or potential caribou forage areas with higher abundance of lichen and risk of increased dustfall for focused studies on potential effects on lichen quality, abundance and uptake of metals. This recommendation was made in 2019 and in 2020. While Baffinland states that this concern is addressed, the QIA maintains that more information is required. 2. Baffinland provide further detail on whether and how dust issues will be jointly monitored and	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 58) **Page:** 206-209 **Document Name:** Response to Comments on Baffinland's 2020 Annual Report to the	1. The dustfall sampling program has been designed to adequately capture and address Project-related dustfall monitoring requirements. The vegetation monitoring program directly addresses the Project's effects on vegetation, including lichen abundance and metals uptake. The Qikiqtani Inuit Association (QIA) is not specific to what "…more information is required" to address their concern which has not been qualified. Baffinland encourages the QIA to bring specific recommendations forward in the next Terrestrial Environmental Working Group (TEWG) meeting to understand what additional information the QIA is looking for. 2. Baffinland takes very serious the concerns it has heard about dust generation at site. Accordingly, as indicated in the 2021 Annual Report under the Results section of PC Condition No. 162 starting on page 514, following from commitments related to dust management issued through the Phase 2 review, a third-party Dust Audit was initiated in 2021 and remains ongoing. The third-party auditors work with a Dust Audit Committee composed of representatives from each of the five (5) North Baffin communities including Pond Inlet, Arctic Bay, Sanirajak, Igloolik and Clyde River. Committee members were nominated by Hamlet and Hunters and Trappers Organizations to participate in the Audit. Committee members have been regularly meeting in order to drive forward the dust audit. The third-party auditor completed its first field investigation with the support of the Dust Audit Committee in 2021, and a second visit was

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		It is clear that documentation of the interaction of dustfall on caribou fecal pellets in the vicinity of the Project is not possible due to low density of caribou at this phase of their population cycle. Another metric for impacts on caribou forage should be identified. The QIA has registered its concern that lichen distribution in vegetation plots is too low and project effects could be masked due to larger number of samples with low exposure to dustfall and low lichen density. Baffinland responded to this concern in the response to 2020 AMR Comments: "trace metals sampling design is based on sampling soil and lichen at varying distance classes from each project area… within the distance classes and project area spatial boundaries, lichen abundance and proximity to dustfall monitoring stations are two of the primary factors determining site selection. Thus the trace metals sampling sites are already located in areas of high caribou forage potential" (pp. 23-24). The QIA notes that Appendix G.23 to the 2021 AMR includes a map of distribution and resource selection by North Baffin Island caribou (p. A-20). This map could be used with dust data to identify potential areas of concern for caribou.	managed by Baffinland and Inuit parties moving forward.	NIRB August 11, 2021 (210811-08MN053-Baffinland Response to 2020 Annual Report Comments-IA1E.pdf) **Page:** 23-24 **Document Name:** Mary River Project Terrestrial Environment 2021 Annual Monitoring Report (2021 TEAMR) **Document Name:** Appendix G.23 Caribou Monitoring Triggers and Recommendations Report. **Page:** Appendix A, p. A-20	recently completed from June 9-13, 2022. The spring visit was planned out of a request to see operations during drier conditions, and to observe melt. During the site visit, the committee was able to observe almost all parts of the operations (with the exception of shiploading as shiploading season had not begun yet), including blasting, hauling, b-trains along the Tote Road, and stacking of fines at the port. A final Recommendation Report including recommendations for actions to take based on feedback brought forward by Committee members to better manage dust at the Mary River Project will be released for public review by the end of 2022. Baffinland intends to move ahead with implementing recommendations provided through the third-party audit process once received.
36	QIA 2021 AMR TE #22	Baffinland does not provide any explicit discussion of IQ related to caribou movement and abundance, impacts, and trends in their presentation of PCC 58f summary information. Nor are there descriptions of situations where IQ and western science contradict one another and how these are being resolved.	The QIA requests that Baffinland include explicit discussion of IQ relating to PCC 58f.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report MainBody- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 58f) **Page:** 206-209	The studies presented in the wildlife baseline and contemporary knowledge study summarize the Inuit Qaujimajatuqangit (IQ) made available to Baffinland regarding caribou movement and trials (EDI, 2012, Prno, 2017). As stated in Project Certificate Condition No. 58f, the information will be updated in consultation with the Qikiqtani Inuit Association (QIA). To date, the QIA has not provided any additional information relevant to caribou migration trails, nor has additional information through Baffinland's community engagement become available; therefore, the explicit discussion cannot be updated past what has been made previously available as per QIAs request. References: EDI Environmental Dynamics Inc. (EDI), 2012. Terrestrial Wildlife Baseline Report: Appendix 6F, Volume 6 — Terrestrial Environment, Mary River Project, Final Environmental Impact Statement. NIRB File No. 120221-08MN053, NIRB Registry No. 285910 to 285913. Prepared for Baffinland Iron Mines Corporation, Toronto, Ontario. 103 pp. Prno, J. 2017. Mary River Project — Phase 2 Proposal, Technical Supporting Document No. 03: Results of Community Workshops Conducted for Baffinland Iron Mines Corporation's Phase 2 Proposal. NIRB File No. 181003-08MN053, NIRB Registry No. 320557. Prepared for Baffinland Iron Mines Corporation by Jason Prno Consulting Services Ltd., Peterborough, Ontario.

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37	QIA 2021 AMR TE #23	Baffinland does not provide any data or discussion of whether there were any impacts to Inuit harvesting resulting from aircraft.	The QIA requests a discussion of whether there were any disturbances of Inuit harvesting from aircraft. This discussion should include data and information from hunters. This information should be included in annual reports going forward. If no data is currently available, Baffinland should identify how it will gather relevant data from Inuit harvesters moving forward.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 59) **Page:** 210-214	To track disturbances and identify negative interactions between aircraft and Inuit harvesting, Baffinland would rely on information received through community engagement by Baffinland or Qikiqtani Inuit Association (QIA) as well as any applications for compensation under the Wildlife Compensation Fund established under the Mary River Inuit Impact and Benefit Agreement (IIBA) and administered by the QIA. For more information, see Article 17.6 of the Mary River IIBA. Baffinland is unaware of any disturbances to Inuit harvesting from aircraft for 2021.
38	QIA 2021 AMR TE #24	The QIA is concerned that minimal efforts have been made to evaluate the potential effects of blasting and explosives use on caribou and other wildlife, particularly in regards to sensitive timing windows for caribou. In the 2021 AMR, Baffinland states "No wildlife has been knowingly harmed or disturbed by blasting activities during construction" (p. 215). However, there is no other information provided. In its review of the 2020 AMR, the QIA requested that Baffinland work with the MHTO and the TEWG to evaluate concerns about impacts of explosives on caribou and identify timing windows when explosive use is not permitted. Baffinland stated in its response, "Both the QIA and MHTO are welcome to raise this issue through regular TEWG meetings if there are new substantive concerns that were not previously identified and new recommendations to consider. The QIA would like to note that the effects of blasting on wildlife during sensitive time periods remains an outstanding concern. In future Annual Monitoring Reports, the QIA would like to see more evidence provided that wildlife was not harmed or disturbed during blasting activities.	What information did Baffinland utilize to make this statement? What information is collected and recorded before, during, and after blasting occurs?	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 60) **Page:** 215	The 2020 Noise Monitoring Study focuses on Project-related activities causing anthropogenic noise, including blasting. Three noise monitoring stations were established at varying distances (Near, Far, and Reference) to the Mine Site, with Autonomous Recording Units set up at each station to record the noise environment. Noise monitoring units recorded at a sampling rate of 96,000 Hz to cover the hearing range of caribou (approximately 70 Hz to 38,000 Hz). The recorders ran continuously from June 5-8 and July 17-26, 2020, and blasting occurred regularly during those timeframes. As expected, the Project generates noise loud enough to elicit wildlife response (i.e., above 55 dBA) close to the Project Development Area (PDA). However, over 90% of the noise recordings at 1.5 km from the PDA were below this threshold, and anthropogenic noise events were detected less than 3% of the time at 1.5 km from the PDA. As predicted in baseline noise modelling, typical ambient noise had dissipated to within 1 dBA of background levels by 3 km (Reference) from the PDA for all Project areas. Further details are found in the 2020 Terrestrial Environment Annual Monitoring Report (EDI, 2021). Baffinland continues to complete inspections before and after blasting to ensure the safety and well-being of animals, humans and equipment that may be in the vicinity. Any observations on disturbance or harm is reported via Baffinland's Incident Investigation Procedure, and there were no related reports of this type in 2021. Reference EDI Environmental Dynamics Inc. (EDI), 2021. 2020 Terrestrial Environment Annual Monitoring Report. August, 2021.
39	QIA 2021 AMR TE #25	Baffinland does not explicitly mention whether any community concerns had been raised through their liaison and meeting with local Hunters and Trappers Organizations.	The QIA requests that Baffinland provide discussion of any community concerns raised and discussed over 2021, including a statement confirming that none were raised if that is the	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB	Baffinland remains responsible and flexible when addressing concerns heard, as demonstrated through the implementation of specific measures during the 2021 shipping season (and into 2022). One example is the avoidance of icebreaking at the start of 2021 shipping operations and waiting until ice conditions were no greater than 3/10ths ice concentrations.

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			case, and that this information be included in annual reports going forward. The QIA also recommends that this PCC be deemed "non-compliant" in the future if a summary of issues and concerns raised is not included in the reporting along with a list of all actions taken to deal with those issues and concerns.	Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 63) **Page:** 218-219	Furthermore, Baffinland notes that concerns voiced by the Mittimatalik Hunters and Trappers Organization (MHTO) regarding dust have been noted, and that follow-up actions are underway including the third-party dust audit. The audit committee includes numerous community representatives from each of the five (5) North Baffin communities. A final report will be issued by the end of 2022. Regarding its general approach to addressing concerns raised, Baffinland actively engages with various community groups as demonstrated by the list of engagements provided in Appendix B. As part of the Phase 2 or most recent Production Increase Proposal (PIP) Renewal review processes, a number of specific issues/comments/questions were identified by the MHTO and other community-based intervenors. These have been forming part of ongoing discussions that are captured on the NIRB Public Registry, in addition to the Annual Report to the Nunavut Impact Review Board (NIRB) where meeting minutes are included from working group meetings such as the Terrestrial Environment Working Group of which the MHTO is a member. We note that with regards to caribou monitoring, no follow-up meeting was held with the MHTO on caribou surveys as these were not completed in 2022. As part of future reporting, Baffinland will aim to be even more explicit in how it responds to community concerns, etc. Baffinland also welcomes feedback from the Qikiqtani Inuit Association (QIA), who represent the voice of Inuit of the Qikiqtani region from their various engagement efforts as relevant to Baffinland's operations.
40	QIA 2021 AMR TE #26	Baffinland continues to provide results for helicopter flights showing the breakdown of flights that are "compliant" and "compliant with rationale". This level of reporting allows the TEWG and others to determine whether additional measures should be taken to mitigate helicopter noise near sensitive areas in the RSA. However, the QIA is concerned about the number of helicopter flights that do not meet the target height but are compliant because a rationale is provided (Table 5-4, p. 19 of the 2021 TEAMR). Instances where flights in the Snow Geese area that do not achieve the 1,110 magl requirement should not be considered compliant with rationale, but non-compliant with rationale. The purpose of PCC 59 and PCC 71 is to protect Snow Geese during the moulting period. Compliance should be determined whether or not this was achieved. Baffinland states in the 2021 TEAMR that compliance with height requirements within the Snow Geese area during the moulting season (July and August) was 72% (p. 18). However, considering that Baffinland's category of "compliant with rationale" is actually not compliant, true compliance is only 20%.	Given that helicopter flights are largely non-compliant and therefore likely disturb wildlife during sensitive time periods, the QIA requests that more work be completed to ensure that helicopters are not flying over sensitive habitats. This was requested during the QIA review of the 2020 AMR. Additional work includes: 1. Maps of known calving/post-calving locations in relation to helicopter flight lines; 2. Maps outlining any other sensitive timing windows identified through IQ; Correlation between noise monitoring results and helicopter overflights that are lower than 650 magl. Information	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.8 Terrestrial Environment (PC Condition 59); 4.6.9 Birds (PC Condition 71) **Page:** 210-214; 233 **Document Name:** Response to Comments on Baffinland's 2020 Annual Report to the	1. The helicopter overflight analysis has been focused on flight-heights related to potential disturbance to birds. Those flight heights are greater than those recommend for caribou (> 300 m, DIAND Caribou Protection Measures, Appendix I, Nunavut Planning Commission. 2000. North Baffin Regional Land Use Plan. 124 pp.). Thus, the current maps focus on the snow goose area and compliance with Project terms and conditions. 2. Baffinland has an outstanding request to the Mittimatalik Hunters and Trappers Organization (MHTO) for them to identify any areas of migratory bird concentrations in the Regional Study Area (RSA) which may be of concern to them related to helicopter overflights (Setterington, e-mail communication with David Qamaniq, May 18, 2022). As of July 29, 2022, no information was provided. Baffinland is aware of only one Inuit Qaujimajatuqangit (IQ) dataset that is outside of the ones used to inform the Project Baseline, including the IQ information gathered specifically for the Project. The Qikiqtani Inuit Association (QIA) may choose to share any areas identified in their Tusaqtavut studies presented during the Phase 2 technical meetings, however, an initial response to a request on this specific topic confirmed the Tusaqtavut studies did not identify and additional areas of interest. 3. The noise study results presented in the 2020 Terrestrial Environment Annual Monitoring Reports (TEAMR; (EDI, 2021) state that helicopter (aircraft) noise was consistently above 55 dBA

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			currently available does not specifically communicate what the noise level is when a helicopter flies overhead at a height of 650 magl	NIRB August 11, 2021 (210811-08MN053-Baffinland Response to 2020 Annual Report Comments-IA1E.pdf) **Page:** 24-25 **Document Name:** Mary River Project Terrestrial Environment 2021 Annual Monitoring Report (2021 TEAMR) **Section:** 5.2	but was infrequent and representing less than 2% cumulative frequency of impulse aircraft noise. The noise monitoring results were not correlated with helicopter flying height as 1) the data are not suitable for this type of analysis and 2) the requested analysis is clearly out of scope for the purposes of the monitoring program. Reference: EDI Environmental Dynamics Inc. (EDI), 2021. 2020 Terrestrial Environment Annual Monitoring Report. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. 588 pp
41	QIA 2021 AMR TE #27	Baffinland gives information on land disturbed for the project during the breeding bird window and land disturbed for the project outside of the breeding bird window. In 2021, 79.8% of land disturbance occurred outside of nesting season (287,779 m^2 out of 360,615 m^2). How is does this compare with other years?	The QIA requests that Baffinland include statistics about land disturbed inside and outside of the bird breeding window for each year land disturbance activities occur.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.9 Birds (PC Condition 65) **Page:** 224 - 225	Potential trends pertaining to land disturbance occurring inside vs. outside of the bird breeding window will be presented in future annual reports — pending data availability.
42	QIA 2021 AMR TE #28	PCC 60 states that Baffinland is required to identify and install nesting deterrents to discourage birds from nesting in areas likely to be disturbed by construction and/or clearing activities during the nesting season. Baffinland has indicated that their efforts respecting this PCC include noting any apparent nesting attempts by birds. In 2021, they state there weren't any. Baffinland has not erected any deterrents and surveyed all land disturbed during the breeding bird window. It is not clear, however, how close to construction the surveys occur.	The QIA requests that, if deterrents are not installed, Baffinland complete bird nest surveys within seven days of construction.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.9 Birds (PC Condition 69)	For context, Project Certificate (PC) Condition No. 60 related to mitigating impacts to wildlife from explosives. PC Condition No. 69 states bird deterrents will be used to discourage potential nesting in identified areas likely to be disturbed by construction/clearing. Baffinland prepared a bird deterrence review discussed at the Terrestrial Environmental Working Group (TEWG) meeting held on May 21, 2013. No feedback was returned TEWG members on what would prove to be practical solutions before the 2014 construction season. Active Migratory Bird Nest Surveys (AMBNS) — recognized as a key avoidance and minimization strategy — were completed prior to construction. Bird deterrents have been erected at hazardous waste berm facilities and water containment facilities throughout both the Mary River mine site and the Port site. AMBNS surveys were and continue to be completed up to five (5) days before construction, and repeated should the scheduled activity window lapse. If/where bird nests are identified, Baffinland establishes a no-disturbance buffer based on the species-specific nest setback distances.

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				Page: 229-230	
43	QIA 2021 AMR TE #29	PCC 73 requires that Baffinland develop detailed and robust mitigation and monitoring plans for migratory birds. While PCC 59 requires helicopters to fly above certain altitudes in Snow Geese areas, the QIA notes that many helicopter flights are flying below those altitudes. This suggests that Snow Geese are being affected by helicopter flights during sensitive time periods. However, there is no monitoring program set up to monitor these effects. Baffinland states, "Pilots were also given the spatial boundaries of any identified concentrations of migratory birds buffered by the required 1,500 m horizontal avoidance distance" (p. 210). There is no information given about the data sources or the types of birds pilots are avoiding. Does this refer to Snow Geese only?	The QIA requests that Baffinland work with the TEWG to design and implement a program for monitoring the effects of non-compliant helicopter effects on Snow Geese and other migratory birds. Additionally, the QIA requests that when reporting on this PCC in the future, Baffinland give more information about the information given to pilots, including the spatial boundaries, and bird species of concern.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.9 Birds (PC Condition 73 and PC Condition 59) **Page:** 235 -236; 210-214	Spatial boundaries of identified concentrations of migratory birds refers to Snow Goose moulting areas. These areas were established based on recommendations from Environment and Climate Change Canada (ECCC) during previous monitoring efforts. As stated during Terrestrial Environmental Working Group (TEWG) meetings, Baffinland is open to modifications to monitoring plans or data analysis. Specific recommendations and collaboration on the study design from working group members are an expectation. Baffinland welcomes QIAs specific recommendations at the next TEWG meeting if this remains an item of interest to them. Flight height requirements are included in all aviation contracts. Pilots are made aware of flight height requirements in 'toolbox talks' given at the beginning of each season and daily toolbox talks are held within each department. In addition, flight height compliance was incorporated into the helicopter contract Baffinland holds with Canadian Helicopters.
44	QIA 2021 AMR TE #30	PC Condition 73 requires Baffinland to develop detailed and robust monitoring plans for migratory birds that reflect input from the QIA and other agencies. However, now that raptor monitoring has been paused, there are no "robust" monitoring plans in place. PC Condition 74 requires Baffinland to complete several follow-up monitoring for programs, and to include the key indicators of "peregrine falcon, gyrfalcon, common and king eider, red knot, seabird migration and winter, and songbird and shorebird diversity" (p. 237). Baffinland describes information on many of these indicators however, there seems to be no follow-up programs for eiders, seabird migration, or shorebird diversity. There appears to have been no north Baffin shorebird surveys since 2013 and no waterfowl and waterbird surveys since 2015. Baffinland also does not report the PRISM plot results. The QIA also notes that Figure 4.12 shows a declining trend in PEFA occupance since 2015 after increases from 2012 to 2015.	The QIA requests that the Proponent clarify how marine bird VECs were monitored in 2020, as required under the Project Certificate. The QIA further requests that the Proponent provide more information on monitoring of Project effects on common and king eiders and seabird migration.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.9 Birds (PC Condition 73; PC Condition 74) **Page:** 235-236, 237-243	The Qikiqtani Inuit Association (QIA) comments on marine bird monitoring are similar to those from QIA on Annual Reports from 2018 (QIA-26, Baffinland, 2019), 2019 (QIA-23, Baffinland, 2020), and 2020 (QIA AMR TE #28, M&AE #39, Baffinland, 2021). Baffinland responded to those questions in detail, particularly in response to the 2019 and 2020 requests. Baffinland conducted extensive shoreline surveys to determine potential effects on nesting eiders and other shoreline nesting birds. Baffinland continues to support Environment and Climate Change Canada's (ECCC's)seabird research efforts in Baffin Bay and other eastern Arctic studies, and the ongoing shipboard observer program. The 2020 response encouraged the QIA to share information supporting the request for additional seabird monitoring. In its 2021 comment, the QIA has not sufficiently re-worded its request to allow Baffinland to determine if another answer is required. The author has not provided any additional information to support the comment since it was previously submitted, or indicated any specific deficiencies with Baffinland's previous response. Baffinland welcomes QIA to clarify if they are seeking any new or additional information from Baffinland regarding this concern. Reference: Baffinland Iron Mines Corporation (Baffinland), 2019. Baffinland Response to Reviewer Comments on the 2018 NIRB Annual Report. NIRB Registry 325930. 180 pp. Baffinland Iron Mines Corporation (Baffinland), 2020. Baffinland Response to Reviewer Comments on the 2019 NIRB Annual Report Mary River Project, Project Certificate No. 005. NIRB Registry 331432 to 331439. 258 pp

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
					Baffinland Iron Mines Corporation (Baffinland), 2021. Baffinland Response to Comments Received for Baffinland's Production Increase Proposal Extension 2020 Annual Monitoring Report. NIRB Registry No. 195 pp.
45	QIA 2021 AMR TE #31	Baffinland does not identify any IQ or Inuit participation in bird monitoring.	The QIA requests that Baffinland provide more information on the role of IQ and Inuit participation in bird monitoring.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.9 Birds (PC Condition 74) **Page:** 237-243	Engagement meetings garnered interest and some concerns about the Project's potential effects on birds, resulting in Baffinland's bird monitoring efforts detailed in all Terrestrial Environment Annual Monitoring Reports (TEAMR). As with similar requests from the Qikiqtani Inuit Association (QIA), Baffinland welcomes any Inuit Qaujimajatuqangit (IQ) that the QIA is willing to share relevant to bird monitoring procedures. Inuit have participated in all bird monitoring initiatives, including shoreline surveys, road transects, cliff nesting raptor monitoring, and PRISM plots. The conduct of those surveys and acknowledgement of Inuit participation is noted in all the relevant TEAMRs, all of which have been reviewed by the QIA and filed with the NIRB.
MARINE AND AQUATIC ENVIRONMENT					
46	QIA 2021 AMR M&AE #1	PC Condition 21 states, "The Proponent shall ensure that the scope of the Aquatic Effects Monitoring Plan (AEMP) includes, at a minimum: a. Monitoring of non-point sources of discharge, selection of appropriate reference sites, measures to ensure the collection of adequate baseline data and the mechanisms proposed to monitor and treat runoff, and sample sediments b. Measures for dustfall monitoring designed as follows: i) To establish a pre-trucking baseline and collect data during Project operation for comparison. ii) To facilitate comparison with existing guidelines and potentially with thresholds to be established using studies of arctic char egg survival and/or other studies recommended by the Terrestrial Environment Working Group (TEWG). iii) To assess the seasonal deposition (rates, quantities) and chemical composition of dust entering aquatic systems along representative distance transects at right angles to the Tote Road and radiating outward from Milne Port and the Mine Site" (p. 112).	The QIA requests that moving forward, Inuit observations, using IQ-enriched observational criteria, be integrated into dustfall distribution and effects monitoring.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.5 Groundwater & Surface Water (PC Condition 21) **Page:** 112-114	Since June 2020 Baffinland and the Qikiqtani Inuit Association (QIA) have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		The QIA disagrees with Baffinland's assessment of compliance. The QIA continues to have concerns over dust deposition. Specifically, current rates of dust deposition exceed FEIS predictions. The QIA is partaking in its own dustfall monitoring program with the collaboration of the MHTO to investigate concerns raised by Inuit over dust. Outcomes of this may inform future amendments to the PCC, with a focus on Inuit-led monitoring and thresholds referring to IQ.			
47	QIA 2021 AMR M&AE #2	Lake sedimentation samples and dry bulk density (DBD) samples from the 2020 to 2021 ice-covered period were lost in transit to the laboratory. They were not located prior to preparation of Lake Sedimentation Monitoring Program report, so only the 2021 open-water period data were presented and discussed. Loss of a full season's data from a sampling program is significant.	The QIA requests that Baffinland describe the measures it has implemented to prevent sample losses in the future by this and other research programs.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** Popular Summary (English); 4.6.5 Groundwater & Surface Water (PC Condition 21) **Page:** 8; 112-114 **Document Name:** 2021 NIRB Annual Report, Appendix G.7 Lake Sedimentation Monitoring Program (220331 – 2021 NIRB Annual Report – Appendix G.7 (Lake Sed) – As Sent.pdf) **Section:** 2.3.1; 2.3.2 **Page:** 9 (12 of 32); 11 (14 of 32)	After an investigation into the shipment last year, it was identified there were various factors that resulted in the loss of this sample shipment in question and Baffinland has implemented corrective actions to address these and increase the reliability of sample shipments off-site. The sampling procedure for this program in question was updated to reference the appropriate shipment method, and a comprehensive shipping procedure specific to environmental samples has been drafted and is referenced regularly by personnel completing sample shipments. Onboarding documentation for new staff has been updated to include these procedures. Baffinland made appropriate improvements to their sample shipment tracker to ensure the shipment tracking information is noted and recorded for each shipment. Baffinland switched shipping companies in 2021 for sample shipments and now has a direct contact, who facilitates timely sample shipments.
48	QIA 2021 AMR	"The proposed thresholds include a low action response threshold of 0.15 mm sediment deposition based on the upper range of natural sedimentation rate of 50 mg/cm^2/year converted to a sediment thickness	The QIA recommends that exceedance of the moderate threshold trigger a study by Baffinland to properly	**Document Name:** Baffinland Iron Mines 2021 Annual Report to	Baffinland will consider this recommendation and engage with the Qikiqtani Inuit Association (QIA) prior to drafting the next iteration of the Aquatic Effects Monitoring Plan.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
	M&AE #3	using the DBD [dry bulk density] of deposited sediment at Sheardown Lake, a moderate action response threshold of 0.54 mm sediment deposition based on the sediment accumulation predicted in the Final Environmental Impact Statement (FEIS; Volume 7, Section 3.4.2.3) for the Project, and a high action response threshold of 1 mm sediment deposition based on the threshold presented in the FEIS for the Project" (p. 15). The proposed Low-, Moderate-, and High- Action Thresholds are more precautionary and improvements on the 1 mm sedimentation threshold presented in the FEIS. However, none of these thresholds are based on studies of the effects of sediment on Arctic char egg survival, or on Project-generated sediment.	validate Actions Thresholds for the effects of Project-generated sediment on Arctic char egg survival.	the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** Popular Summary (English); 4.6.5 Groundwater & Surface Water (PC Condition 21) **Page:** 8; 112-114 **Document Name:** Appendix G.7 2021 Lake Sedimentation Monitoring Program [220331 – 2021 NIRB Annual Report – Appendix G.7 (Lake Sed) – As Sent.pdf] **Section:** 2.4 Data Analysis **Page:** 15 of 32 **Document Name:** Appendix G.5 Aquatic Effects Monitoring Plan [220331 – 2021 NIRB Annual Report – Appendix G.5 (AEMP)– As Sent] **Section:** Table 5.1 **Page:** 69 of 85	
49	QIA 2021 AMR	PCC 21 relates to Groundwater/Surface Waters – Aquatic Effects Monitoring Plan [AEMP] and dustfall monitoring. Dustfall has continued to exceed predictions along the Tote Road (p. 60). The amount of dustfall and sediment from Project activities that enters the Tote Road streams, its fate	The QIA requests Baffinland assess and monitor inputs and aquatic effects of Project-generated dust and sediment on the water quality, sediment	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact	Baffinland confirms that it is assessing and monitoring inputs and aquatic effects of dust on water quality, sediment dispositions, and biota of a representative reach of Phillips Creek that is crossed by the Tote Road. See the Tote Road Monitoring Program (TRMP) for more detail.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
	M&AE #4	in the streams, and its effects on the biota, including Arctic Char, are unknown.	dispositions, and biota of a representative reach(s) of Phillips Creek that is crossed by the Tote Road and rail route and would also be crossed by the proposed railway.	Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** Popular Summary (English); 4.6.5 Groundwater & Surface Water (PC Condition 21) **Page:** 8; 112-114 **Document:** Mary River Project, Terrestrial Environment, 2021 Annual Monitoring Report (2021_BIM_Terrestrial_AMR Draft for TEWG.pdf) **Section:** 7.3.2.3 Table 7-4 **Page:** 35-91	The TRMP, developed in consultation with the Qikiqtani Inuit Association (QIA), is ongoing and aims to address concerns around the referenced Project-related sediment additions, and to evaluate if there is a potential Project-related effect from the operation and maintenance of the Tote Road. Phillips Creek is included in the TRMP. This monitoring program is designed to inform additional monitoring if prolonged, significant project-related impacts are found. Since the implementation of this program, monitoring has indicated only temporary, localized short-term increases in Total Suspended Solids (TSS) as a result of the operation and maintenance of the Tote Road, with the elevated results falling well within the range of natural variability observed to date, therefore additional monitoring (i.e. sediment and biota) is not warranted at this time.
50	QIA 2021 AMR M&AE #5	PCC 21 requires the Proponent's Aquatic Effects Monitoring Program (AEMP) include measures of dustfall monitoring designed "To assess the seasonal deposition (rates, quantities) and chemical composition of dust entering aquatic systems…" (p. 112). Rubber tire residues are not among the substances monitored for potential effects on water quality and aquatic biota. Rubber tires contain chemicals (e.g., antioxidants) that can be acutely toxic to aquatic biota and have caused mass mortality of salmonid fishes in streams when mobilized by runoff (e.g., Tian et al 2021; Hiki and Yamamoto 2022). This is a potential concern due to the magnitude of Project truck traffic along the tote road and unexpectedly high rate of tire wear, both of which are expected to continue. A recent study found Arctic Char were not as acutely sensitive to the chemical as Coho Salmon or Rainbow Trout (Brinkmann et al. 2022), but	The QIA requests that Baffinland sample representative road dust and nearby stream sediment upstream and downstream to assess the potential risk to fish in Tote Road streams from chemicals released by rubber particulates worn from the tires of vehicles travelling the Tote Road.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.5 (PC Condition 21) **Page:** 112-114 **Document Name:** Appendix G.17 DFO	The Tote Road Monitoring Program (TRMP), developed in consultation with the QIA, includes a set of road crossing locations that are sampled for additional parameters ('Group 4'). Details on this monitoring program are found in Baffinland's Roads Management Plan. Results of this sampling are reported in Baffinland's Tote Road Annual Report for DFO with comparisons against Canadian Council of Ministers of the Environment (CCME) guidelines and there have not been any results of concern. Baffinland will commit to adding additional parameters to the Tote Road Monitoring Program (TRMP) at the HADD sampling locations, as well as maintaining the same sampling locations and frequency, for two years, to be implemented in consultation with QIA.

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		did not study the chemical's sublethal effects or char from a broad range of genetic stocks. References: Brinkmann, M., Montgomery, D., Selinger, S., Miller, J.G.P., Stock, E., Alcaraz, A.J., Challis, J.K., Weber, L., Janz, D., Hecker, M., and Wiseman, S. 2022. Acute toxicity of the tire rubber-derived chemical 6PPD-quinone to four fishes of commercial, cultural, and ecological Importance. Environmental Science Technology Letters 2022 9 (4), 333-338. DOI: 10.1021/acs.estlett.2c00050 Hiki, K, and Yamamoto, H. 2022. Concentration and leachability of N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD) and its quinone transformation product (6PPD-Q) in road dust collected in Tokyo, Japan. Environmental Pollution 302, 1 June 2022, 119082. https://doi.org/10.1016/j.envpol.2022.119082 Tian, Z., Zhao, H., Peter, K.T., and 24 others. 2021. A ubiquitous tire rubber-derived chemical induces acute mortality in coho salmon. Science 371: 185-189.		Tote Road Report [220331 – 2021 NIRB Annual Report – Appendix G.17 (DFO Tote Road) - 1 of 2 – As Sent.pdf]	
51	QIA 2021 AMR M&AE #6	PC Condition 23 states, "The Proponent shall develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater within the Project area" (p. 116). The QIA disagrees with Baffinland's assessment of compliance. The following was found during 2021 monitoring activities: "At the Landfill Facility; at monitoring locations MS-LF-GW1, chloride concentrations were greater than the Federal Interim Groundwater Quality (FIGQ) Guideline and were elevated compared to concentrations observed at the reference locations and further down-gradient piezometers. At monitoring locations MS-LF-GW1, MS-LF- GW2, and MS-LF-GW3, sulphate concentrations were greater than the FIGQ Guideline and were elevated compared to concentrations observed at the reference locations and further down-gradient piezometers. Dissolved metal parameters including copper, boron, cadmium, lead, nickel, and uranium exceeded their respective FIGQ Guideline at one (1) or more down-gradient monitoring locations MS-LF-GW1, MS-LF-GW2 and MS-LF-GW3. This also suggests the presence of groundwater impacts due to landfill operations; however, these results also	The QIA requests that Baffinland confirm steps being taken to prevent and mitigate the cause and extent of the groundwater contamination around the landfill. The QIA requests that Baffinland confirm steps being taken to ensure stability of berms at MS-HWB1-7 and MP-HWB-1, 2 and 4, with attention to steps to maintaining stable access points and guidance for staff and contractors accessing berms in a manner that facilitates berm stability.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.5 Groundwater & Surface Water (PC Condition 23) **Page:** 116-120	In 2022, Baffinland will complete test pit excavations within the landfill and sampling of leachate within the test pits, to establish source terms, and contribute to contaminant mobility modelling. Hydraulic conductivity results and soil particle size will be used to model the predicted mobility of the conservative parameter(s) in the subsurface, to estimate the travel time to a receiving environment from the landfill, and to estimate the quality of the water at the receptor. Baffinland intends on refining the approach to relate subsequent monitoring to model predictions. Baffinland notes that there are no groundwater users in the area, and thus use of the Federal Interim Groundwater Quality (FIGQ) guidelines is for reference only. Sheardown Lake is the potential receiver of groundwater, and hence, Baffinland agrees with Environment and Climate Change Canada's (ECCC's) recommendation to complete a contaminant mobility assessment that evaluates the risk of impacts to the lake. Baffinland continues to operate its non-hazardous waste landfill as per design, including only disposing of inert debris there. Baffinland continues to implement its Waste Management Plan, which outlines the waste stream sources and disposal methods on site, and providing ongoing training and education to site personnel on landfill disposal requirements. At the Mine Hazardous Waste Berms, Baffinland is planning additional monitoring in 2022 to determine potential sources and extent. This will include soil sampling within test pits. This will help determine the source(s) of the elevated metals and Polycyclic Aromatic Hydrocarbons (PAHs), i.e., the lined HWBs or other historic surface sources.

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		suggest the potential impacts are limited to the immediate vicinity of the Landfill Facility. At the Mine Site Hazardous Waste Berm area; all dissolved copper and nickel were greater than their respective FIGQ Guideline at one or more drive-point piezometers during the 2021 Groundwater Monitoring Program, including at one or more of the reference locations. All Polycyclic Aromatic Hydrocarbon (PAH) parameters were reported below their respective FIGQ Guidelines with the exception for naphthalene which was reported above the FIGQ Guideline at MS-HWB-GW7." (p.117). As requested in the comments for the 2020 Annual Monitoring Report, Baffinland does include commentary on the direction of flow and indicates it probable that the guideline exceedances are localized and do not migrate to waterbodies. However, additional monitoring data is now available that exceeds guidelines yet no prevention or mitigative actions related to those exceedances are discussed. Further, the 2021 Geotechnical Inspection Report No. 1 reports that correction to access points for MS-HWB-17 are needed and QIA's 2021 Environmental Audit Report information requests suggested correction to MP-HWB-1-4 may be needed. In its response to QIA's requests, Baffinland referred to outcomes of the 2021 Geotechnical Inspection Report No. 2 as well as subsequent activity since the report that regrading to MP-HWB-1, 2 and 4 is needed.			As outlined in the 2021 Geotechnical Report No. 2, no access point issues were observed at any of the berms. Baffinland's 2022 Geotechnical Report No. 1 will be submitted on or by August 22nd, 2022, and will outline the current status of the hazardous waste berms on site.
52	QIA 2021 AMR M&AE #7	PC Condition 24 states, "The Proponent shall monitor as required the relevant parameters of the effluent generated from Project activities and facilities and shall carry out treatment if necessary to ensure that discharge conditions are met at all times" (p. 119). The QIA disagrees with Baffinland's statement of compliance. Baffinland had four discharges of non-compliant effluent at MP-03, MP-04, and MP-04A. A number of these non-compliance were attributed to potential sampling errors. Due to these exceedances, this PCC is considered non-compliant. The QIA notes this is an ongoing concern and that additional quality control measures should be investigated and implemented.	The QIA requests that Baffinland show the QIA its measures to reduce exceedances, above and beyond improved sampling methods and internal training	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.5 Groundwater & Surface Water (PC Condition 24)	Baffinland provides the same response to QIA's comment to PC Condition No. 17 (QIA 2021 AMR TE #4), copied below, as the PC Condition No. 24 discussion in the 2021 NIRB Annual Report referenced PC Condition No. 17. Baffinland agrees with the statement of compliance as the goal of the PC Condition is to develop and implement effective measures to ensure effluent satisfies discharge criteria requirements. Baffinland has effective measures in place to maintain compliant discharges (all staff conducting monitoring undergo sampling specific training programs, and are provided Baffinland's Management Plans, and Standard Operating Procedures). The four (4) non-compliant discharges in 2021 were of a different nature (different parameters at different facilities) than 2020, and thus Baffinland's explanations for the 2021 non-compliances remains accurate and adequate. Baffinland is committed to researching and implementing ongoing improvements including improvements to processes and inspections and maintenance programs, to ensure the continuous improvement of effluent and wastewater management practices and procedures. However, Baffinland notes there was a decrease in non-compliant effluent discharges from 2020 to 2021

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
				Page: 119	demonstrating improvements to the programs therefore improved sampling methods and internal training are effective tools leading to effective improvements.
53	QIA 2021 AMR M&AE #8	PC Condition 25 states, "The Proponent shall undertake additional geotechnical investigations to identify sensitive landforms, modify engineering design for Project infrastructure, develop and implement preventative and/or mitigation and monitoring measures to minimize the impacts of the Project's activities and infrastructure on sensitive landforms" (p. 119). The QIA disagrees with Baffinland's assessment of compliance, as the Tote Road has not been built to design and concerns on the state of the Tote Road are ongoing. The 2019 Tetra Tech Report confirms that most concerns along the Tote Road from the 2014 Tetra Tech Report were not addressed. The QIA understands Baffinland has a multi-year Execution Plan for addressing recommendations made by Tetra Tech regarding permafrost degradation. The QIA will continue monitoring these mitigative actions, the status of the Tote Road and settling of water retention structures and will consider assessment within the context of the 2022 Environmental Audit.	The QIA requests that PCC 25 be considered non-compliant until Baffinland builds the Tote Road as designed or provide a satisfactory effects assessment of operating the road in its current state. At a minimum, this PCC will not be re-assessed by the QIA until completion of the multi-year Execution Plan to address the priority areas identified in the Tetra Tech Report. The QIA notes this is the same request as last year.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.5 Groundwater & Surface Water (PC Condition 25) **Page:** 119-122 **Document Name:** 2019 Inspection of the Milne Inlet Tote Road and Associated Borrow Sources [NIRB Registry: 200521-08MN053-App G15-Tetra Tech 2019 Report Pt 1-IA1E.pdf, 200521-08MN053-App G15-Tetra Tech 2019 Report Pt 2-IA1E.pdf, 200521-08MN053-App G15-Tetra Tech 2019 Report Pt 3-IA1E.pdf, and 200521-08MN053-App G15-Tetra Tech 2019 Report Pt 4-IA1E.pdf]	Baffinland agrees with the statement of compliance, as the goal of the PC Condition is to complete geotechnical inspections to develop and implement mitigation measures. Baffinland has, and continues to, complete geotechnical inspections along the Tote Road where required mitigative measures are identified. Baffinland is actively implementing these measures, and believes it is acceptable that the measures are implemented in a phased approach from both a risk-assessment and resource-availability perspective. The author has not provided any additional information, or indicated a deficiency with Baffinland's previous response, which is listed below. Baffinland has no additional information to provide at this time. Baffinland continues to implement recommendations from the 2019 Tetra Tech report with continued focus on the sites that were identified by the third party consultant as first priority. Since 2013, there have been ongoing upgrades to sections of the Tote Road as part of the construction and operation of the Early Revenue Phase (ERP) for the Project and in an effort to mitigate sedimentation and erosion concerns, and to safely transport iron ore from the Mine Site to Milne Port. Any changes in design or proposed deviations from those in the Final Environmental Impact Statement (FEIS) and FEIS Addendum have been approved by all relevant regulatory authorities prior to construction, and were completed to minimize any adverse impacts to the environment. This has included widening, straightening and re-alignment of the Tote Road at certain locations for road safety, and to minimize erosion and sedimentation issues. Additional armouring has also been added at road embankments for erosion mitigation measures. To maintain fish passage, Baffinland has obtained the required approvals for the installation, movement and/or extension of culverts at identified stream crossings to improve transportation safety and minimize impacts to fish. Any proposed changes to the Tote Road design as outlined in the FEIS Addendum, were completed to maintain the safety of personnel working along the Tote Road, and to protect sensitive environmental receptors.
54	QIA 2021 AMR	PC Condition 29 states, "The Proponent shall provide to the respective regulatory authorities, for review and acceptance, for-construction engineering design and drawings, specifications and engineering analysis to	None.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to	No response required.

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	M&AE #9	support design in advance for constructing those facilities. Once project facilities are constructed, the Proponent shall provide copies of the as-built drawings and design to the appropriate regulatory authorities" (p. 128). The QIA agrees with Baffinland's assessment of compliance. However, commentary on as-builts submitted in the 2021 QIA & NWB Annual Report for Operations was submitted under that cover. The QIA will continue to assess as-built documentation as received.		the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.5 Groundwater & Surface Water (PC Condition 29) **Page:** 128	
55	QIA 2021 AMR M&AE #10	"There are a few small and localized areas where the crushed rockfill foundation associated with the Freight Dock has become exposed; these exposed areas are vulnerable to erosion and may potentially be impacted further by seasonal abiotic processes (i.e., ice scour, wave action). The stability assessment planned for Year 5 (summer 2024) will provide additional information on the physical stability of these areas and whether remedial work may be considered." (2021 AMR, p. 161) The number of ore carrier voyages to Milne Port in 2021 was stated, but these vessels do not use the freight dock (Appendix G.11, p. 11). Differences in vessel use and recolonization between the ore dock and freight dock might provide useful insights into the how well the habitat offsets work under these different use conditions. Additional habitat offsetting is also being considered in a *Fisheries Act Authorization* (FAA) amendment application but it is not clear whether this is related to the freight dock (Appendix G.11, p. 11). Intertidal coarse substrate was not accessible during the time of the dive survey due to tide height and angle of the coarse material in both the Reference and Freight Dock habitat areas.	The QIA requests the Proponent: 1. Clarify why remedial work to the freight dock is being postponed until year five; 2. Provide an annual summary of vessel use of the freight dock including the number of vessels of each type, total number of visits, duration of use, and last port for each year for the duration of the study; 3. Identify what additional habitat offsetting measures are under consideration and how are they related to the Freight Dock; and 4. Explain what will be done to avoid loss of the year's intertidal coarse substrate monitoring data in the future.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.7 Freshwater Environment (PC Condition 45); 4.6.11 Marine Wildlife (PC Condition 115) **Page:** 160-164; 385-387 **Document:** Mary River Project Year 2 Freight Dock Offset Habitat Monitoring Report (*Fisheries Act* Authorization 18-HCAA-00160). 145 pp. [220331 – 2021 NIRB Annual Report –	To clarify, remedial work has not been proposed for the freight dock at this time. The stability assessment to be completed in Year 5 (2024) will provide additional information on whether remedial works are necessary to maintain the long-term stability of the freight dock. With respect to QIA's additional recommendations, reports submitted to DFO in support of the *Fisheries Act Authorization* (FAA) for the Freight Dock at Milne Port were provided as part of the NIRB Annual Report for information purposes only. There is no mechanism for NIRB or Marine Environment Working Group (MEWG) input or recommendations in the FAA process for the Mary River Project, including habitat offset monitoring protocols, data analyses and/or reporting. Monitoring associated with the FAA is not subject to comment by the NIRB or the MEWG as part of ongoing monitoring requirements prescribed by Project Certificate No. 005. Baffinland can confirm to the NIRB that its existing habitat offset monitoring program for the Freight Dock, including all associated reports submitted to date to DFO to support the FAA (i.e., 2021 Freight Dock Habitat Offset Monitoring Report) has fully satisfied the FAA permit conditions and reporting requirements as prescribed by DFO.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
				Appendix G.11 (Y2 Freight Dock) – As Sent] **Section:** 1.1.1 and 1.1.2; 3.1 **Page:** 11 of 145; 23 of 145	
56	QIA 2021 AMR M&AE #11	In 2021, eleven (11) fish passage issues were identified at the 37 fish-bearing Tote Road stream culverts crossings related to: perching of at least 0.10 m (CV-129, CV- 114, CV-111, CV-106, BG-50, and CV-216), ice blockage (CV-224), sediment blockage (CV-057), high current velocity (CV-225, BG-01), or seepage (CV-076) (Table 8, p. 48ff of 70). Most of these crossings have required remediation on multiple occasions since 2011 (Table 9, p. 51ff). All six culverts that were perched at least 0.10 m cm in the spring remained perched in the fall (Table 2, p. 34ff). "Crossings requiring remediation for potential fish passage issues (e.g., perched culverts) were identified, and a proposed remediation plan was prepared for discussion with the DFO during winter 2022" (Appendix G.17, p. 7), but there was "no construction work at fish- bearing stream crossings along the Tote Road in 2021" (Appendix G.17, p. 8). Ice blockage of CV-224, which persisted until after the spring freshet, was found during the spring survey (5 July) and thawed with steam soon afterward. These fish passage issues can delay or prevent access by small fish to summering habitats upstream of the Tote Road. The QIA recognizes that Baffinland is working to remove barriers to fish passage and that COVID-19 has constrained its operations, but remains concerned by the number of culverts each year that are perched, obstructed, or damaged, and by the delays between identifying and correcting passage issues.	The QIA requests Baffinland clarify: 1. Whether any action was taken to mitigate perched culverts in 2021 and, if not, whether it was undertaken early enough in 2022 to enable upstream fish passage in the spring; 2. How many of the streams did not allow upstream fish passage in 2021; and 3. When the plans to complete permanent corrective actions at the culvert crossings will be released and implemented.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.7 Freshwater Environment (PC Conditions 45 and 47) **Page:** 160-164, 168 **Document Name:** Appendix G.17 DFO Tote Road Report [220331 – 2021 NIRB Annual Report – Appendix G.17 (DFO Tote Road) - 1 of 2 – As Sent.pdf] **Section:** 1.2 Authorization for Works; 2.1 Construction work **Page:** 7 of 70; 8 of 70	Monitoring of fish passage at Tote Road stream culvert crossings is described in the 2021 Annual Report in Project Certificate Condition No. 45 (page 160). Baffinland is working with Fisheries and Oceans Canada (DFO) to develop plans to address fish passage issues along the Tote Road at specific locations. A Request for Review was submitted to DFO in May 2022, and DFO staff visited the Mary River site in June 2022 to inspect fish-bearing crossing locations along the Tote Road. Engagement with DFO is required prior to in-water remedial works to ensure that no further Authorizations are required.
57	QIA 2021 AMR	"Overall, the Milne Inlet Freshwater Fish Health Assessment demonstrated no adverse port-related effects on arctic char health and tissue chemistry within the Tugaat and Qurluktuk freshwater systems in 2021. The 2021	The QIA requests that future reporting on these studies provide sufficient description of the methods and results	**Document Name:** Baffinland Iron Mines 2021 Annual Report to	Baffinland provided a response to the Marine Environment Working Group (MEWG) on July 7th, 2022, via email that addresses these methodology-related requests from QIA. Baffinland notes that the Milne Inlet Freshwater Fish Health Assessment monitoring program was developed in

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	M&AE #12	Milne Inlet Freshwater Fish Assessment, which provides a complete analysis and discussion of 2021 monitoring results, is provided in Appendix G.22 (Minnow, 2022)." (2021 AMR, p. 171) The QIA welcomes this ongoing study of Arctic Char, by the MHTO and Minnow Environmental Inc., to address concerns Inuit have expressed about the health of Arctic Char in the Milne Inlet area. However, information provided in the report was not sufficient to properly assess the conclusions on Project-related effects presented in relation to PCC 48(A) and in Appendix G.22. When the historical reports used for comparison are revisited, differences are apparent between the 2021 study and earlier works that will affect comparability of the data. In 2021, the char were caught in Tugaat and Qurluktuk lakes using 4" and 5" (stretched measure) gillnets in mid-August. The Tugaat Lake char were compared with char caught using a weir set downstream near the river mouth on August 9-28, 1992, and using 5.5" gillnets in Tugaat Lake in August 1995 (Read 2004). The Qurluktuk Lake char were compared with 1979 data from a creel census of sport fishermen angling near the mouth of the Robertson River, downstream of the falls below the rapids and along the coast of Koluktoo Bay, between 11 and 14 August (Moshenko 1981). Comparisons of fish caught at different locations (e.g., in or just upstream from Milne Inlet cf. a headwater lake), using different fishing gear, and/or over different periods tend to select for different subsets of a fish population (e.g., more searun fish cf. lake dwelling; more or fewer spawners of the year; more small or large fish). Consequently, extra care must be taken when interpreting the results to make sure the conclusions are valid. References: Moshenko, R.W. 1981. A preliminary assessment of the Arctic charr sport fishery on the Robertson River (Koluktoo Bay), Northwest Territories, 1979. Can. Data Rep. Fish. Aquat. Sci. 306: iv + 9 p. Read, C.J. 2004. An assessment of the Arctic char population of Tugaat River, Nunavut. Can. Manuscr. Rep. Fish. Aquat. Sci. 2699: v + 35 p.	of the earlier work to enable readers to put the studies in proper context relative to one another, without having to revisit the earlier literature. The QIA also requests that the 2021 study be revised to provide and consider this information.	the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.7 Freshwater Environment (PC Condition 48a) **Page:** 170-172 **Document:** Appendix G.22, 2021 Milne Inlet Freshwater Fish Health Assessment Preliminary Results (NIRB Registry File: 220331 – 2021 NIRB Annual Report – Appendix G.22 (Freshwater Fish Habitat) – As Sent.pdf **Page:** 4	consultation with the Mittimatalik Hunters and Trappers Organization (MHTO), who participated in its establishment and was in agreement with the monitoring program design. Baffinland has committed to work collaboratively with the MHTO regarding the design, implementation, and reporting related to the Milne Inlet Freshwater Fish Health Assessment. It is Baffinland's intent to consult with MHTO concerning how data for the assessment are treated and analyzed, and to provide the MHTO with the opportunity to critically review and/or include input within Interpretive Reports while balancing Baffinland's commitments under Term and Condition No. 48(a) of Project Certificate No. 005 for the Baffinland Mary River Project. Although Baffinland had reached out to MHTO to initiate the reporting process for the Milne Inlet Freshwater Fish Health Assessment in early 2021, minimal progress had been attained prior to the date of Annual Report submission. To ensure Baffinland met commitments under the Project Certificate, a technical memorandum was therefore included in the Annual Report (Appendix G.22) to provide preliminary results for the Milne Inlet Freshwater Fish Health Assessment. It is Baffinland's intent, under consultation with MHTO, to include greater detail regarding the methods, data analysis, etc., presented in future reports/reporting to, among other reasons, ensure consistency in implementation of the monitoring program over time. Baffinland will consider the comments provided by QIA regarding context for the Milne Inlet Freshwater Fish Health Assessment during its consultation/collaboration with MHTO and subsequent reporting. Baffinland recognizes that the objectives and certain methods for the historical studies differed from the current fish health assessment. In lieu of baseline data collected with the purpose of evaluating potential effects on freshwater fish health related to the construction/operation of the Milne Port, Baffinland has attempted to optimally utilize the historical information that is available as an initial basis for this evaluation.
58	QIA 2021 AMR	Baffinland informed the Marine Environment Working Group (MEWG) on 29 June 2021 that it would not be conducting the full joint radial sampling program for sediment and benthic biota in 2021 (Slide 4). Monitoring	The QIA requests that Baffinland present its rationale for modifying this monitoring program to the MEWG, with analyses of how having only one year of directly comparable data may	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB	While Baffinland acknowledges QIA's concerns regarding ongoing continuity in the full-scale radial monitoring program, we are confident that a monitoring frequency of every three years is appropriate (although scaled-back targeted sampling still occurs each off-year), remains aligned with regulatory guidance, and remains capable of detecting changes/trends in indicators.

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	M&AE #13	frequency also adjusted to every 3 years (MEEMP AIS Report, Table 1-5, p. 27 of 10). The rationale provided for making this change was that the radial sampling design had been implemented for three consecutive years without directional trends having been observed (MEEMP AIS Report, p. 513). In fact, power analyses found the 2018 design (20 stations) unable to detect change at an acceptable level and the 2019 sampling program was not completed due to time constraints (32 stns.) (MEEMP AIS Report, Table 1-5, p. 29). This leaves 2020 as the only year of full implementation of the recommended design (60 stns) and only year to use exclusively Van Veen grab samplers, with the next sampling now in 2023. This change weakens understanding of current conditions and natural variability at a time when construction of a second ore dock and doubling of shipping has been proposed. Given that directed sampling in 2021, at site SW-2 west of the ore, confirmed that anomalies in the sediment quality and benthic infauna appear to be Project-related (MEEMP AIS Report, p. 569), it also raises questions about the power of the program to detect further changes in a timely manner. The approach to this monitoring program going forward requires fulsome discussion by the MEWG.	affect the power of this program to detect change and the timeliness of any mitigation required.	Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.10 Marine Environment (PC Condition 76) **Page:** 249-254 **Document Name:** Mary River 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program 2021 Annual Monitoring Report Draft (2021 MEEMP AIS Report Draft for MEWG.pdf) **Section:** Executive Summary; 1.5.3.1; 3.2.1; 4.2.1 **Page:** 4 of 1047; 27-29 of 1047; 513 of 1047; 569 of 1047 **Document Name:** Baffinland presentation to the Marine Environment Working Group (MEWG) entitled: 2021 Marine Monitoring Studies 29 June 2021 [Final Monitoring Program Overview-29June2021_ENG.pdf]. **Slide:** 4	Baffinland would like to address the power analyses and the statistical power to detect change of the program in place. The original power analysis appended to the 2019 Marine Environmental Effects Monitoring Program (MEEMP) Report was based on data simulation using residual bootstrapping – the target sample size of 60 stations was set based on results of these analyses. However, follow-up analyses were completed for both 2019 and 2020 using sediment and benthic data collected in the field, which confirmed there was sufficient statistical power (i.e., >80%) for both sediment variables (percent fines and iron content) and all four benthic community variables (density, richness, Simpson's Diversity Index (SDI), and Simpson's Evenness Index (SEI) even in 2019 where only 32 of the planned 60 stations were sampled. This demonstrates Baffinland's understanding of current conditions and natural variability in terms of sediment quality and composition and benthic communities is robust and that the monitoring programs are functioning as intended (i.e., able to detect change). The 2020 power analyses were not appended to the final 2020 MEEMP Report – an oversight on Golder's part for which we acknowledge. The final 2021 MEEMP Report has now been revised to include the results of the 2020 power analyses (see Appendix E of Chapter 2 – Sediment Quality).

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59	QIA 2021 AMR M&AE #14	PCC Nos. 86, 87, 88, 89, 90, and 91 (p. 372ff) all relate to mitigating risks from shipping related to ballast water and/or invasive species, and have been the subject of many the QIA and DFO comments in technical meetings, in Marine Environmental Working Group meetings, and on past Annual Reports. Despite 7 years of ore shipments information is lacking on what non-indigenous species are being released alive with ballast water discharged into Milne Port, or by biofouling on the vessel hulls. This limits understanding of risks posed by the introduction of non-indigenous species and by releases of ballast water. During the Phase 2 review Baffinland worked with DFO, Parks Canada, Transport Canada, and QIA to develop Commitments designed to address the shortcomings of existing monitoring related to these PCCs (Baffinland Commitment ID #s 109, 113, 114, 193, 194, 195, 196, 197, 203, 204, 205, 206, 207, 208, and 209). If implemented these commitments will improve understanding of the risks posed by Project shipping related to releases of ballast water into Milne Inlet and to biofouling on the vessels. These risks are primarily related to the introduction of non-indigenous species but also to water quality. The information gained will inform mitigation measures, and response planning should an invasive species be introduced.	The QIA requests the Proponent implement its Phase 2 commitments (listed above) related to ballast water and hull biofouling to address existing gaps in the understanding of ballast water risk in the current Project, and enable a more comprehensive and proactive approach to preventing introductions, mitigating risks, and planning responses.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.10 Marine Environment **Page:** 274-293	Baffinland notes that there is no evidence to suggest the existing approach towards ballast water and/or invasive species management is not effective. While a number of species collected through the annual monitoring program have been elevated for further investigation, in each case they have been determined to be of Arctic origin, with the exception of one taxa that has been sent for independent identification out of an abundance of caution (for further information, refer to Table A.4, DFO Comment No.4). The commitments identified by Qikiqtani Inuit Association (QIA) were issued through the Phase 2 reconsideration process as they are intended to address the specific scope and associated risks of that proposal, and it is inappropriate to assume it is reasonable to apply them to the current Project. Baffinland is open to discussing the merits of the commitments on an individual basis through the Marine Environment Working Group (MEWG), however, Baffinland requires further supporting rationale than the general concerns identified in this comment.
60	QIA 2021 AMR M&AE #15	The objective of PCC 87 is to prevent invasive species introductions resulting from shipping. To meet this condition the Proponent has developed a monitoring program to evaluate changes to marine habitat and organisms and the presence of non-native species introduced with ballast water or by biofouling on hulls. In 2020, the QIA recommended that additional zooplankton sampling be conducted to adequately characterize the community structure (see Golder 2021b, s. 8.5.3, p. 1463 of 1517). Instead, Baffinland cancelled the sampling program "due to high variability in the data and limited sampling not capturing the seasonal presence of many taxa"(MEEMP AIS Report, p. 31 of 1047). Zooplankton sampling was "replaced by monitoring for recruitment" onto settlement plates and baskets (MEEMP AIS Report, p. 926). These plates and baskets are useful for detecting fouling species that are introduced as planktonic immature stages and settle out on substrates as they mature. They are not useful for detecting planktonic species that	The QIA requests that Baffinland present its rationale for modifying this monitoring program to the MEWG and explain how it plans to monitor for planktonic NIS and AIS in the absence of this program.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.10 Marine Environment (PC Conditions 76 and 87) **Page:** 249-254, 277-278	Baffinland monitors for planktonic Non-Indigenous Species (NIS) and Aquatic Invasive Species (AIS) in the marine environment through its recruitment/settlement studies, which are integrated into the overall AIS Monitoring Program at Milne Port. Annual monitoring of settlement plates and settlement baskets (i.e., settlement substrates) in the Regional Study Area (RSA) provides information on the recruitment/establishment of potential planktonic NIS/AIS in the Project area. Settlement substrates have been placed in 23 locations in Milne Port and Ragged Island, with an additional nine (9) installed near the Freight Dock. Sampling locations were selected to provide an even distribution of sampling throughout the Milne Port area. Deployments have been set up to monitor for short-term (annual) and medium-term (3 years) recruitment. The expansion of the settlement monitoring program in 2021 was the rationale for reducing the frequency of other plankton AIS/NIS sampling methods in 2021, namely plankton tows. It should further be noted that plankton tows for AIS/NIS sampling (vertical and horizontal oblique tows) are planned for the 2022 season at a similar scale as that undertaken in 2019 and 2020 (in addition to the settlement monitoring studies identified above).

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		remain planktonic. Consequently, zooplankton sampling is important for detecting NIS that are potentially invasive, particularly when biological sampling of the ships' ballast water is not conducted. The approach to this monitoring program going forward requires fulsome discussion by the MEWG. Reference: Golder (Golder Associates Ltd.) 2021b. Mary River Project, 2020 Marine Environmental Effects Monitoring Program (MEEMP), and Aquatic Invasive Species (AIS) Monitoring Program. Draft report. 23 April 2021. 1517 pp. [Baffinland Kiteworks File: 1663724-281-R-RevB-34000 2020MEEMP 23APR_21_secured.pdf].		**Document Name:** Mary River 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program 2021 Annual Monitoring Report Draft (2021 MEEMP AIS Report Draft for MEWG.pdf) **Section:** 1.5.4.1, Table 1-7; 8.2.1 **Page:** 30-31 of 1047; 926 of 1047	
61	QIA 2021 AMR M&AE #16	The objective of PCC 76 is to mitigate potential impacts to the marine environment (see also PCC 99 and 113). To meet this condition the Proponent has developed a Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Plan to evaluate changes to marine habitat and organisms. The Proponent has provided a list of changes to these programs in its 2021 MEEMP AIS Annual Monitoring Report draft. Notable among these are: For the MEEMP (p. 29) • Monitoring frequency for the joint radial sediment and benthic infaunal sampling program was reduced from annual to every three years; • 10 additional quadrats were deployed for monitoring marine sediment quality and benthic macroflora and epifauna, ROV methods were replaced by divers to improve taxonomic resolution, and samples of macroflora and epifauna were collected opportunistically for taxonomic/genetic identification; • Longlines were added to the fishing methods used, 5 fishing areas were delineated based on habitat features and their location relative to Milne Port to help standardize sampling efforts and address variability in the catch data across Milne Port. For the AIS (p. 31) • Zooplankton tows were removed from the sampling program, and	The QIA requests that Baffinland discuss important changes to monitoring programs with the MEWG sufficiently in advance of the field season to allow them to be reinstated or altered based on those discussions.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.10 Marine Environment (PC Condition 76 and 87) **Page:** 249-254; 277-278 **Document Name:** Mary River 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program 2021 Annual	In its ongoing review of the Marine Environment Working Group (MEWG) Terms of Reference, Baffinland will consider the logistics of an adjusted annual meeting schedule and information exchange requirements to increase opportunities for Baffinland to discuss changes to monitoring programs with the MEWG in advance of the field season.

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		• Ship hulls were not monitored for biofouling. Unlike changes in 2019 and 2020, which were generally positive and reflect monitoring advice, several changes in 2021 were not—notably the change in monitoring frequency of the radial sampling program and removal of zooplankton tows from the sampling program. The power of the quadrat surveys for detecting change was low, despite having increased the number of quadrats. Changes to these three programs are discussed further in separate comments. The QIA supports the following recommendations in the 2021 MEEMP AIS draft report: • Marine water quality: "Marine water quality monitoring for Site drainage and treated effluent discharges is recommended to continue, to keep monitoring for potential changes in downstream water chemistry from Site operations and provide continuity in the established time series for the MEEMP." (p. 3 and 77 of 1047) • Marine sediment quality: "It is recommended to continue targeted sampling in 2022 to increase understanding of sediment grain size variability and to continue monitoring for potential effects of Project activities on grain size distribution." (p. 4 and 519 of 1047) • Benthic infauna: "…it is recommended to continue targeted sampling in 2022 to increase understanding of natural variability as well as to monitor for additional changes in benthic community indicators." (p. 5 and 574 of 1047) • Benthic epifauna: "It is recommended that a diver-based methodology permanently replace the combined use of ROVs and underwater video."; "Future dive surveys should analyze the quadrats as a whole (not by subquadrat) to reduce dive time."; "…a new quadrat should be deployed to replace the missing quadrat (Q2) and the location of Q12 should be moved to a deeper site…"; and, "Future field surveys should incorporate enough field days to buffer for inclement weather." (p. 609 of 1047). • Fish health and tissue chemistry: "…continued monitoring is recommended to maintain continuity in established time series data for Arctic Char and to provide a benchmark for Fourhorn Sculpin and H. arctica health and tissue chemistry on which to base future comparisons." (p. 8 of 1047).		Monitoring Report Draft (2021 MEEMP AIS Report Draft for MEWG.pdf) **Section:** Executive Summary **Page:** 4 – 9 of 1047. **Section:** 1.5.3.1, Table 1-5; 1.5.4.1; 2.6; 3.6; 4.6; 5.6; 8.6 **Page:** 27-29 of 1047; 30-31 of 1047; 77 of 1047; 519 of 1047; 574 of 1047; 609 of 1047; 967 of 1047	

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		• NIS/AIS: "It is recommended that sampling across multiple trophic levels continues in 2022, that taxonomic inventory for Milne Inlet continue to be expanded upon, and that all flagged specimens continue to be screened for known geographic ranges and AIS/NIS status. It is further recommended that efforts are continued to collect and review genetic evidence for Marenzelleria sp. and Monocorophium sp. (both flagged as High Risk but not Project-related), including targeted sampling to obtain specimens for DNA barcoding." (p. 967 of 1047). The QIA has provided additional detailed comments on the MEEMP AIS draft to the MEWG.			
62	QIA 2021 AMR M&AE #17	In 2021, ten new quadrats were added to the program for monitoring marine sediment quality and benthic macroflora and epifauna, and ROV methods were replaced by divers to improve taxonomic resolution. Despite these improvements the power analysis and the taxa accumulation curve indicate that the current sampling design is insufficient to detect change and fully characterize the epibenthic community. Also, that the sampling effort required to detect change with statistical power is not feasible within the open water season. The power analyses were considering statistical power values of 0.8 and 0.9 (Appendix 5E, p. 681). Baffinland has proposed the MEWG discuss: 1) removing this component and focusing on other components that have the ability to detect change with statistical power (e.g., benthic infauna, sediment quality) or 2) to continue current sampling and accept its statistical limitations. A third approach, which was not discussed, is to increase the sample size incrementally to increase the number of indices capable of detecting changes of ±40%. For example, increasing the number of quadrats in both the reference and exposure areas to 12, would increase the number of summary indices with the power to detect changes of ±40% from ca. 2 at present to ca. 6. (pp. 682 and 683).	The QIA requests that Baffinland consider options for optimizing the quadrat monitoring program in 2022, rather than cancelling it or continuing with the current statistical limitations, and discuss these options with the MEWG.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.10 (PC Condition 76 and 87) **Page:** 249-254; 277-278 **Document Name:** Mary River 2021 Marine Environmental Effects Monitoring Program (MEEMP) and Aquatic Invasive Species (AIS) Monitoring Program 2021 Annual Monitoring Report Draft (2021 MEEMP AIS Report Draft for MEWG.pdf) **Section:** Executive Summar; 5.6; Appendix 5E	Based on discussions with the Marine Environment Working Group (MEWG) in June 2022, Baffinland commits to increasing the number of quadrats in each of the exposure and reference areas to 13, thereby increasing the number of summary indices with statistical power to detect ±40% change from two to six. This will be implemented during the 2022 season.

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63	QIA 2021 AMR M&AE #18	Baffinland implemented a Ringed Seal Aerial Survey Monitoring Program in June 2021 in response to reports of impacts to ringed seals. Ringed seal density in June 2021 was similar to densities estimated from other recent surveys, leading the Proponent to conclude that "Project activities [sic] are being managed in a way that has not adversely affected ringed seals" (e.g., 2021 AMR, p. 393) and that no evidence of population-level effects have been observed. No information on the types of impacts hunters have reported, or how reported effects can be effectively monitored via an aerial survey, has been provided.	For its assessment of performance on PC Conditions, Baffinland uses a list of meeting records (formal and informal) that were held with Inuit and integrates relative feedback (2021 AMR, p. 40). What information from meeting records is available that is relevant to ringed seal monitoring and mitigation? The QIA requests that the Proponent provide a summary of the specific concerns and observations that have been reported by north Baffin harvesters with respect to ringed seal impacts, including how a June aerial survey provides the necessary spatiotemporal coverage to effectively monitor these concerns and impacts? The QIA also requests that Baffinland provide details on how IQ has been incorporated into ringed seal monitoring design, e.g., study questions, monitoring techniques, locations, schedule, and how IQ will be incorporated into data interpretation and analysis.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** Popular Summary; 4.1 Methodology and Criteria; 4.6.11 Marine Wildlife (PC Conditions 99 through 128) **Page:** 9; 40; 305, 324, 325, 353, 391-393	Through early consultation undertaken for the Project (Prno, 2017; ERM, 2019), Baffinland learned from North Baffin harvesters and community members that the key Project issues of concern for ringed seal were the impacts of icebreaking on seal dens/pupping and associated impacts on seal harvests on the sea ice. In this case, mitigation measures were introduced by Baffinland to avoid critical life cycle periods for ringed seal altogether. For example, Baffinland introduced Project design changes that eliminated icebreaking entirely during the winter and spring periods, when critical activities such as pupping, nursing and mating take place. For managing potential project effects outside of these critical life cycle periods for ringed seal, other notable mitigation measures were introduced by Baffinland which are known to be highly effective for managing adverse effects of shipping on seals. This included vessel speed restriction of 9 knots in the Regional Study Area (RSA), delaying annual shipping operations in the RSA until after 15 July, and limiting the number of Project vessel transits in the RSA during the spring shoulder season when sea ice concentrations >3/10 are present. In more recent years, several North Baffin harvesters voiced concerns that seal numbers in the Ragged Island anchorage location had decreased, and this was thought to be linked to vessel anchoring and drifting activities in this area. In response to this feedback, Baffinland introduced mitigation that effectively limits drifting of vessels in this area and the number of ships holding in this area prior to calling to Milne Port (no more than three (3) vessels in the area at any time). Community members have also indicated that seal harvesting was being impacted near Pond Inlet in 2020 due to noise disturbances caused by the Small Craft Harbour (SCH) construction in Pond Inlet (QIA, 2019). Baffinland is not affiliated with the SCH Project. However, based on the potential for cumulative effects on marine mammals from the SCH Project combined with Baffinland's shipping operations, Baffinland took the onus of identifying and characterizing this noise source as part of its annual acoustic monitoring program in the RSA and through its adaptive management program, introduced new mitigation in 2021 in the form of suspending icebreaking operations during the 2021 spring shoulder season to eliminate the possibility for cumulative noise effects. Mitigation measures to appropriately manage adverse noise effects generated specifically by the SCH Project in Pond Inlet would fall under the responsibility of the Proponent and the regulators responsible for managing and permitting these works (i.e., DFO, Government of Nunavut). In acknowledgement of the more recent feedback from hunters (indicating they are observing local changes in seal abundance and distribution in the RSA, with carry-over effects on seal harvesting), Baffinland committed to undertaking a dedicated ringed seal aerial survey program, which was implemented in June 2021, to monitor for potential Project-induced changes in ringed seal distribution and relative abundance (i.e., density and seal hot spots) in the RSA. The empirical data

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					derived from the ringed seal aerial survey program is subsequently compared to information obtained through available Inuit knowledge and Inuit Qaujimajatuqangit (IQ). Given the life cycle of Arctic seal species, the appropriate time of year to undertake abundance estimates for ringed seal or any polar pinniped species is during late spring (i.e., May/June), when animals are more concentrated on the ice following puppling, and when they are more easily detectable due to their presence on the ice. This is true, regardless of whether seals are impacted by other external factors at other times of the year (i.e., outside of the June monitoring period). Aerial surveys during late spring (i.e., May, June) allow Baffinland to derive density estimates (i.e., relative abundance) of ringed seals in the RSA and identify if there is a change in ringed seal density in different parts of the RSA beyond natural annual variability, as reported by some North Baffin harvesters in recent years. Ringed seal density estimates in the RSA collected in 2016 and 2017 (Young et al., 2019) provide two years of ringed seal abundance and distribution data collected prior to the start of Baffinland icebreaking operations in 2018. The additional year of ringed seal aerial survey data collected by Baffinland in 2021 has allowed for a comparison of seal numbers in the RSA between pre- and post- icebreaking periods. Baffinland will continue to collect ringed seal aerial survey data in the RSA throughout the life of the Project at an appropriate sampling frequency (as determined through engagement with the MEWG) to continue to monitor and evaluate this potential impact pathway for ringed seal. Further to the above, in MHTO-18 Attachment 3 and 4 of Baffinland (2021), Baffinland provided a summary of the IQ used by Baffinland to specifically understand Inuit perspectives regarding shipping and icebreaking impacts on ringed seal abundance, distribution and habitat use in the RSA, with this information being actively integrated into Baffinland's marine mammal monitoring programs. We note to the NIRB that there is considerable variability within available IQ regarding effects of shipping on ringed seal, with perspectives ranging from little to no effect, to fears of fleeing and abandonment and associated adverse impacts on harvesting of these species. As has been the case since monitoring initiatives first began in the RSA, opportunities to incorporate IQ into the ringed seal monitoring program will continue to occur through regular engagement with the Mittimatalik Hunters and Trappers Organization (MHTO), as well as through regular engagement with the Marine Environment Working Group (MEWG; via multiple MEWG meetings per year) which includes participation from the MHTO and QIA. References: Baffinland Iron Mines Corp. (Baffinland), 2021. Post-Hearing Question Responses Phase 2 Proposal – Mary River Project. NIRB File No. 08MN053. March 2021. 339p. ERM Consultants Canada Ltd. (ERM), 2019. Community Risk Assessment Workshops: Final Report. Mary River Phase 2 Proposal. 30 September 2019.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
					Jason Prno Consulting Services Ltd (Prno), 2017. Technical Support Document (TSD) No. 003. Results of Community Workshops Conducted for Baffinland Iron Mines Corporation's Phase 2 Proposal. Report prepared for Baffinland Iron Mines Corporation. January 2017. Qikiqtani Inuit Association (QIA), 2019. Tusaqtavut Study Specific to Mary River Project Phase 2 Proposal. Young, B.G., D.J. Yurkowski, J.B. Dunn, and S.H. Ferguson, 2019. Comparing infrared imagery to traditional methods for estimating ringed seal density. Wildlife Society Bulletin; DOI: 10.1002/wsb.958.
64	QIA 2021 AMR M&AE #19	The Proponent uses a 120 dB disturbance threshold for underwater noise impacts. This threshold, while an industry and regulatory standard, is not based on narwhal- specific data, for which there are few scientific data. There is, however, a rich body of IQ on the acoustic sensitivity of narwhal. How has IQ on narwhal acoustic sensitivity been incorporated?	The QIA requests that the Proponent provide additional information on the IQ they have learned on narwhal acoustic sensitivity and how that knowledge has been integrated into marine monitoring and mitigation.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.11 Marine Wildlife (PC Conditions 99 through 128) **Page:** 305-417	We have learned through IQ that narwhal are sensitive to noise and that they will react to hunting vessels, and other noise, from long distances away (Remnant and Thomas, 1992; Stewart et al., 1995; Fugal and Laing, 2011; ERM, 2019; QIA, 2018; 2019, 2021a, 2021b). The marine monitoring program includes underwater acoustic monitoring as a way to help quantify these Inuit observations and knowledge using metrics that are measurable. For example, from the acoustic data we can determine the distances away from ships where sound reaches levels that narwhal are expected to be able to hear. We characterize how loud the ships are, and we calculate the total amount of time that vessel noise is detectable relative to times that are absent of vessel noise. We also calculate listening range reduction, to try to understand the degree to which vessel noise may interfere with narwhal's ability to communicate and feed. We also understand from Inuit Qaujimajatuqangit (IQ) that there are important areas for narwhal within Milne Inlet, including areas near Koluktoo Bay and near Ragged Island (Baffinland, 2017; Prno, 2017; ERM, 2019; QIA, 2018, 2019). This is why Baffinland's marine mammal monitoring efforts have been largely focused in those areas. Acoustic monitoring has also occurred near Bylot Island and Pond Inlet to consider potential noise impacts in other regions of the Regional Study Area (RSA). References: Baffinland Iron Mines Corp. (Baffinland), 2018. Technical Support Document (TSD) No. 005. Mary River Inuit knowledge Study Mapbook. August 2018. FEIS Addendum for the Phase 2 Proposal. ERM Consultants Canada Ltd. (ERM), 2019. Community Risk Assessment Workshops: Final Report. Mary River Phase 2 Proposal. 30 September 2019. Fugal, C. and R. Laing, 2011. A Synthesis and Critical Review of the Traditional Ecological Knowledge Literature on Narwhal (Monodon monoceros) in the Eastern Canadian Arctic. Canadian Science Advisory Secretariat (CSAS) Research Document 2011/131. Fisheries and Oceans Canada (DFO). Jason Prno Consulting Services Ltd (Prno), 2017. Technical Support Document (TSD) No. 003. Results of Community Workshops Conducted for Baffinland Iron Mines Corporation's Phase 2 Proposal.

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					Report prepared for Baffinland Iron Mines Corporation. January 2017. FEIS Addendum for the Phase 2 Proposal. Remnant, R. and M. Thomas, 1992. Inuit Traditional Knowledge of the Distribution and Biology of High Arctic Narwhal and Beluga. North/South Consultants, Winnipeg, Manitoba. 104 p. Stewart, D.B., A. Akeeagok, R. Amarualik, S. Panipakutsuk and A. Taqtu, 1995. Local knowledge of beluga and narwhal from four communities in Arctic Canada. Can. Tech. Rep. Fish. Aquat. Sci. 2065: viii + 48 p. Qikitani Inuit Association (QIA), 2018. Qikiqtaaluk Inuit Qaujimajatuqangit and Inuit Qaujimajangit Iliqqusingitigut for the Baffin Bay and Davis Strait Marine Environmen. November 2018. Qikiqtani Inuit Association (QIA), 2019. Tusaqtavut Study Specific to Mary River Project Phase 2 Proposal. 14 June 2019. Qikiqtani Inuit Association (QIA), 2021a. Tusaqtavut Study Specific to Mary River Project Phase 2 for the Communities of Arctic Bay and Clyde River. 28 May 2021. Qikiqtani Inuit Association (QIA), 2021b. Tusaqtavut/What We Heard - Mary River Mine Project. QIA-Tusaqtavut-report_2021_web.pdf. 60 p.
65	QIA 2021 AMR M&AE #20	The measured decrease (24% decrease in 2021 in the proportion of immatures relative to all narwhal observed) in the ratio of calf and juvenile narwhal (i.e., the Proponent's Early Warning Indicator, EWI) at Bruce Head was "possibly attributed" to low sample size in the monitoring data (2021 AMR, Popular Summary, p.6). The Proponent suggested this was more likely than it being "reflective of a true change in the population structure", and pointed to the aerial survey results as additional evidence (2021 AMR, Popular Summary, p.6). Aerial surveys have documented a 79% decline in narwhal abundance in Eclipse Sound between 2016 and 2021 (and an even more significant decline extending back to the 2004 DFO survey). The Bruce Head program has not documented the most extreme behavioural reaction of narwhal - departure from the RSA. The EWI metric failed to provide any early warning of significant population declines, suggesting it is either completely ineffective or ineffective to date due to insufficient data analysis. The Proponent planned to do additional analysis of aerial survey photographs. One early warning that was repeatedly provided to the Proponent and regulators was the observations of Inuit harvesters in Pond Inlet and the surrounding north Baffin communities.	The QIA requests that the Proponent provide the results of its additional analysis of aerial photographs to document its Early Warning Indicator. The QIA also requests that the Proponent provide a summary of its engagement with harvesters on their observations of changes in narwhal behaviour, distribution, and abundance, and a discussion on how these observations have been integrated into adaptive management and mitigation as well as when this integration occurred.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** Popular Summary; 4.6.11 Marine Wildlife (PC Conditions 99 through 128) **Page:** 6; 305-417	The additional analysis of the proportion of immature narwhal through aerial photographic survey data to document the Early Warning Indicator (EWI) will be shared with the Marine Environment Working Group (MEWG) once these analyses and reporting is completed, which is scheduled for Q3 2022. A summary of Baffinland's engagement with the Mittimatalik Hunters and Trappers Organization (MHTO) between March 2020 and March 2021 is presented in MHTO-18 Attachment 2 in Baffinland's Post-Hearing Question Responses Phase 2 Proposal (2021). Reference: Baffinland Iron Mines Corp. (Baffinland), 2021. Post-Hearing Question Responses Phase 2 Proposal – Mary River Project. NIRB File No. 08MN053. March 2021. 339p.

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66	QIA 2021 AMR M&AE #21	The Ship-based Observer (SBO) Program could not be implemented again in 2021 due to boarding restrictions related to the COVID-19 pandemic. The Proponent again partnered with the Marine Mammal Observation Network (MMON), and a total of 11 vessels participated in the 2021 MMON program. Few marine mammal observations were recorded, and the program does not provide any observations of marine birds. Several PCC (2021 AMR, e.g., 107, 108) require monitoring of seabirds and their responses to vessels. No marine bird monitoring was done in 2021, for the reasons noted above. Alternative opportunities for marine bird monitoring should be considered, including IQ and Community-based Monitoring (CBM) programs.	The QIA requests that the Proponent summarize the IQ it has compiled on marine birds and report on opportunities to include local observations in a marine bird monitoring program.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.6.11 Marine Wildlife (PC Conditions 99 through 128) **Page:** 305-417	Refer to the response to QIA TE #30 and #31.
67	QIA 2021 AMR M&AE #22	The QIA does not agree with the Proponent's conclusion that the significant declines in narwhal abundance in Eclipse Sound are not Project-related. Little evidence has been presented to support the Proponent's conclusion. The elimination of early season icebreaking did not result in any rebound in narwhal abundance in the summer stock area, which provided further support to Inuit observations that open-water shipping is impacting narwhal abundance and distribution in the RSA. The QIA is not aware of any data, from IQ or western science, that supports the conclusion that such an extensive movement of narwhal from Eclipse Sound to Admiralty Inlet is a natural phenomenon or that environmental factors such as changing sea ice conditions or killer whale distribution have played a significant role. Under PCC 109 (2021 AMR, p. 353), the Proponent notes that FEIS predictions were that no "large-scale avoidance behaviour, displacement effects, or abandonment of the summering grounds" would occur. How does the Proponent define "large-scale avoidance behaviour", "displacement effects", and "abandonment" in the context of Inuit observations and the 2020 and 2021 aerial survey results? What information has the Proponent collected on how Inuit understand and define these terms with respect to local marine mammal abundance and distribution? The Proponent's monitoring data is heavily relied upon in the Annual Report, for example Bruce Head observations and limited satellite-tagging data, but there is very little consideration of IQ in these conclusions. IQ has provided extensive information on the impacts of ore carrier traffic on narwhal, and the 2021 scenario shows that Inuit observations of impacts	The QIA requests that the Proponent provide a detailed summary of the IQ it has collected and compiled on narwhal sensitivity to acoustic disturbance and open- water shipping impacts on narwhal, including discussion on how IQ has been integrated into adaptive management. The QIA requests that the Proponent provide additional details on any IQ it has collected and compiled that supports the conclusion that the extensive movement of narwhal from Eclipse Sound is a natural phenomenon that has occurred in the past. The QIA requests that the Proponent provide quantitative definitions of "large-scale avoidance behaviour", "displacement effects", and "abandonment" (2021 AMR, p.353), a summary of the consultation and engagement that has occurred regarding the terminology, and a	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** Popular Summary; 4.6.11 Marine Wildlife (PC Conditions 99 through 128) **Page:** 6-7; 305-417	See response to Qikiqtani Inuit Association (QIA) 2021 AMR M&AE #19 for additional information pertaining to Inuit Qaujimajatuqangit (IQ) related to narwhal acoustic sensitivity and how this information has been integrated into Baffinland's programs. A summary of Baffinland's engagement with the Mittimatalik Hunters and Trappers Organization (MHTO) between March 2020 and March 2021 is presented in MHTO-18 Attachment 2 of Baffinland's Post-Hearing Question Responses Phase 2 Proposal (2021a). With respect to available IQ that supports the assertion that movement of narwhal from Eclipse Sound to Admiralty Inlet (and vice versa) is a natural phenomenon that has occurred in the past, we would refer QIA to the following information: In the November 2016 Nunavut Wildlife Management Board (NWMB) Public Hearing for considering modifications to the total allowable harvests for the Eclipse Sound and Admiralty Inlet Narwhal Management Units, extensive IQ was shared from various community members and Elders that spoke to natural fluctuations of narwhal between Eclipse Sound and Admiralty Inlet (due to food resources and other factors) and the recognition of Admiralty Inlet and Eclipse Sound narwhal as a single stock (NWMB, 2016). • "I'm sure that you're going to keep saying that Pond Inlet and Arctic Bay narwhal are different stock, different population, but as our Elders have observed and we keep saying at HTO, that is not the case; they're one population. But you don't want to admit that, and we cannot change your mind, because it's been conceived that way. That's that one." Eric Ootoova, Pond Inlet community member, 28 November 2016 (NWMB, 2016). • "Long before Qallunaat arrived, Inuit survived solely on wildlife by daily hunting and harvesting, and as observers of these wildlife and these whales, we know that there's peaks and lows of the number of whales, both migratory and summer stocks. And if in a particular year they happen to

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		from open-water shipping have been accurate. There is also a significant body of IQ that provides evidence for narwhal sensitivity to acoustic disturbance, and this IQ supports the need for caution in using the 120 dB threshold for acoustic disturbance. The Proponent has a responsibility to work with the five most impacted communities and integrate IQ into its monitoring, mitigation, and adaptive management plans. No thresholds (or linked adaptive management responses) for noise impacts (e.g., PCC 110, 111) are in place, and the Early Warning Indicator (EWI) currently in place is not a clear threshold for "determining if negative impacts as a result of vessel noise are occurring" (PCC 111, p.365). Baffinland's choice of calf ratio as an EWI of project effects was highlighted as a concerning factor in the NIRB Phase 2 Recommendations Report: "the decline in the narwhal population raised further concerns regarding the early warning indicator (calf ratio) chosen by Baffinland to monitor for project effects, as that indicator did not predict the decreasing populations. As the early warning indicator did not detect the change in the population identified in the survey, it rasies questions regarding whether this indicator is effective to provide the expected early warning of project effects" (p. 180). Local knowledge and IQ can and should play a significant role in this process, which has been required since the issuance of the initial Project Certificate.	summary of any and all information the Proponent has collected on how Inuit understand and define these terms with respect to local marine mammal abundance and distribution. The QIA requests that the Proponent provide more details on how IQ has been integrated into its assessment of all 2021 monitoring results, and how it can be used to augment gaps in Project monitoring. The QIA requests that the Proponent provide a summary of the IQ it has collected and compiled that relates to the establishment of thresholds for noise impacts on marine mammals and adaptive management responses to threshold exceedances.		migrate somewhere else, the department or scientists would say that they decreased, but Inuit would know that they're migrating through somewhere else or for food. And Inuit know that. We Inuit have that knowledge." Gamailie Kilukshak, Pond Inlet community member, 28 November 2016 (NWMB 2016). • "Before I ask, I just want to make a comment. Inuit say, especially our Elders say that a species of wildlife, they go everywhere. They don't have a specific area where they call home. Yeah, they can go elsewhere in another year and come back another year. They'll stay there for -- they will stay around that area, but they will leave it right away…" Jaykolassie Killiktee, Pond Inlet community member, 28 November 2016 (NWMB, 2016). • "According to the Inuit knowledge, I don't think that is included in this estimate. And they say that there's only one stock, one stock of narwhal from Eclipse Sound and Admiralty Inlet narwhal, one stock. But DFO is considering they're two different stocks, and what was mentioned that the -- are you going to be looking at this when you have that workshop? I know that the communities don't agree with that because you have separated the two stocks. Are you going to be looking at that during the workshop, whether it's one stock or two?" Paul Irngaut, Director of Wildlife, Nunavut Tunngavik Incorporated (NTI), 28 November 2016 (NWMB, 2016). • "And our Elders keep saying that whales are continuously moving, and I believe what they're saying that, when there was a whale harvested with a harpoon – in Arctic Bay there was a harpooned narwhal, and that narwhal had moved down to Pond Inlet and was harvested from Pond. So there's also narwhals that have nice tusks, and some don't. And our Elders are very aware of the significant numbers of whales that come here, and I'm sure that you heard from them earlier. They often move to different places, and they don't go to the same channels or the same sounds or inlets. And it seemed to indicate that your 2013 survey was only one year, since the number of whales that come here are not ours, the same, and they arrive at different times of the year to year. So that's why we could not agree with the DFO's findings. And our narwhal go back and forth between Arctic Bay and Pond Inlet. And when we have a lot of narwhal in Pond Inlet, there's nothing in Arctic Bay; and when they're through Arctic Bay, there's nothing here in Pond Inlet. So I urge you to listen to that comment from our Elders, and that is coming from Inuit knowledge…" Eric Ootoova, Pond Inlet community member, 28 November 2016 (NWMB, 2016). • "Yes, it was mentioned the other day, but I want to reiterate that the narwhal, they don't go back and forth. And I know it will be different in years, because sometimes there are more in Eclipse Sound, and some years there are more in Admiralty Inlet. I know that there's going to be a narwhal in Eclipse Sound all the time, and I know that because there's just one stock that go back and forth between Admiralty Inlet and Eclipse Sound, and when they were -- we're not trying to distinguish the two different ones, and I know they are the same population. When they come through Eclipse Sound, some stay around, and some go over to Admiralty Inlet, and then they come back to Eclipse Sound after Admiralty Inlet. But nowadays there are more

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					migratory narwhal perhaps because the sea ice is decreasing. So they are migrating west, more west. And if there were no more narwhal in Pond Inlet -- and I know that our narwhal would also decrease, but now we're not concerned about that right now because they keep going back and forth, depends what kind of a year it is. There was lots of narwhal in Admiralty Inlet, so they're increasing, and maybe they had moved over to Admiralty Inlet from Eclipse Sound. The traditional Inuit knowledge and the scientific knowledge are never the same, will never be the same, so according to the Inuit knowledge and the scientific knowledge, they will never be balanced. I hope that's what -- if the narwhal were decreasing both in Eclipse Sound and Admiralty Inlet, stocks would be decreasing at the same time." Olayuk Naqitarvik, Arctic Bay community member, 29 November 2016 (NWMB, 2016). • "What Naqitarvik was just mentioning, it is nice to hear. To the people of Pond Inlet and to DFO, it is clear. You make it really clear to everybody, because they know that they have the same stock of narwhal between the two communities, but one of them is increasing and the other is been decreasing. Naqitarvik made it really clear that there's only one stock. Maybe they were doing a survey when the narwhal were over in Admiralty Inlet, and he mentioned that there will always be narwhal in Eclipse Sound as long as there are narwhal in Admiralty Inlet. I like to hear that, so I'm just making a comment..." Simeonie Keenainak, 29 November 2016 (NWMB, 2016). • "Yes, we believe that it is one stock going to Admiralty Inlet and Eclipse Sound." Jobie Attitaq, Arctic Bay community member, 29 November, 2016 (NWMB, 2016). • "Our recommendation that is before you, it's for recommendation for Pond Inlet only. That's why we've been asking Inuit what they think. We keep asking whether they think it's one stock or two separate stocks to have it on record, and when DFO has been saying that it's two different stocks for Pond Inlet and Arctic Bay, that's why we're trying to ask questions and to make sure that it was on record on the response from the Inuit. And we recommended that we defer the decision because there's two opinions on the table from DFO saying that it's two different stocks, and the other opposing opinion is that, from Inuit perspective, that it's one stock…" Paul Irngaut, Director of Wildlife, NTI, 29 November, 2016 (NWMB, 2016). • "When Arctic Bay and Pond Inlet have stated that it's one stock, they usually migrate through Pond Inlet waters, and then they dive and go to Arctic Bay, Admiralty Inlet, and there's no more whales in Pond because they're in Arctic Bay area; and then when they migrate back -- when there's none left in Arctic Bay, there's lots of whales in Pond Inlet. That's how they're always continuously moving forward, moving forward. Sometimes they will go to other inlets and sounds, and some of them keep going to the wintering ground, some of them go to Qaanaaq, to Greenland. And when they go to their wintering grounds, it's obvious they congregate in one place…" Sakiasie Qaunaq, Artic Bay community member, 29 November, 2016 (NWMB, 2016). In more recent (March 2022) submissions to the Nunavut Wildlife Management Board (NWMB) on the matter of narwhal hunting tag management by HTOs (QWB, 2022), the Qikiqtaaluk Wildlife

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					Board (QWB) (which is comprised of the MHTO Chair as well as all other HTO Chairs in the region) presented IQ that refuted the existence of a distinct "Eclipse Sound summering stock" in the North Baffin region: • In January 2020, Eric Ootoovak, then Chairperson of the Mittimatalik HTO, told DFO scientists and managers repeatedly and emphatically that "there are no summer stocks" during a survey planning workshop in Winnipeg. Mr. Ootoovak was referring to three hypothetical summer stocks delineated by DFO in 2013 (Doniol-Valcroze et al., 2015). According to IQ, the three summer stocks of narwhal do not actually exist in reality within the waters of NEBI (QWB, 2022). • In January 2020, DFO could not provide the needed evidence showing multi-year fidelity of narwhal to any one of the three hypothetical parts of NEBI waters. DFO offered no clear methods or plans to obtain the required information (C. Watt, DFO, Winnipeg, pers. com. in QWB, 2022). DFO's telemetry data (DFO, 2020) shows that narwhal may move from one area to other areas in the same open-water season in which they were tagged within and beyond NEBI waters (QWB, 2022). • At that 2020 workshop, delegates from all six (6) HTOs (Arctic Bay, Pond Inlet, Clyde River, Qikiqtarjuaq, Pangnirtung and Iqaluit) agreed that DFO's 2013 hypothetical summer stock management system was not supported by IQ, and unduly restricted harvesting by Inuit in contravention of Sections 5.3.3 and 5.6.50 of the Nunavut Agreement (QWB, 2022). The March 2022 Qikiqtani Wildlife Board (QWB) submissions also provided the following conclusions about narwhal occurring in the waters of NEBI based on generations-old, up-to date, peer-reviewed IQ: • Narwhal move freely throughout the NEBI area. Their distributions and abundances change across NEBI waters between years, showing that individual narwhal do not always return to the same specific areas within NEBI waters every year (QWB, 2022). • Narwhal also move freely and widely from day to day, from week to week and from month to month in Northern and Eastern Baffin Island (NEBI) waters, and their local distributions and abundances change accordingly. Groups of narwhal are seen moving out of and into major inlets and sounds, and among various smaller fiords and bays, throughout the open-water period (QWB, 2022). • In spring, narwhal arrive at various areas in NEBI waters at varying times each year, depending on the development of open water within variable patterns at the floe edges, leads in the ice in various areas, and ice break-up into summer. These patterns and their timing vary from year to year, and can affect the abundance and distributions of narwhal across NEBI waters into August and September (QWB, 2022). • Throughout the open-water period, narwhal move as needed for their biological needs like birthing and mating, as well as in response to environmental factors like changing food

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					concentrations, killer whales, and ships (QWB, 2022). Narwhal also probably move in response to factors largely unknown to humans (QWB, 2022). • Underwater sounds are probably important factors that influence the real-world, real-time distributions and abundances of the narwhal because narwhal can hear other narwhal, other whales, predators, ships and other sources of sound across very long distances (QWB, 2022). • Inuit manage their harvesting in real time as narwhal move throughout the open-water season because the movements, distributions and abundances of NEBI narwhal cannot be predicted accurately months in advance (QWB, 2022). For the convenience of the MEWG and the NIRB, Baffinland attached the March 2022 QWB submissions to the NWMB in a letter sent to the NIRB in May 2022 (Appendix B in Baffinland, 2022a). This information is also available on the NWMB registry at the following link: https://www.nwmb.com/en/public-hearings-a-meetings/meetings/regularmeetings/2022/rm-001-2022-march-9-2022/english-19. In summary, the available IQ also support that narwhal move freely between both Eclipse Sound and Admiralty Inlet and that narwhal occurring in both areas during summer belong to the same stock. For these reasons, Baffinland started surveying both the Eclipse Sound and Admiralty Inlet stocks in 2019 to assess changes in the combined Eclipse Sound and Admiralty Inlet narwhal abundance. The combined narwhal abundance in Eclipse Sound and Admiralty Inlet was shown to be similar in 2020 to that observed in previous survey years (2013 and 2019); and was statistically higher in 2021 than in previous survey years (2013, 2019 and 2020). To date, we have not identified a net decrease in the combined Admiralty/Eclipse stock size since the start of Baffinland shipping operations. With respect to the QIA's request for available IQ that relates to the establishment of thresholds for noise impacts on marine mammals and adaptive management responses to threshold exceedances, we would refer the QIA to Baffinland's response to QIA 2021 AMR M&AE #19. With respect to the QIA''s request for quantitative definitions of "large-scale avoidance behaviour", "displacement effects", and "abandonment" (2021 AMR, p.353), this information is provided in the Marine Monitoring Plan (MMP), specifically refer to the marine mammal Threshold Action and Response Plan (TARP) (Baffinland, 2021b). This information is also provided in the 2022 Narwhal Adaptive Management Response Plan (Baffinland, 2022c). An overview is provided as follows: Large-scale avoidance behaviour: All high-level severity responses (Level 7, 8 or 9) or moderate-level severity responses (Level 5 or 6) that fall under 'sustained avoidance behaviour', 'prolonged displacement' and/or 'prolonged separation of females and depending offspring', as defined by Southall et al. (2007; 2021) and Finneran et al. (2017) – the moderate-level responses would ned to be sustained over a long duration (lasting over a period of several hours, or enough time to significantly disrupt a narwhal's daily routine).

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					Large-scale displacement effect: same as above for large-scale avoidance (terms are used interchangeably). Abandonment: >25.0% decrease in stock size (abundance) relative to 2019 aerial survey abundance with the trend maintained in at least two consecutive monitoring programs, whether during the regular monitoring schedule or confirmed through a special study. With respect to QIA's requests for Baffinland to provide more details on how IQ has been integrated into its assessment of all 2021 monitoring results, and how it can be used to augment gaps in Project monitoring, the following information is applicable. For narwhal, the requested information is provided in Baffinland's Narwhal Adaptive Management Response Protocol (NAMRP) (Baffinland, 2021c,2022b). For ringed seal, see response to QIA 2021 AMR M&AE #18. With respect to QIA's request for Baffinland to provide a summary of the IQ it has collected and compiled that relates to the establishment of thresholds for noise impacts on marine mammals and adaptive management responses to threshold exceedances, see response to QIA 2021 AMR M&AE #19. References: Baffinland Iron Mines Corp. (Baffinland), 2021a. Post-Hearing Question Responses Phase 2 Proposal – Mary River Project. NIRB File No. 08MN053. March 2021. 339p. Baffinland Iron Mines Corp. (Baffinland), 2021b. Marine Monitoring Plan (MMP). Marine Mammal TARP and Action Toolkits. NIRB File # 334146. Baffinland Iron Mines Corp. (Baffinland), 2021c. 2021 Narwhal Adaptive Management Response Plan (NAMRP). 15 July 2021. Attachment A in Baffinland's Technical Memorandum submitted to the Nunavut Impact Review Board (NIRB) entitled: "Update to the Preliminary Summary of 2020 Marine Mammal Monitoring and 2021 Adaptive Management", dated 9 Sept 2021, NIRB File #08MN053 (124701). Baffinland Iron Mines Corp. (Baffinland), 2022a. 220510_BIM Response on MHTO Letter_signed.pdf. 10 May 2022. 42 p. Baffinland Iron Mines Corp. (Baffinland), 2022b. 2022 Narwhal Adaptive Management Response Plan (NAMRP). Document # BAF-PH1-830-P16-0024. Rev1. 19 July 2022. Doniol-Valcroze, T, Gosselin, J.F., Pike, D., Lawson, J., Asselin, N., Hedges, K., and S. Ferguson. 2015. Abundance estimates of narwhal stocks in the Canadian High Arctic in 2013. DFO Can. Sci. Advis. Sec. Res. Doc. 2015/060. v + 36 p. Finneran, J., E. Henderson, D. Houser, K. Jenkins, S. Kotecki, and J. Mulsow. 2017. Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III). Technical report by Space and Naval Warfare Systems Center Pacific (SSC Pacific). June 2017. 194 pp.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
					Fisheries and Oceans Canada (DFO). 2020. Information related to the delineation of the Eclipse Sound and Admiralty Inlet narwhal stocks. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/048. Nunavut Wildlife Management Board (NWMB). 2016. Public Hearing to Consider Modifications to Total Allowable Harvests for the Eclipse Sound and Admiralty Inlet Narwhal Management Units. Volume 1 (28 Nov 2016) and Volume 2 (29 Nov 2016) – Hearing Transcripts. Adele Jones Court Reporting. Qikiqtaaluk Wildlife Board (QWB). 2022. Establishment of an Inuit System of Narwhal Management in the Waters of Northern and Eastern Baffin Island, 2022. Submission to the Nunavut Wildlife Management Board (NWMB). Regular Meeting No. RM 001-2022. Southall, B. L., Bowles, A. E., Ellison, W. T., Finneran, J. J., Gentry, R. L., Greene, C. R., Jr., Kastak, D., Ketten, D. R., Miller, J. H., Nachtigall, P. E., Richardson, W. J., Thomas, J. A. and Tyack, P. L. 2007. Marine mammal noise exposure criteria: Initial scientific recommendations. Aquatic Mammals. 33 (4). Southall, B.L., D.P. Nowacek, A.E. Bowles, V. Senigaglia, L. Bejder, and P.L. Tyack. 2021. Marine Mammal Noise Exposure Criteria: Assessing the Severity of Marine Mammal Behavioral Responses to Human Noise. Aquatic Mammals. 47(5): 421-464.
68	QIA 2021 AMR M&AE #23	The Proponent describes their activities over the past year consider alternatives to the Ragged Island anchoring, considerations used to analyze the alternatives, as well as their conclusion to continue use of the Ragged Island locations, albeit with a restriction to three vessels anchoring at any one time. Baffinland described a situation occurring in 2021 where concerns were raised regarding the drifting of ore carriers to the south of Ragged Island and states that they intend to "further workshop" the issue (2021 AMR, p.409). It is not clear what "workshop" means in this instance. Does this mean there will be a concrete plan to stop drifting from occurring at Ragged Island? The QIA does not agree with the results of the alternatives analysis nor accept that the analysis adequately and meaningfully considered Inuit and community input into values and criteria used to compare the alternatives or their weighting relative to one another. As such, the QIA does not agree with Baffinland that they are in compliance with this condition as it is still unresolved (i.e., Baffinland is still practicing vessel management that interferes with Inuit enjoyment and ecological conditions at the important Ragged Island area, despite Inuit repeatedly raising concerns with these practices).	The QIA requests that the Proponent collaborate with Inuit, including the MHTO, in developing the values, criteria, and relative weighting of each in analyzing alternative anchoring locations and then update their conclusion on appropriate anchoring location accordingly.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.11 Marine Wildlife (PC Condition 125a) **Page:** 408-409	Baffinland disagrees with QIA's position on the results of the anchorage alternatives analysis, including that Baffinland failed to adequately and meaningfully consider Inuit and community input values and criteria used to compare alternatives or their weight relative to one another. Baffinland would like to remind QIA that anchorage locations were discussed over various occasions and that proposed alternative locations provided by the Mittimatalik Hunters and Trappers Organization (MHTO) and considered by Baffinland date as far back as 2018. Discussions have remained open, including during a 2019 End of Shipping Season Meeting held in January 2020, with the MHTO, the Hamlet of Pond Inlet, and with QIA where it was not requested that alternative criteria be identified (including by QIA) even though a dedicated session formed part of the agenda where drifting/anchoring practices were discussed. Baffinland notes that prior to this meeting, a memo had been provided with the rationale and criteria for evaluation of the alternative 5 locations to Ragged Island, and that this had been included as part of Baffinland's 2020 Marine Shipping and Vessel Management Report to the NIRB (Baffinland, 2020; see Section 3.2, and Attachments 1; see NIRB Registry No. 330789). A number of factors were considered in the alternatives analysis noting that safety is and will always remain the most important criteria (i.e. highest weighting). Secondly, it is essential that an anchorage location be located in close proximity to Milne Port in order to ensure efficient loading of ore carriers and to allow for the safe export of iron from Milne Port in the limited window over which Baffinland may operate. Other factors include ecological considerations for which specific

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					areas, although very adequate for anchoring, have been excluded from further consideration (e.g., Koluktoo Bay and Tremblay Sound). Baffinland notes that it has already limited anchoring to no more than 3 vessels and that drifting is avoided to the extent possible in Eclipse Sound unless warranted for safety. The identified drifting event, as reported on various dates by community members in August 2021 (see Appendix B.2) was related to safety as the vessel releasing anchor needed to reduce its speed to avoid passing a northbound vessel in a specific area in Milne Inlet where passing of vessels is to be avoided. The Master made the decision for safety reasons. Given the previous discussions that have occurred to date, Baffinland disagrees with QIA's recommended approach as Baffinland has already conducted extensive consultation with Inuit including the MHTO to develop the analysis that has been conducted. Baffinland however remains open to suggestions for alternative anchoring locations by the MHTO, noting that the decision on the suitability for anchoring in consideration of safety will always be given top priority, and this determination will only be made in consultation with qualified shipping experts. As done previously, Baffinland remains open to carrying out an exercise with the MHTO and participation of QIA representatives to consider any future proposed anchoring locations. Reference: Baffinland Iron Mines Corporation (Baffinland). 2020. 2020 Marine Shipping and Vessel Management Report to the Nunavut Impact Review Board. July 17, 2020.
69	QIA 2021 AMR M&AE #24	The Proponent provides an overview of the freshwater and marine offsetting options, field work, observations from their post-construction monitoring of the Milne Port Ore Dock offsetting works, and discusses the upcoming planning for additional off-setting works, as needed. As the QIA stated in comments respecting the 2020 Annual Report, it is unclear whether and how IQ has been incorporated into such things as offsetting location selection and design, monitoring criteria, interpretation of results, or as a source of information on baseline and/or post-construction condition. Additionally, it is unclear what levels and tasks of the offsetting program Inuit participated in.	The QIA requests that Baffinland describe in detail the incorporation of IQ, participation of Inuit at all levels of the program, and if applicable, any concerns or issues raised by Inuit and how these have been addressed.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.11 Marine Wildlife (PC Condition 128) **Page:** 415-417	Reports submitted to DFO as part of *Fisheries Act Authorizations* were provided as part of the NIRB Annual Report for information purposes only. Baffinland can confirm that the applications to support these authorizations were subject to consultation with Inuit, as required by DFO. It appears the author of this comment is not aware of the QIA's involvement in the most recent application process respecting the freight dock. A brief summary of Baffinland's approach to that proposal, including the consideration for Inuit input, is described below for reference. Baffinland constructed a freight dock at Milne Port during the 2019 open-water season. The impacts of dock construction on fish and fish habitat were addressed through the issuance of *Fisheries Act Authorization* 18-HCAA-00160 by Fisheries and Oceans Canada (DFO). Fish habitat losses were offset through the construction of coarse rock habitat on the perimeter of the freight dock. The Mittimatalik Hunters and Trappers Organization (MHTO) provided a letter in June 2018 in support of this method of habitat offsetting, and the QIA subsequently provided a letter in July 2018 expressing satisfaction that the MHTO's position and Baffinland's efforts to consult on the habitat offsetting measures. Prior to submitting an amendment to *Fisheries Act Authorization* 18-HCAA-00160 for additional offsetting, Baffinland will again engage with the MHTO and QIA in a manner consistent with the expectations of that regulatory process administered by the Department of Fisheries and Oceans.

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70	QIA 2021 AMR M&AE #25 Question directed at DFO	In the discussion for Project Certificate Condition No. 183, the Proponent notes that "DFO has not provided any directions" with respect to this condition, and that DFO responded to MHTO written questions on March 22, 2021 indicating that "to date, there has not been a situation, within DFO's mandate, that provided sufficient evidence that there would be imminent negative impacts to the marine environment such that it required a direction" (2021 AMR, p. 566). In 2020, the Eclipse Sound narwhal population as estimated at approximately 5,000 animals, less than half the estimated population size several years earlier and significantly lower than the 2004 DFO estimate of approximately 20,000 animals. The abundance in the summering stock area, which is used by DFO for the purpose of setting Total Allowable Harvest (TAH) and Total Allowable Landed Catch (TALC) levels, has since significantly declined again, to approximately 2,500 narwhal in 2021.	The QIA requests that DFO provide communities and co-management partners with information on what level of population declines are needed before DFO considers it to be an "imminent negative impact to the marine environment" and how DFO anticipates responding to the significant declines in the Eclipse Sound summer stock area (2021 AMR, p.566).	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.8.2 Alternatives Analysis (PC Conditions 178 through 184) **Page:** 561-566	This QIA Recommendation is directed towards DFO, not Baffinland.
SOCIO-ECONOMIC ENVIRONMENT					
71	QIA 2021 AMR SE #1	The Proponent has concluded that they are in compliance with the communication requirements of PC Condition 15. Baffinland has provided a discussion of communication methods being employed to enhance public safety, with reference to engagement activities to inform and gather feedback. However, Baffinland have not reported on specific Inuit and Stakeholder input, especially as regards to the effectiveness of communication and engagement methods. It is unclear how Inuit perceive these methods and their experience with how effective these methods are in enhancing safety.	The QIA requests that the Proponent describe and/or provide specific Inuit and Stakeholder feedback on communication/engagement methods and their experience and perception of the effectiveness of the engagement and communication methods in ensuring safety.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.6.3 Noise and Vibration (PC Condition 15) **Page:** 93-95	Baffinland typically holds pre- and end of shipping season meetings with the Mittimatalik Hunters and Trappers Organization (MHTO), the Hamlet of Pond Inlet and Qikiqtani Inuit Association (QIA) representatives. There is opportunity as part of the agenda to discuss specific concerns on communication methods. In 2021, this meeting was held on May 28, 2021. During this meeting, the MHTO expressed the continued need for improved communications in southern Milne Inlet as there was a marine VHF coverage gap near Bruce Head. This was a follow-up to a prior commitment where Baffinland had committed providing funds for the MHTO to install a repeater station at Bruce Head. This request could not be realized in 2020 due to travel restrictions related to the COVID-19 pandemic as well as other logistical considerations. In 2021, Baffinland covered funds towards the purchase of equipment and site installation fees, in addition to working with the MHTO and the radio communicatios to install a new repeater station. The station was installed in August 2021 with the support of the installation expert and Baffinland Site Environment staff. Baffinland covered all fees related to hardware, repeater equipment, solar panels, helicopter time, professional and travel/accommodation fees for the installer. Again, Baffinland's support in this initiative was in direct response made by a community representative to improve communications for land users. Prior to this, meetings held in 2019 also provided an opportunity to further emhance the frequency and breadth of shipping-related communications. In response to concerns heard, Baffinland began the hiring of two full-time shipping monitors that could monitor vessel locations and subsequently inform community members on incoming and outgoing vessels using a marine VHF radio. The program has since expanded to the hiring of up to 10 shipping monitors (mixture of part-time and full-time employees) over the entire duration of the shipping season. Additional context provided in

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					response to a similar comment submitted by QIA on the 2020 Annual Response to the NIRB (see Table A.1, QIA 2020 AMR M&AE #35 in Baffinland, 2021; NIRB Registry No. 336441). The introduction of VHF radio communication were in direct response to a 2019 pre-shipping season meeting held in Pond Inlet with MHTO, Hamlet and QIA representatives. Other outcomes from these engagements included: • sending daily ice charts sent via email in advance of Baffinland's start of shipping activities; • providing start of shipping activities notices at least 72 hours and 24 hours prior to first vessel(s) entry into the Regional Study Area, to all Pond Inlet representatives (i.e., MHTO, Hamlet, QIA), where previously only a 24-hour notice was provided once specific conditions had been met (e.g., no landfast ice); • providing a ~10-vessel rolling vessel schedule describing upcoming shipping activities that is sent on a weekly basis; and • creation of a dedicated Baffinland Shipping Facebook page to provide regular visual updates on latest vessel locations, which includes a messenger component for questions/concerns to the directed to Baffinland shipping monitors. Baffinland would like to highlight that as part of the start of shipping season notification letters, Baffinland provides the most updated summary on the various communication methods to be employed by the Company over the upcoming shipping season. This is an opportunity for local representatives to comment. QIA that summarizes the various communication methods that Baffinland intends to use over the season and how vessel locations maybe monitored. Baffinland always provides opportunity for community representatives to ask questions on upcoming shipping activities. At this time, Baffinland has yet to receive any requests from the MHTO, or the Hamlet to further modify its current approach. Baffinland also typically holds shipping-related radio shows on Pond Inlet's community radio and specifically requests feedback from listeners on the communications approach. A summary of comments and action taken, when warranted, is provided below: • June 2, 2021: One caller indicated that "they like to hear about shipping activities from time to time, not necessarily every day as long as shipping activities are made public once in a while…occasionally". Shipping monitors have since modified the frequency how often they report incoming and outgoing shipping activity, limiting messaging to only when vessels are in close proximity to Pond Inlet, and/or when nearing hunting/camping areas, and Ragged Island. • July 13, 2022: No changes were put forwarded by listeners, although one caller suggested that there were few callers because folks were "pleased with existing methods".

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					Should QIA have specific requests with regards to additional communications expectations, Baffinland recommends that QIA provide these insights so that they may be considered for implementation over the 2022 shipping season. Reference: Baffinland Iron Mines Corporation (Baffinland), 2021. Mary River Project - Response to Comments on Baffinland's 2020 Annual report to the Nunavut Impact Review Board. August 11, 2021.
72	QIA 2021 AMR SE #2	PC Condition 129 states "The Proponent is strongly encouraged to engage in the work of the Qikiqtaaluk Socio-Economic Monitoring Committee along with other agencies and affected communities, and it should endeavour to identify areas of mutual interest and priorities for inclusion into a collaborative monitoring framework that includes socio-economic priorities related to the Project, communities, and the North Baffin region as a whole" (p. 420). The QIA agrees with Baffinland's assessment of compliance. Baffinland indicates engagement (e.g., written correspondence) took place in lieu of a Qikiqtaaluk Socio- Economic Monitoring Committee meeting that the Government of Nunavut cancelled given the detection of COVID-19 in Iqaluit. However, the QIA expects greater in-person engagement in the coming year, with virtual engagement as needed should there be COVID-19 restrictions.	The QIA requests a minimum of two Qikiqtaaluk Socio-Economic Monitoring Committee meetings in 2022 to ensure concerns for 2021 are discussed and recorded for NIRB's consideration, and to facilitate the working relationship of the Committee.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.1 Population Demographics (PC Condition 129) **Page:** 420-421	Baffinland plans to engage with the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) throughout 2022 where possible. However, the frequency at which the QSEMC meets is at the discretion of the Government of Nunavut, who chairs and organizes these meetings. In the event the QSEMC does not convene in 2022, Baffinland will work with the Government of Nunavut to deliver our regular Annual Report presentation by other means in Q3 or Q4 of 2022.
73	QIA 2021 AMR SE #3	PC Condition 131 states, "The Qikiqtaaluk Socio-Economic Monitoring Committee is encouraged to engage in the monitoring of demographic changes including the movement of people into and out of the North Baffin communities and the territory as a whole. This information may be used in conjunction with monitoring data obtained by the Proponent from recent hires and/or out-going employees in order to assess the potential effect the Project has on migration" (p. 424). The QIA believes the information provided to be insufficient. Baffinland states that data on in-migration and out-migration was provided by Community Liaison Officers based on what they knew had taken place in their community, rather than official data. Community specific information is not provided. Further, impacts of migration are not explored, aside from a suggestion that continual low-levels of out migration may have a negative demographic effect. The QIA notes this is the same comment as provided in the 2020 Annual Monitoring Report Review.	The QIA requests that NIRB encourage Baffinland to expand and improve breadth and scope of information that is made available to the QSEMC to enable an examination of both the incidence and the impacts of the Project on migration. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.1 Population Demographics (PC Condition 131) **Page:** 424-425	The author has not provided any additional information, or indicated a deficiency with Baffinland's previous response, listed below. Migration data discussed in PC Condition No. 131 is based off Baffinland Human Resources data and data captured through the Baffinland Community Liaison Officer (BCLO) survey. Such data sources are referenced in Table 4.36 of the 2021 NIRB Annual Report. Baffinland has no additional information to provide at this time.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		The QIA will also investigate the appropriateness of sharing with the QSEMC the results from an updated Labour Market Analysis required under the IIBA that is expected to be completed in 2022.			
74	QIA 2021 AMR SE #4	PC Condition 132 states, "The Proponent is encouraged to partner with other agencies such as Hamlet organizations in the North Baffin region, the Municipal Training Organization, and the Government of Nunavut in order to adapt preexisting, or to develop new programs which encourage Inuit to continue living in their home communities while seeking ongoing and progressive training and development. Programs may include driver training programs offered within Hamlets, providing upgraded equipment to communities for use in municipal works, providing incentives for small businesses to remain operating out of their community of origin, or supplementing existing recreational facilities and programming in North Baffin communities" (p. 426). The QIA believes the information provided to be insufficient. Baffinland describes a number of training initiatives and partnerships but does not clearly describe how these meet the objective of the PCC to encourage Inuit to continue living in their home communities. There is no evidence offered that the cumulative impact of Baffinland's efforts is achieving the outcomes that NIRB has prioritized. The QIA notes this is the same comment as provided in the 2020 Annual Monitoring Report Review.	The QIA requests Baffinland Improve breadth and scope of reporting on this issue to tie training offerings and outputs to the objective of the condition. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.1 Population Demographics (PC Condition 132) **Page:** 426-428	Due to efforts made by Baffinland and the QIA through the Qikiqtani Skills and Training for Employment Partnership (Q-STEP) program, in-community training opportunities greatly increased in 2021. It was recognized that by offering training within the community, Inuit had the opportunity to remain at home, where they had family supports, and had the ability to take care of their families and remain with their family throughout training. Training conducted in 2021 within the North Baffin communities included: • Class 7, 5, and 3 Drivers Training offered by the Nunavut Municipal Training Organization; • Community-based Work Readiness Training; and • Pre-Trades Training. By utilizing Baffinland provided iPads, Inuit participants were able to remain in their homes and complete community-based Work Readiness Training. The delivery of these in-community training opportunities confirms Baffinland's compliance with PC Condition No. 132.
75	QIA 2021 AMR SE #5	PC Condition 133 states, "The Proponent is encouraged to work with the Qikiqtaaluk Socio-Economic Monitoring Committee and in collaboration with the Government of Nunavut's Department of Health and Social Services, the Nunavut Housing Corporation and other relevant stakeholders, design and implement a voluntary survey to be completed by its employees on an annual basis in order to identify changes of address, housing status (i.e. public/social, privately owned/rented, government, etc.), and migration intentions while respecting confidentiality of all persons involved. The survey should be designed in collaboration with the Government of Nunavut's Department of Health and Social Services, the Nunavut Housing Corporation and other relevant stakeholders. Non-confidential results of the survey are to be reported to the Government of Nunavut and the NIRB" (p. 429).	QIA requests Baffinland administer the outstanding survey by Q4 of 2022.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.1 Population Demographics (PC Condition 133) **Page:** 429-435	Baffinland will administer the 2022 Inuit Employee Survey prior to the end of the 2022 calendar year.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		The QIA agrees with Baffinland's assessment of compliance. Baffinland noted its intention to complete the Inuit Employee Survey; however, COVID-19 restrictions for Nunavummiut communities in 2021 restricted access.			
76	QIA 2021 AMR SE #6	PC Condition 134 states, "The Proponent shall include with its annual reporting to the NIRB a summation of employee origin information as follows: a. The number of Inuit and non-Inuit employees hired from each of the North Baffin communities, specifying the number from each; b. The number of Inuit and non-Inuit employees hired from each of the Kitikmeot and Kivalliq regions, specifying the number from each; c. The number of Inuit and non-Inuit employees hired from a southern location or other province/territory outside of Nunavut, specifying the locations and the number from each; and d. The number of non-Canadian foreign employees hired, specifying the locations and number from each foreign point of hire" (p. 433). The QIA disagrees with Baffinland's assessment of compliance. Baffinland does not provide the information required by this PCC. Specifically, Baffinland provides Full- Time Equivalents (FTE) for its employees and contractor employees with some community breakdowns but does not provide an annual indication of where people are being hired from. No information is provided for the Kitikmeot, or for non- Canadian foreign employees. It is not possible to compare predictions of labour availability and employment opportunities with actual levels of employment from various demographic segments over different geographical areas, per the objective of the PCC.	The QIA requests Baffinland bring reporting into compliance with the PCC.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.1 Population Demographics (PC Condition 134) **Page:** 433-435	The Socio-Economic Monitoring Report (SEMR) and Table 4.40 of the 2021 NIRB Annual Report provides detailed Baffinland and contractor employment data, including Inuit and non-Inuit employment by North Baffin communities, other Nunavut regions, outside Nunavut and internationally (see Table 3 in the 2021 Socio-Economic Monitoring Report). This information provides actual levels of employment for a given year. It is unclear why the author has characterized this portion of Baffinland's Annual Report despite the information that is readily available for their review. Baffinland is compliant with PC Condition No. 134 for 2021.
77	QIA 2021 AMR SE #7	PC Condition 135 states, "The Proponent is encouraged to consider offering additional options for work/study programs available to Project employees (in addition to study programs at project sites that would be offered to employees when off shift)" (p. 437). The QIA believes the information provided to be insufficient. Baffinland does not provide the information required by this PCC. Specifically, Baffinland describes certain training offerings, including site-based, online and in communities, but does not describe any "work/study programs" for Project employees (p.437). It appears Baffinland considers this PCC met by virtue of the suite of training offered, but there is little evidence offered that the objective of the condition is being satisfied.	The QIA requests that Baffinland bring reporting into compliance with the PCC, by indicating where additional opportunities for work/study programs have been considered (if at all) and/or request how Baffinland is interpreting this condition, rather than repeating descriptions of its general suite of training and/or those trainings required under other agreements like the IIBA.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf]	A number of work/study programs are available to Baffinland employees and are discussed in detail in PC Condition No. 119 on p. 437-438 of the 2021 NIRB Annual Report. Baffinland is therefore compliant with PC Condition No. 135 for 2021. Baffinland would like to highlight that the author has not provided any additional information, or indicated a deficiency with Baffinland's previous response. Baffinland has no additional information to provide at this time.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		Participation and outcomes for the training initiatives described are not provided. The QIA notes this is the same comments as provided in the review of the 2020 Annual Monitoring Report Review.	The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Section:** 4.7.2 Education and Training (PC Condition 135) **Page:** 437-438	
78	QIA 2021 AMR SE #8	PC Condition 137 states, "Prior to construction, the Proponent shall develop an easily referenced listing of formal certificates and licences that may be acquired via on-site training or training during employment at Mary River, such listing to indicate which of these certifications and licences would be transferable to a similar job site within Nunavut. This listing should be updated on an annual basis and is to be provided to the NIRB upon completion and whenever it is revised" (p. 441). The QIA disagrees with Baffinland's assessment of compliance. The list provided by Baffinland does not indicate which certifications would be transferable to other employment. Baffinland states that training it provides is job-specific, which runs counter to the objective of this PCC; the objective being encouraging efforts to strengthen long-term employability beyond the Project. This is a legacy benefit that is important to Inuit and not being pursued adequately by Baffinland. The QIA notes this is the same comments as provided in the review of the 2020 Annual Monitoring Report Review.	The QIA requests Baffinland bring both actions and reporting into compliance with the PCC. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.2 Education and Training (PC Condition 137) **Page:** 441-445	Baffinland would like to highlight that this term and condition is applicable to the Construction period only, which can reasonably be considered to have ended in 2015. Baffinland has no obligation to continue to report on this as a matter of compliance. A list of qualifications and certifications employees can obtain while working at Baffinland is provided in the methods section of PC Condition No. 136 in the 2021 NIRB Annual Report. The list outlines types of training that are directly transferrable to another organization. It is unclear why the author has characterized this portion of Baffinland's Annual Report despite the information that is readily available for their review.
79	QIA 2021 AMR SE #9	PC Condition 138 states, "The Proponent is encouraged to work with the Qikiqtani Inuit Association to ensure the timely development of effective Inuit training and workready programs" (p. 445). The QIA believes the information provided to be insufficient. It is important to point out that in 2021, Inuit completed 32,974 hours of training, or 27.2% of all training (Popular Summary, p. 3). This is up from 14,384 hours (13.7%) in 2020 but down from 45,975 hours (48.3%) in 2019. This suggests that benefits through a pivot to community-based training have not been fully realized compared to previous years. Where non-Inuit continue to receive training, there may be growing skills gaps that may persist beyond the COVID-19 pandemic and that compound existing barriers for Inuit employment and advancement.	The QIA requests that Baffinland provide supplementary analysis on the impacts of COVID-19 restrictions on Inuit training as it relates to intermediate and longer term employment outcomes, and opportunities to overcome those impacts. The QIA notes this is the same request as included in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** Popular Summary; 4.7.2 Education and Training (PC Condition 138) **Page:** 3; 445-451	Acting in alignment with COVID-19 health protocols, many Nunavut Inuit employees were demobilized from the Mary River in 2021. This directly impacted the delivery of on-site training to Baffinland's Nunavummiut employees. In response to this, Baffinland adapted its training approach and was able to increase the delivery of in-community training to Inuit in the North Baffin communities. Upon re-mobilization to site every effort was made to ensure that Inuit were offered all required training to enable them to return to the roles and job duties that they held prior to demobilization. This was successfully achieved.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
80	QIA 2021 AMR SE #10	PC Condition 139 states, "Prior to commencing construction, the Proponent is requested to undertake and provide the results of a detailed labour market analysis which provides quantitative predictions of the number of employees that may reasonably need to be sourced from southern Canada and from foreign markets, identifying where applicable, the country of origin for the foreign labour. Within 90 days of the issuance of the Project Certificate, the Proponent is required to submit an updated Labour Market Analysis which considers requirements of the ERP as well as hiring points within Nunavut and outside of the North Baffin region and RSA" (p. 450). The QIA has provided feedback to Baffinland independently. The LMA completed is of limited utility in setting Inuit employment targets, and many results suggest that little has improved since the original study was done in 2013.	None.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.2 Education and Training (PC Condition 139) **Page:** 450-453	Baffinland would like to highlight that this term and condition is applicable to the Construction period only, which can reasonably be considered to have ended in 2015, Baffinland has no obligation to continue to report on this as a matter of compliance. Baffinland disagrees with the QIA's general characterization of the updated Labour Market Analysis (LMA) but without any specific recommendations it has no additional information to provide at this time.
81	QIA 2021 AMR SE #11	PC Condition 141 states, "The Proponent is encouraged to work with the Qikiqtani Inuit Association prior to construction in order to prioritize the provision of training of Inuit to serve as employees in monitoring or other such capacities" (p. 457). The QIA believes the information provided to be insufficient. Baffinland reporting does not specifically address what is being sought by NIRB through this PCC. It is evident that Baffinland seeks for Inuit to participate in their environmental monitoring programs, but through review of Baffinland's response to PCC 141 in the Annual Report, and review of their more detailed discussion of education and training in Appendix G.13, it is evident that Baffinland does not have any initiatives relating to science and engineering, including environmental monitoring. The QIA notes this is the same comment as provided in the 2020 Annual Monitoring Report Review.	The QIA requests that Baffinland identify education and training initiative(s) related to Science, Technology, Engineering, and Math it is supporting Inuit with. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.2 Education and Training (PC Condition 141) **Page:** 457-460	Baffinland would like to highlight that this term and condition is applicable to the Construction period only, which can reasonably be considered to have ended in 2015, Baffinland has no obligation to continue to report on this as a matter of compliance. It is also worth noting that this information is available to the QIA through the annual implementation of the Mary River Inuit Impact Benefit Agreement, specifically under Article 8, making any commentary that indicates otherwise somewhat disingenuous. Despite that this same request was provided in relation to the 2020 Annual Report and the author has not provided any additional information, or indicated a deficiency with Baffinland's previous response, Baffinland will highlight that there are four (4) full-time Qikiqtani Inuit Association (QIA) environmental monitor positions at the Project. The QIA environmental monitors work directly with the site environment department. Additionally, the environment department at Baffinland adheres to the Minimum Inuit Employment Goal (MIEG) and employs full-time Inuit environmental technicians. Through both of these roles, Inuit receive direct training related to both environmental sciences and engineering, in order to participate in site-based environmental monitoring programs. Refer to the Terrestrial Environmental Monitoring Reports and Annual Marine Reports for additional information pertaining to program-specific requirements.
82	QIA 2021 AMR SE #12	PC Condition 142 states, "The Proponent is encouraged to address the potential direct and indirect effects that may result from Project employees' on-site use of various Inuktitut dialects as well as other spoken languages, specifically paying attention to the potential alienation of some employees that may occur as a result of language or other cultural barriers" (p. 462). The QIA believes the information provided to be insufficient. Baffinland does not address the PCC. While there is a policy and certain practices in	The QIA requests that Baffinland bring both actions and reporting into compliance with the PCC.	**Document Name:** Baffinland Iron Mines 2020 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 210506-08MN053- 2020 Annual Report-	Baffinland disagrees with the assertion that there is a compliance issue here. Baffinland continues to work to reduce barriers between employees of different cultures and languages. In the spirit of continuous improvement, however, Baffinland is open to working with the QIA to determine the next Workplace Conditions Review, with the intent to provide a more current understanding of any potential issues in this area in an effort to identify the need for additional actions.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		place, they do not justify a claim that language barriers or alienation is proactively addressed. Baffinland relies on historical IIBA Workplace Conditions Review information as a source of feedback from employees, but does not acknowledge that Inuit employees cite language as a significant barrier to socialization between Inuit and non-Inuit coworkers.		IA2E.pdf] **Section:** 4.7.3 Livelihood & Employment (PC Condition 142) **Page:** 462-464	
83	QIA 2021 AMR SE #13	PC Condition 143 states, "The Proponent is encouraged to consider the use of both existing and innovative technologies (e.g. community radio station call-in shows, cell phones, video-conferencing, Skype, etc.) as a way to ensure Project employees are able to keep in contact with family and friends and to ward off the potential for feelings of homesickness and distance to impact on employee retention and family stability" (p. 465). The QIA believes the information provided to be insufficient. Baffinland states that internet and telephone access is available, but that bandwidth and utilization levels may limit their use. Innovative technologies or additional efforts to keep Inuit employees connected to their families are not mentioned. Baffinland has acknowledged that exit interviews indicate that family impacts are often cited as reasons for resigning, though little effort seems to be made relative to this PCC (e.g., innovative technologies). The QIA notes this is the same comments as provided in the 2020 Annual Monitoring Report Review.	None.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.3 Livelihood & Employment (PC Condition 143) **Page:** 465	The author has not provided any additional information, or indicated a deficiency with Baffinland's previous response. Baffinland has no additional information to provide at this time.
84	QIA 2021 AMR SE #14	PC Condition 144 states, "The Proponent is encouraged to make requirements for employment clear in its work-readiness and other public information programs and documentation, including but not limited to: education levels, criminal records checks, policies relating to drug and alcohol use and testing, and language abilities" (p. 466). The QIA agrees with Baffinland's assessment of compliance. However, Baffinland does not provide a comprehensive response to this PCC.	None.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.3 Livelihood & Employment (PC Condition 144) **Page:** 466	All items relating to employment are outlined in Baffinland's Socio-economic Monitoring Report. All Baffinland applicants are required to complete a background check prior to employment. Education and skill requirements vary with each position. Only skilled positions, as classified in the Socio-Economic Monitoring Report, require post-secondary schooling. Baffinland has a strict no drug or alcohol policy, and does not conduct drug or alcohol testing prior to employment. Baffinland requires all employees to speak English for safety reasons and requires applicants with English as second language to complete an English proficiency test prior to employment. Note that Baffinland's current proficiency test is through discussion and conversation. An online test and on-site written proficiency test is currently being developed.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
85	QIA 2021 AMR SE #15	PC Condition 145 states, "The Proponent is encouraged to work with the Government of Nunavut and the Qikiqtaaluk Socio-Economic Monitoring Committee to monitor the barriers to employment for women, specifically with respect to childcare availability and costs" (p. 467). The QIA disagrees with Baffinland's assessment of compliance. Baffinland notes its Inuit Women Advisory Committee, including some actions and activities, that provides advice and suggestions on effective methods of reducing barriers for Inuit and female employees. However, the activities of the Inuit Women Advisory Committee are presumed to be based on a historical Arnait Action Plan, developed through the IIBA, that requires review and implementation through an Inuit Women-specific lens and not Inuit generally. Further, Baffinland notes that the QSEMC did not meet in 2021.	The QIA requests details on activities of the QSEMC as it relates to a relative action plan for Inuit Women and childcare barriers as well as its relationship with Government of Nunavut and Baffinland's Inuit Women Advisory Committee.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.3 Livelihood & Employment (PC Condition 145) **Page:** 467-469	This Qikiqtani Inuit Association (QIA) Recommendation is directed towards the Government of Nunavut as the Chair and administrator of the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC).
86	QIA 2021 AMR SE #16	PC Condition 147 states, "The Proponent is encouraged to work with the Government of Nunavut and the Nunavut Housing Corporation to investigate options and incentives which might enable and provide incentive for employees living in social housing to maintain employment as well as to negotiate for and obtain manageable rental rates" (p. 471). The QIA agrees with Baffinland's assessment of compliance.	The QIA requests more details be shared with respect to the Memorandum of Understanding between Baffinland and the Government of Nunavut.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.3 Livelihood & Employment (PC Condition 147) **Page:** 471-472	Baffinland has no additional information to provide at this time. As the Memorandum of Understanding (MoU) progresses, Baffinland and the Government of Nunavut will report to the Nunavut Impact Review Board, where appropriate.
87	QIA 2021 AMR SE #17	PC Condition 148 states, "The Proponent is encouraged to undertake collaborative monitoring in conjunction with the Qikiqtaaluk Socio-Economic Monitoring Committee's monitoring program which addresses Project harvesting interactions and food security, and which includes broad indicators of dietary habits" (p. 475). The FEIS prediction statement "…the amount of country food harvested per level of effort is not anticipated to change meaningfully" (Appendix G.13,	The QIA continues to request, as we have in previous years, that the Proponent work with the QIA, and engage Elders and community members (PCC 162), to identify more appropriate techniques to monitor changes in Resource and Land Use than those currently in use, and to expand the variables being monitored.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf]	Since June 2020 Baffinland and the Qikiqtani Inuit Association (QIA) have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		p.72) is not being meaningfully assessed or verified by existing monitoring techniques or indicators. Baffinland provides some information about their own employees' food security and harvesting time but fails to provide information on food security, harvesting interactions or dietary habits outside of its own employees. Baffinland does not discuss specific Project interactions with harvesting in this section. Baffinland is using visitor person-days, number of Wildlife Compensation Fund claims, and impact of Project employment on Inuit employees harvesting participation. These are interesting variables to monitor, but they are only part of the variables needed to answer the key research question – is the Project impacting amount of country food harvest per level of effort. This is acknowledged by Baffinland in the 2021 Annual Report: "appropriate community-level indicator data are currently unavailable for this topic" (2021 Annual Report Main Body, p. 510). No baseline study on harvesting effort has been conducted and there is no current effort to track change. There has been no documented attempt to test the veracity of this FEIS prediction, and it is a significant shortfall in the Baffinland monitoring efforts to date. The serious gap in understanding of harvest per unit of effort has been further identified in the NIRB Phase 2 Recommendations Report (at p. 219). The NIRB also found the evidence available suggests the following: "The Project's impacts on wildlife cannot be separated from the direct consequences on food security when harvesting becomes more difficult, more expensive, and less likely to be successful. The Board heard multiple statements from hunters in the vicinity of the Project, identifying that they are experiencing difficulties in harvesting wildlife and are worried about and/or no longer consuming country food due to dust pollution, which has a significant and detrimental effect on their food security… uncertainty regarding negative effects on wildlife and concerns of losing the ability to access and harvest country food also represents the potential for significant adverse effects on Inuit culture and well-being." (p. 221) If Baffinland can use evidence to make VSEC predictions in an EIS, the NIRB should ensure that the data is generated to monitor and assess Project impacts against these predictions. This speaks to a clear need for Inuit-led monitoring with direct links to adaptive management responses. Understanding the QSEMC did not meet in 2021, if the QSEMC process is not capable of producing community level data to advance discussion and	As previously stated, these should involve Inuit-designed indicators of changing harvesting patterns, behaviours and harvesting effort and should be designed to identify changes in harvester behaviour as well as reasons. This should be designed to work in concert with ongoing tracking of food harvesting to provide meaningful monitoring of changing effort levels for the procurement of country food. The QIA also requests the Proponent actively engage with SEMWG and QSEMC, as well as Inuit communities, on the four components of food security, indicators, and actions outlined in Table 25 of Appendix G.13 to confirm values and indicators as part of the development of an effective monitoring program, and provide its plans for addressing its monitoring obligations. Baffinland should provide a list of next steps for fulfilling monitoring objectives, including reference to the role it envisions the fledgling Inuit Stewardship Plan, and the role IQ, will play in this work. This should also include steps for collecting Project-specific data, analysis, and development of thresholds in collaboration with SEMWG and QSEMC.	**Section:** 4.7.4 Economic Development, Self-Reliance, and, Contracting and Business Opportunities (PC Condition 148) **Page:** 475-477 **Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board, Appendix G.13, 2021 Socio-Economic Monitoring Report" [NIRB Registry: 220401-08MN053-2021 Annual Report-App G.13 SEMR-IA1E.pdf] **Section:** 8, Resource and Land Use (related to PC Condition 148) **Page:** 72-75	Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		solutions to these critical topics, this emphasizes the importance of advancing an Inuit-led social monitoring program. The Qikiqtani Inuit Association's Tusaqtavut studies (Qikiqtani Inuit Association, 2021), referred to in Baffinland's PC 148 methods discussion, "reported baseline interactions with the existing approved project, as well as anticipated Phase 2 interactions" (2021 Annual Report, p. 475), however Baffinland provides no additional monitoring data and analysis intended to develop an understanding of the project's interactions with harvesting, food security, or dietary habits. The QIA is not satisfied with Baffinland's continuing reliance upon the QSEMC process, community engagement, as well as the Aboriginal People's Survey and other non project-specific data sources, as these are not explicitly directed towards meeting the objective of this condition. Any conclusion about conformance with this FEIS statement (see 2021 Annual Report Main Body, Table 4.52, p. 510) should state "unknown, possibly much higher than predicted", not "Effect within FEIS predictions", until such time as this value is adequately monitored and assessed against the FEIS prediction. The compliance status cannot be higher than "in progress" at best for this PCC. Reference Qikiqtani Inuit Association. 2021. "Tusaqtavut – Mary River Mine Project" [https://www.qia.ca/wp-content/uploads/2022/03/qia-tusaqtavut-report_2021_web.pdf]			
88	QIA 2021 AMR SE #18	Visitor person-days include contextualization parameters of group-size and month of visit (Table 21, p. 73-74). As the QIA commented on the 2020 Annual Report, additional context and detail to visitor days, including weather data, snow cover, destination, etc. are necessary in order to gain insight into changes. Currently, only very limited conclusions can be drawn from changes in the number of visitor days as to any project effects on harvesting patterns and behaviours, specifically within the Project area.	The QIA continues to request that additional data be recorded alongside visitor days and should be considered in the analysis of visitor days to provide additional explanation of any changes. In addition, the QIA requests that the reliance on this form of passive "visitor" monitoring be replaced by a substantial, preferably Inuit- led, and multi-faceted data collection program to capture inputs from more Inuit on more topics related to Resource and Land Use.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board, Appendix G.13, 2021 Socio-Economic Monitoring Report" [NIRB Registry: 220401-08MN053-2021 Annual Report-App G.13 SEMR-IA1E.pdf] **Section:** 8.1, Recorded land use visitor person-	The author has not provided any additional information, or indicated a deficiency with Baffinland's previous response. Baffinland has no additional specific information to provide at this time. Since June 2020 Baffinland and the QIA have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
				days at project sites (related to PC Condition 148) **Page:** 73-74, 66	system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.
89	QIA 2021 AMR SE #19	As stated in comments on Baffinland's 2019 and 2020 Annual Reports, the QIA maintains that the statement "WCF claims provides insight into land use and harvesting issues which may be arising because of the Project" (Appendix G.13, p.74) is inaccurate. The WCF claims provide a record of specific reports of direct harvesting loss due to the Project only – not all "issues which may be arising". The insights that currently can be accurately said to be provided by changes in claim amounts are that Inuit harvesting continues to be impacted by the Project. Nor is the WCF claims system designed to track indirect effects to harvesting or the land observed or experienced by hunters.	The QIA continues to request that Baffinland work with the MHTO and QIA to identify more meaningful ways to track data around harvester-observed project effects. As stated in the QIA's comments on the 2019 Annual Report, this should include an MHTO-led review of the WCF system and the information tracked by claims, as well as Baffinland working with the QIA to identify more appropriate techniques to monitor changes in Resource and Land Use than those currently in use. These should involve Inuit-designed indicators of changing harvesting patterns and behaviours and should be designed to identify changes as well as reasons.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board, Appendix G.13, 2021 Socio-Economic Monitoring Report" [NIRB Registry: 220401-08MN053-2021 Annual Report-App G.13 SEMR-IA1E.pdf] **Section:** 8.2 Wildlife compensation fund claims (related to PC Condition 148) **Page:** 74	Baffinland reminds the author that PC Condition No. 148 encourages Baffinland to undertake collaborative monitoring in conjunction with the Qikiqtaaluk Socio-Economic Monitoring Committee's (QSEMC's) monitoring program, but does not obligate the Proponent to do so. For the benefit of the NIRB Baffinland would also like to highlight that the QIA is the administrator of the Wildlife Compensation Fund (WCF) system and they can conduct a review of the program as they deem appropriate, however, any revisions required to the Inuit Impact and Benefit Agreement (IIBA) must be agreed to by Baffinland. Baffinland supports QIA in its review of program delivery, including the wildlife compensation system and harvester monitoring outlined in Article 17 of the Mary River IIBA.
90	QIA 2021 AMR SE #20	There is limited correlation between the topics being monitored under the Resource and Land Use category (Section 8) and the indicators being used (Table 28 - Topics: 8 Resource and Land Use and 10. Economic Development and Self-Reliance, p.97). As well, indicators being monitored under Baffinland's environmental monitoring programs are being used as a proxy; those indicators a part of the suite of dependent variables need to answer the question of whether the Project is leading to changes in harvesting, but they are in no way the full suite of variables needed to understand the question. Visitor days and wildlife compensation claims are not appropriate, accurate or reliable indicators of the variety of avoidance behaviours which are indicated as topics being monitored. Sensory disturbance, harvester safety and routing choices, meat and water quality, taste, and odor, etc. are among the qualitative questions which require different approaches to monitor.	The QIA continues to request that the Baffinland work with the QIA to identify more appropriate techniques to monitor changes in Resource and Land Use than those currently in use. These should involve Inuit-designed indicators of changing harvesting patterns and behaviours and should be designed to identify changes as well as reasons.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board, Appendix G.13, 2021 Socio-Economic Monitoring Report" [NIRB Registry: 220401-08MN053-2021 Annual Report-App G.13 SEMR-IA1E.pdf] **Section:** 8, Resource and Land Use; Appendix B Socio-Economic Monitoring	Since June 2020 Baffinland and the Qikiqtani Inuit Association (QIA) have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
				Indicators (related to PC Condition 148) **Page:** 72-75; 97	
91	QIA 2021 AMR SE #21	The Proponent notes that they have difficulty monitoring and assessing the increased industrial utilization of lands' impact on Inuit harvesting and travel, or how that may change "how people engage in the land-based economy" (2021 Annual Report Main Body, Table 4.48). As stated in the QIA's comments on the 2020 Annual Report, claims that Mary River Project harvesting interactions are being monitored (see 2021 Annual Report Main Body p. 477), and thresholds are being developed (see Appendix G.13, p. 5), mean very little as Baffinland has completed no baseline study of preconstruction harvesting amounts, patterns or diets and existing food security research relied on within the Socio-economic monitoring work is high-level, not community specific and largely focused on store-bought rather than harvested country foods (see Appendix G.13, Section 10.2). It is recognized by the QIA that the Proponent has provided funding to conduct a Country Food Baseline study with the community of Pond Inlet (see p. 477 of the Annual Report). The QIA continue to conduct this study and anticipates that this Inuit-led work will be ongoing until the third quarter of 2022. The QIA looks forward to working with Baffinland to analyse project effects on harvesting, community food security, and access to, and availability of, country food. The QIA also notes Baffinland's openness to discussing the development of community-level indicators with SEMWG and QSEMC (see 2021 Annual Report Main Body p. 477).	The QIA requests that the Proponent properly monitor Inuit use and alienation and loss of use as a priority, a monitoring program that has been neglected for the better part of a decade. Baffinland should be considered non-compliant with PC Condition 148 until a monitoring program directed to these values is implemented. The QIA requests that Baffinland develop a workplan and schedule with the QIA to use the results of the QIA's baseline food study to analyze effects pathways whereby project effects on harvesting are impacting community food security and access to country food, and to develop thresholds, triggers, and actions. The QIA requests that Baffinland identify how, and with collaboration with which parties, it will contribute to the development of appropriate community-level indicators to study project interactions with harvesting, food security, and dietary habits; as well as to support Inuit to develop a workplan and schedule for an Inuit- led Culture, Resources and Land Use Monitoring for the Mary River Project's current operations.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.7.4 Economic Development, Self-Reliance, and, Contracting and Business Opportunities (PC Condition 148 through 152) **Page:** 473-484 **Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.7.4 Economic Development, Self-Reliance, and, Contracting and Business Opportunities (PC Condition 148)	Since June 2020 Baffinland and the Qikiqtani Inuit Association (QIA) have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
				Page: 475-477 **Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board, Appendix G.13, 2021 Socio-Economic Monitoring Report [NIRB Registry: 220401-08MN053-2021 Annual Report-App G.13 SEMR-IA1E.pdf] **Section:** 10.2 Project harvesting Interactions and food security **Page:** 79	
92	QIA 2021 AMR SE #22	PC Condition 149 states, "Prior to the commencement of operations, the Proponent is required to undertake an analysis of the risk of temporary mine closure, giving consideration to how communities in the North Baffin region may be affected by temporary and permanent closure of the mine, including economic, social and cultural effects and taking into consideration the potential drop in employment between the construction and operations phases of the Project" (p. 478). The QIA believes the information provided to be insufficient. Baffinland confirms it has submitted a '*Temporary Closure Planning: Socio-Economic Considerations for the Mary River Project*'. However, the *Temporary Closure Planning* document is outdated and does not address situations where some or all Nunavummiut are demobilized (e.g. 2019 Work Plan; COVID-19), nor includes a sensitivity analysis to consider appropriate scenarios against shifting assumptions.	The QIA requests that the NIRB encourage Baffinland to update this study to reflect events that have transpired since it was submitted in 2014.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.4 Economic Development, Self-Reliance, and, Contracting and Business Opportunities (PC Condition 149) **Page:** 478-479	The Temporary Closure Risk Analysis was updated in 2021 and circulated with Qikiqtani Inuit Association (QIA) on several occasions in draft as a member of the Mary River Socio-Economic Working Group. The final report was submitted to the NIRB on January 20, 2022 and was attached to Baffinland's 2021 Annual Report to the NIRB as Appendix G.21. It is unclear why the author has characterized this portion of Baffinland's Annual Report despite the information that is readily available for their review.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
93	QIA 2021 AMR SE #23	PC Condition 151 states, "The Proponent is encouraged to investigate measures and programs designed to assist Project employees with homeownership or access to affordable housing options" (p. 482). The QIA believes the information provided to be insufficient. Baffinland does not appear to have implemented measures specific to assisting with homeownership and improving access to affordable housing, and notes that it is not its responsibility. For example, and understanding a 2021 Employee Survey was not delivered due to COVID-19 restrictions, the 2019 Employee Survey showed that nearly seven in ten respondents were not aware of the Nunavut Down Payment Assistance Program, though Baffinland does not appear to have used that finding to work with NHS to improve awareness among employees of this available support. The QIA notes this comment is the same as that provided in the 2020 Annual Monitoring Report Review.	The QIA requests more details to be shared with respect to the Memorandum of Understanding between Baffinland and the Government of Nunavut.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.4 Economic Development, Self-Reliance, and, Contracting and Business Opportunities (PC Condition 151) **Page:** 482-483	Baffinland has no additional information to provide at this time. As work progresses to implement the Memorandum of Understanding (MoU), Baffinland and the Government of Nunavut will report to the Nunavut Impact Review Board, where appropriate.
94	QIA 2021 AMR SE #24	PC Condition 154 states, "The Proponent shall work with the Government of Nunavut and the Qikiqtaaluk Socio-Economic Monitoring Committee to monitor potential indirect effects of the Project, including indicators such as the prevalence of substance abuse, gambling issues, family violence, marital problems, rates of sexually transmitted infections and other communicable diseases, rates of teenage pregnancy, high school completion rates, and others as deemed appropriate" (p. 491). The QIA believes the information provided to be insufficient. Baffinland presents information where available but does not describe efforts beyond the QSEMC process to develop indicators for the indirect effects where data does not currently exist. For example, no information is presented on gambling, marital problems, teenage pregnancy, or family violence. Understanding the QSEMC was unable to meet in 2021, if the QSEMC process is not capable of producing community level data to advance discussion and solutions to these critical topics, this emphasizes the importance of advancing an Inuit-led social monitoring program. Further, if Baffinland is capable of using evidence to make VSEC predictions in an EIS, NIRB should ensure that the data is generated to monitor and assess Project impacts against these predictions. This speaks to a clear need for Inuit-led monitoring with direct links to adaptive management responses.	The QIA requests that Baffinland Consider Inuit-led monitoring programs to track potential indirect effects of the Project, filling in gaps the QSEMC process is not achieving. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.5 Human Health & Wellbeing (PC Condition 154) **Page:** 491-490	The author has not provided any additional information, or indicated a deficiency with Baffinland's previous response. Baffinland has no specific additional information to provide at this time. Since June 2020 Baffinland and the Qikiqtani Inuit Association (QIA) have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		The QIA notes this is the same comment as provided in the 2020 Annual Monitoring Report Review.			
95	QIA 2021 AMR SE #25	PC Condition 155 states, "The Proponent is strongly encouraged to provide the NIRB with an updated report on its development of mitigation measures and plans to deal with potential cultural conflicts which may occur at site as these may become needed" (p. 493). The QIA believes the information provided to be insufficient. Baffinland does not provide NIRB with an updated report as strongly encouraged in the PCC. The initiatives that Baffinland describes are affirmative in that they seek to create conditions where conflict is less likely. However, Baffinland does not readily acknowledge that conflict is possible and describe actions that can be taken if conflict does arise. The QIA notes this is the same comment as provided in the 2020 Annual Monitoring Report Review.	The QIA requests that Baffinland bring reporting into compliance with the PCC. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.5 Human Health & Wellbeing (PC Condition 155) **Page:** 493-495	The author has not provided any additional information, or indicated a deficiency with Baffinland's previous response. Baffinland has no additional information to provide at this time.
96	QIA 2021 AMR SE #26	PC Condition states, "The Proponent is encouraged to assist with the provision and/or support of recreation programs and opportunities within the potentially affected communities in order to mitigate potential impacts of employees' absences from home and community life" (p. 496). The QIA believes the information provided to be insufficient. Baffinland's reporting does not seem relevant to this PCC. Baffinland makes brief reference to a sponsorship category for "Arts, Sports and Culture" but does not indicate whether and to what extent it has supported or provided recreation programs and opportunities (p. 497). The QIA notes this is the same comment as provided in the 2020 Annual Monitoring Report Review.	The QIA requests that Baffinland bring reporting into compliance with the PCC. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.5 Human Health & Wellbeing (PC Condition 156) **Page:** 496-498	The author has not provided any additional information, or indicated a deficiency with Baffinland's previous response. Baffinland has no additional information to provide at this time. Baffinland has supported or provided funding towards recreation programs and initiatives that are relevant to "Arts, Sports and Culture" and youth mental wellness (e.g., donation to Quluaq school). Baffinland provided funding towards the purchase of an ice resurfacing machine in Arctic Bay for their community arena. Baffinland also contributed funds towards the installation of 4 marine VHF radio repeater stations to enhance safety for land users engaging in important cultural activities (e.g., hunting, camping). Baffinland supported the installation of one repeater station both financially and logistically in order to ensure a successful initiative. Baffinland has also contributed funding to Recreation and Parks Association of Nunavut. A youth forum as also organized in October 2021, with the goal of better understanding the current needs of youth to ensure a bright future for North Baffin youth. As part of this initiative, a number of needs were identified which will help to create a foundation for consideration of future funding opportunities. Baffinland also notes that a total of $730,000 in funds have been provided to the Tasiuqtiit Working Group. This Working Group aims to support programs that have direct relevance recreation programs and opportunities, should the community decide these are priority.
97	QIA 2021 AMR SE #27	The PC Condition states, "The Proponent should consider providing counseling and access to treatment programs for substance and gambling addictions as well as which address domestic, parenting, and marital issues that affect employees and/or their families" (p. 497).	The QIA requests that Baffinland report on the status of alcohol and narcotic anonymous programs at	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact	Baffinland continues to look into resources to support this objective. In the interim, the Employee Family Assistance Program (EFAP) is being utilized for any support involving substance abuse, addiction, etc. If an employee communicates that they are having issues such as substance abuse,

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		The QIA agrees with Baffinland's assessment of compliance. However, in the 2020 NIRB Annual Report, Baffinland indicated it would investigate the establishment of alcohol and narcotic anonymous programs at Project sites. Baffinland noted investigation was impacted by COVID-19 and community employees being demobilized from site.	Project sites in 2022 NIRB Annual Monitoring Report.	Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.5 Human Health & Wellbeing (PC Condition 157) **Page:** 497-499	Baffinland will assist the employee in getting a support worker through the EFAP. This support worker will work directly with the affected employee.
98	QIA 2021 AMR SE #28	The PC Condition states, "The Proponent is encouraged to work with the Government of Nunavut to develop an effects monitoring program that captures increased Project-related pressures to community infrastructure in the Local Study Area communities, and to airport infrastructure in all point-of-hire communities and in Iqaluit" (p. 505). The QIA believes the information provided to be insufficient. There is no indication that an effects monitoring program is in place for community infrastructure and airport infrastructure. Rather this is covered through the work of the QSEMC and QSEMWG. Baffinland does provide data on the number of aircraft movements in point of hire communities and acknowledges that the Project puts "incremental pressure" on airport infrastructures but concludes that it is not significant given it represented only 8.4% of total movements in 2018 (p. 506). In the three years prior to 2020, when the pandemic significantly reduced airport traffic, traffic had been steadily increasing. This would have associated increases in direct and indirect impacts to the airports (and travelers), but this is not examined. The QIA notes this is the same comment as provided in the 2020 Annual Monitoring Report Review.	The QIA requests that Baffinland bring monitoring reporting into compliance with the PCC. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.6 Community Infrastructure and Public Service (PC Condition 159) **Page:** 505-506	The author has not provided any additional information or indicated a deficiency with Baffinland's previous response, which is listed below. Baffinland has no additional information to provide at this time. Baffinland continues to engage with the Government of Nunavut (GN) through various platforms on the Project's socio-economic monitoring program, which monitors Project-related impacts to infrastructure (i.e. aircraft movements) within the Local Study Area (LSA) communities. Baffinland is therefore in compliance with PC Condition No.159.
99	QIA 2021 AMR SE #29	PC Condition 162 states, "The Proponent should make all reasonable efforts to engage Elders and community members of the North Baffin communities in order to have community level input into its monitoring programs and mitigative measures, to ensure that these programs and measures have been informed by traditional activities, cultural resources, and land use as such may be implicated or impacted by ongoing Project activities" (p. 513). The QIA believes the information provided to be insufficient. Baffinland's ineffective efforts to obtain and include Inuit Elder and community member input into Project decision making is a primary contributor to Inuit	The QIA requests that Baffinland advance Inuit-led monitoring programs that include a framework for tracking and integrating Elder and community engagement, so community level input can be demonstrably integrated into Baffinland monitoring programs and mitigative measures.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf]	Baffinland requests that Qikiqtani Inuit Association (QIA) provide specific examples of Elder feedback (comprising satisfaction and dissatisfaction) as documented by the QIA on the Mary River Project. Furthermore, Baffinland requests that the QIA expand further on how the information provided is insufficient. It is important to highlight that Elders from Pond Inlet, through an Elders' Advisory Committee, have indeed submitted their perspectives on the Mary River Project, which is in contradiction to QIA's statement that Inuit Elders are dissatisfied with the Mary River Project (see NIRB Registry No. 340843).

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		dissatisfaction with the Project. QIA acknowledges that advancement of Inuit Certainty Agreement implementation may help to rectify concerns.		**Section:** 4.7.7 Culture, Resources & Land Use (PC Condition 162) **Page:** 513-515	Furthermore, contrary to QIA's comments, Baffinland does engage with Elders through meetings with the Mittimatalik Hunters and Trappers Organization (MHTO) and other Hunters and Trappers Organizations on an ongoing basis. Elders have participated during working group meetings, Annual Project Review Forum (when held), as well as other focused meetings when specific topics are being discussed such as pre- and end of shipping season activities, and/or through the third-party dust audit process that is currently underway. Elders have also participated in monitoring programs including marine mammal aerial surveys, the Bruce Head Shore-based Monitoring Program, and height of land caribou surveys, where their participation contributed directly to the gathering of data (baseline and post-baseline), sampling methodology, etc. Furthermore, Baffinland also regularly hosts radio shows in different communities on a variety of topics. It is well known that the use of local radio for the dissemination of information is an important mechanism for Elders residing in North Baffin communities. Furthermore, the Baffinland office in Pond Inlet, when open, may see occasional drop-ins by Elders who are interested in finding out more about Baffinland operations. It is noted that in-person interactions were avoided to the extent possible, specifically with Elders, given the enhanced risks associated with the COVID-19 pandemic in 2020 and 2021. However, alternative meeting arrangements were identified and accommodated to continue engagements through provision of iPads for use during Zoom meetings (e.g., during third-party Dust Audit Committee meetings). Baffinland looks forward to hearing further from QIA on their Inuit-led monitoring efforts that they will be undertaking.
100	QIA 2021 AMR SE #30	Baffinland provides a summary of valued components, effects, observations made through monitoring programs, and a statement on whether impact predictions made in the FEIS are consistent with these observations (2021 AMR, Table 4.52, pp. 510 -511)). It is not clear how Baffinland has concluded the observed effects are consistent with the FEIS predictions for the following values: • Inuit Harvesting of Wildlife • Travel and Camps For example, Baffinland concludes that impacts to Inuit harvesting, and travel and camps are within the FEIS predictions because land user visits were recorded. As stated in our comments on the 2020 Annual Report, land user visits do not adequately provide a proxy indication of total or even a small proportion of impacts on culture, resources and land use, especially if one considers the reasons visitors provided for the reason of their visit, e.g., collecting fuel, having a meal, resting and warming up, etc. (Appendix G.13, p. 73). As the QIA stated in the comments on the 2020 Annual Report, Inuit have suggested in multiple forums that impacts have been greater than	The QIA continues to request that Baffinland revisit its conclusion against what Inuit are saying and observing regarding changes to culture, resources and land use to match both what Inuit have been saying and what the NIRB has now found. PC Condition 162 should be considered non-compliant until a monitoring program that more effectively measures these values is implemented.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.7.7 Culture, Resources & Land Use (PC Condition 162 through 166) **Page:** 510-524 **Document Name:** Baffinland Iron Mines 2021 Annual Report to	Since June 2020 Baffinland and the Qikiqtani Inuit Association (QIA) have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		expected re: ability/willingness to drink water from the land, dust distribution, willingness to harvest, sense of enjoyment out on the land, amount of narwhal and seal and changing body condition, among other considerations. As in the 2020 Annual Report, Baffinland states that "community members and other stakeholders continue to provide valuable input that guide the development of monitoring programs and mitigation measures" (p.514) and provides examples of their engagement and involvement of Inuit on specific monitoring programs (p. 514- 515). These statements demonstrate the engagement level and responsiveness of Baffinland, but as the QIA commented on the 2020 Annual Report, it also highlights that Baffinland monitoring is not effectively measuring effects to culture, resources and land use since there is such wide discrepancy between Inuit and Baffinland observations/experiences of these effects. We know as well that the NIRB Phase 2 Recommendations Report has found that impacts on Inuit Harvesting of Wildlife are already being reported by Inuit, impacts of a nature that are already potentially significant. This is direct contradiction with the Proponent's statement that Inuit harvesting of wildlife has stayed within predictions made in the FEIS, which were of insignificant adverse effects on Inuit harvesting of wildlife.		the Nunavut Impact Review Board, Appendix G.13, 2021 Socio-Economic Monitoring Report" [NIRB Registry: 220401-08MN053-2021 Annual Report-App G.13 SEMR-IA1E.pdf] **Section:** 8, Resource and Land Use; Appendix B Socio-Economic Monitoring Indicators (related to PC Condition 148) **Page:** 72-75 **Document Name:** Nunavut Impact Review Board Reconsideration Report and Recommendations for Baffinland's Phase 2 Development Proposal, May 2022. **Section:** 5.2.1.3 Food Security **Page:** 222	
101	QIA 2021 AMR SE #31	PC Condition 163 states, "The Proponent shall continue to engage and consult with the communities of the North Baffin region in order to ensure that Nunavummiut are kept informed about the Project activities, and more importantly, in order that the Proponent's management and monitoring plans continue to evolve in an informed manner" (p. 516). The QIA believes the information provided to be insufficient. Baffinland's ineffective efforts to provide Inuit with input into Project decision making is a primary contributor to Inuit dissatisfaction with the Project. It is the QIA's hope that this is addressed through the Inuit Certainty Agreement.	None.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf]	The author does not appear to have a complete understanding of the mechanisms that exist for Inuit to take part in decision making related to the current and future Project. Baffinland continues to provide Inuit with opportunities to engage in Project-related decision-making, including membership in essential working groups, monitoring programs, annual meetings and other key forums directly linked to Project design, implementation, oversight, and review. Qikiqtani Inuit Association (QIA) also appears to remove themselves as a source of empowerment for Inuit to affect change within the Project through the significant tools at their disposal, including the Inuit Impact Benefit Agreement and the Commercial Lease. Both of these agreements are

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
				Section: 4.7.7 Culture, Resources & Land Use (PC Condition 163) **Page:** 516-517	supported by multiple processes that being Baffinland and QIA together to review and, where needed, make modifications to the Project. Since June 2020 Baffinland and the QIA have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.
102	QIA 2021 AMR SE #32	When commenting on the 2020 Annual Report, the QIA requested that Baffinland provide a description of any incidences, near misses, or concerns communicated by Inuit and Stakeholders via the communications protocol and provide commentary on the effectiveness of the communications protocol to date. This request has not been fulfilled.	The QIA again requests that Baffinland provide a description of any incidences, near misses, or concerns communicated by Inuit and Stakeholders via the communications protocol, in tabulated format, and provide commentary on the effectiveness of the communications protocol to date.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.7.7 Culture, Resources & Land Use (PC Condition 164) **Page:** 518-520	The author does not clarify whether this request relates to effects on Inuit and Stakeholders as workers (i.e., worker safety) or as land users. Baffinland requests from Qikiqtani Inuit Association (QIA) provide further clarification on what they are referring to if this remains an issue to them. Notwithstanding the above, Baffinland has included in its 2021 Annual Report to the NIRB a summary of questions and concerns received through implementation of the shipping communications protocol, which includes reliance on the Pond Inlet shipping monitors that work over the entire duration of the shipping season. Appendix B.2 provides a summary of question and concerns received in 2021 during the shipping season. Correspondence received through a variety of communication methods on August 2, 5, 10 and September 28 provide an example of a typical response approach and follow-ups related to an issue of concern that was identified by various individuals on drifting south of Ragged Island. Baffinland follows a standard process in response to these scenarios. Typically, and in consideration of the type of concern being raised, follow-up discussions take place both internally and externally in order to better understand the issue. Once enough information is obtained, the issue is internally reported to the appropriate department to ensure the area of concern is heard and actioned where appropriate. Baffinland notes that QIA will be made aware through Wildlife Compensation Agreement mechanisms, should impacts relevant to Article 17 of the Mary River IIBA be identified by Inuit.
103	QIA 2021 AMR SE #33	PC Condition 165 states, "The Proponent is strongly encouraged to provide buildings along the rail line and Milne Inlet Tote Road for emergency shelter purposes and shall make these available for all employees and any land users travelling through the Project area. In the event that these buildings	The QIA requests that Baffinland bring reporting into compliance with the PCC.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact	Baffinland is in compliance with PC Condition No. 165, as confirmed by the NIRB Monitoring Report determinations of 2019-2020, and 2020-2021. Baffinland has made buildings along the Milne Inlet Tote Road accessible to employees and land users for emergency shelter purposes, negating the strong encouragement to install 'another form' of emergency shelters every 1 km. PC Condition

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		cannot, for safety or other reasons be open to the public, the Proponent is encouraged to set up another form of emergency shelters (e.g. seacans outfitted for survival purposes) every 1 kilometre along the rail line and Milne Inlet Tote Road. These shelters must be placed along Tote Road and rail routing prior to operation of either piece of infrastructure, and must be maintained for the duration of project activities, including the closure phase" (p. 521). The QIA believes the information provided to be insufficient. Baffinland has 4 refuge stations, and 11 sea can structures, which is far less than what is recommended in this PCC. No usage data or analysis is offered to suggest that what is in place is adequate aside from reporting that no Project related health and safety incidents with hunters and visitors occurred in 2021.		Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.7 Culture, Resources & Land Use (PC Condition 165) **Page:** 521-522	No. 165 includes no wording requiring Baffinland to monitor usage data or carry out analysis with respect to refuge stations and sea can structures.
104	QIA 2021 AMR SE #34	PC Condition 168 states, "The specific socioeconomic variables as set out in Section 8 of the Board's Report, including data regarding population movement into and out of the North Baffin Communities and Nunavut as a whole, barriers to employment for women, Project harvesting interactions and food security, and indirect Project effects such as substance abuse, gambling, rates of domestic violence, and education rates that are relevant to the Project, be included in the monitoring program adopted by the Qikiqtani Socio-Economic Monitoring Committee" (p. 529). The QIA believes the information provided to be insufficient. Baffinland presents information where available but does not describe efforts beyond the QSEMC process to develop indicators for the indirect effects where data does not currently exist. For example, no information is presented on gambling, marital problems, teenage pregnancy, or family violence. Understanding the QSEMC was not able to meet in 2021, if the QSEMC process is not capable of producing community level data to advance discussion and solutions to these critical topics, this emphasizes the importance of advancing an Inuit-led social monitoring program. Further, if Baffinland is capable of using evidence to make VSEC predictions in an EIS, NIRB should ensure that the data is generated to monitor and assess Project impacts against these predictions. This speaks to a clear need for Inuit-led monitoring with direct links to adaptive management responses. The QIA notes this is the same comment as provided in the 2020 Annual Monitoring Report Review.	The QIA requests that Baffinland develop indicators that can be monitored to fill gaps in the QSEMC process. The QIA notes this is the same request as provided in the 2020 Annual Monitoring Report Review.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.9 Governance and Leadership (PC Condition 168) **Page:** 529-531	The author has not provided any additional information, or indicated a specific deficiency with Baffinland's previous response. Baffinland has previously described the limitations in available community level socio-economic data. Recommending Baffinland 'develop indicators' without any further guidance is likely a product of the same issue, where neither Party is in a position to address the gaps that remain in meeting the suggested considerations of this term and condition. Baffinland has no additional specific information to provide at this time.

Cmt. #	QIA Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
105	QIA 2021 AMR SE #35	PC Condition 169 states, "The Proponent provide an annual monitoring summary to the NIRB on the monitoring data related to the regional and cumulative economic effects (positive and negative) associated with the Project and any proposed mitigation measures being considered necessary to mitigate the negative effects identified" (p. 532). The QIA agrees with Baffinland's assessment of compliance. However, Baffinland summarizes that no negative regional or cumulative socio-economic effects directly associated with the Project were identified in 2021. This statement requires verification through an updated Inuit employee survey, as one was not completed in 2021, and through the anticipated additional community engagements and QSEMC meetings, who did not meet last year.	The QIA requests that Baffinland ensure subsequent year's annual monitoring summary to the NIRB includes findings of the Inuit employee survey, efforts of the QSEMC, as well as COVID-19 related impacts that are associated with the Project.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053-2021 Annual Report Main Body-IA1E.pdf] **Section:** 4.7.9 Governance and Leadership (PC Condition 169) **Page:** 532-533	Due to COVID-19, Baffinland was unable to administer the Inuit Employee Survey in 2021. The Company will administer the survey at the Mary River Project in Q3 or Q4 of 2022 and will integrate survey findings into the 2022 Nunavut Impact Review Board (NIRB) Annual Report. The Pandemic had similar impact on the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) as the committee was unable to convene in 2021. Usually, Baffinland provides summary of discussion(s) held during the QSEMC and uses such discussion to supplement its socio-economic reports. The Government of Nunavut has announced preliminary planning for the 2022 QSEMC, which is to be held in the Fall. Baffinland will integrate 2022 QSEMC findings into its 2022 NIRB Annual Report. Impacts the COVID-19 pandemic had on the Project are discussed in Section 3.2.2 of the 2021 NIRB Annual Report.
106	QIA 2021 AMR SE #36	As the QIA commented on the 2020 Annual Report, it is not clear how the monitoring programs have responded to and incorporated Inuit Qaujimajatuqangit.	The QIA continues to request that Baffinland provide explicit description and demonstrate specific elements of the monitoring programs that have incorporated and/or been founded upon Inuit Qaujimajatuqangit. The QIA also continues to request that Baffinland demonstrate how analysis and interpretation of results has been informed by Inuit Qaujimajatuqangit, and dealt with situations where western science and Inuit Qaujimajatuqangit conflicted with one another, if at all.	**Document Name:** Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board [NIRB Registry: 220401-08MN053- 2021 Annual Report Main Body- IA1E.pdf] **Section:** 4.8.2 Alternatives Analysis (PC Condition 183) **Page:** 561-566	The author has not provided any additional information, or indicated a deficiency with Baffinland's previous response. Baffinland has no specific additional information to provide at this time. Since June 2020 Baffinland and the Qikiqtani Inuit Association (QIA) have worked towards the implementation of various commitments contained within the Inuit Certainty Agreement (ICA), many of which are specifically designed to elevate the role of Inuit Qaujimajatuqangit (IQ) and Inuit observations in Baffinland's environmental management system. As the Regional Inuit Association the QIA assumed responsibility for the majority of the work related to IQ and Inuit led monitoring, which has been financially supported by Baffinland. It is unclear to what extent this recommendation has been pursued by QIA to date in their own work, however, Baffinland is confident the systems are in place to adequately address this recommendation. Baffinland is open to working with the QIA and communities to further incorporate IQ into the Project, including the development of Inuit focused indicators and thresholds, with corresponding modifications to key monitoring programs contained within Baffinland's environmental management system. Further refinement on approach is needed and likely to be produced based on the outcomes of current permitting processes related to Phase 2 and the Production Increase Proposal (PIP) Renewal. Updates will be provided to the NIRB and reviewers as they become available.

Table A.2: Response to GN Comments on Baffinland's 2021 Annual Report to the NIRB

Cmt. #	GN Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
		CARIBOU MOVEMENT			
1	GN AR # 01 – CARBIOU MONITORING	For monitoring impacts on caribou, the Project currently relies on snow track and Height-of-Land (HOL) surveys, as well as the recent addition (in 2021) of a pilot remote camera program. It is the Proponent's view that: "… [H]eight-of-Land surveys, in conjunction with snow track surveys, snowbank surveys, and remote cameras, can provide reconnaissance and surveillance data on local caribou behaviours and interactions with the Project, and, when data is available, may provide an early indicator of relative changes in caribou populations." (EDI 2022a, Section 9). Since 2014, these monitoring programs have recorded no caribou observations, thus leaving the Proponent unable to conclude whether impacts on caribou are occurring despite community concerns that they are witnessing impacts (EDI 2022a, Figures 9.4 and 9.5; NIRB 2022). Further, the Proponent has concluded that caribou numbers in the vicinity of the Project are too low to warrant either mitigation through adaptive management (e.g., through measures such as road or helicopter traffic management) or the implementation of more in-depth caribou monitoring at a more intensive or regional scale (e.g., EDI 2022b). As reported in the 2021 Terrestrial Environment Monitoring Report (EDI 2022), the Proponent conducted 6 snow track surveys and 34 hours of HOL surveys in 2021. This yielded zero caribou observations leading the Proponent to conclude again that: "[B]ecause no caribou tracks were identified during snow track surveys in 2021, it cannot be determined whether Project infrastructure is impacting caribou movement." And "To date, insufficient caribou observations during HOL surveys have occurred to assess any Project-related effects on caribou behaviour or habitat use." (EDI 2022a) In contrast, during 2021, incidental observations by Project personnel recorded 104 caribou. Additionally, the movements of a small number of caribou collared by the GN were found to overlap with Project activities during 2021. As detailed in comments on five previous annual reports (e.g., GN 2019a, 2020) and during the NIRB's review of the Phase 2 Development Proposal (GN 2019b, 2019c), the Government of Nunavut (GN) has repeatedly expressed concern that these snow track and HOL surveys continue to fail in meeting the objective of detecting caribou for the	The GN recommends that the Proponent: 1. Provide information on the total financial cost of snow track and HOL surveys over the period 2014 to 2021. 2. Provide information on the number of helicopter flights that were conducted during the 2021 HOL surveys and how many of those flights were under the altitude thresholds specified in the Project Certificate. 3. Redirect investment in snow track surveys and HOL surveys to the following: a. An enhanced incidental caribou observations program involving the collection and analysis of data from Project personnel and other land-users, including a caribou harvest study. b. Regional scale monitoring of caribou through collaboration with the GN on a collaring program. This emphasis on regional studies should continue until caribou densities have increased to a point where snow track surveys and HOL surveys can provide data with	NIRB Project Certificate No. 005 (Amendment 3) Terms and Conditions 54(d)(ii), 58(f), 53(b), 54(b), and 58(b)	Regarding the Government of Nunavut's (GN's) comment: *"Since 2014, these monitoring programs have recorded no caribou observations, thus leaving the Proponent unable to conclude whether impacts on caribou are occurring despite community concerns that they are witnessing impacts…"* Baffinland is disappointed to see this statement given the number of times Baffinland has engaged with the GN to discuss the objective and intent of the current monitoring programs. Baffinland has been very clear that surveillance monitoring (e.g., Height of Land (HOL) and snow track surveys) is not meant to assess Project impacts but rather the presence of caribou in the area. A protocol to monitor and assess impacts of the Project on caribou was described in detail in the 2022 report, Caribou Monitoring | Triggers and Recommendations and requires a larger number of caribou to be present in the Project area in order to effectively run the program. This does not indicate a deficiency in the existing program, which is running as intended, but rather a mis-interpretation of the objective and intent. The GN is also aware that Baffinland has proposed to conduct aerial surveys of the Regional Study Area (RSA) in Fall 2022 or Spring 2023 to further quantify the distribution and density of caribou. Baffinland's consultant has already submitted a research permit to the GN regarding this survey, and this survey has been discussed in the last two Terrestrial Environmental Working Group (TEWG) meetings held on April 28th, 2021 and June 23rd, 2022. Additionally, Baffinland has concern with the following comment: *"Here the Proponent acknowledges the GN's concerns about the limitations of the available collar data and expresses an interest in acquiring additional collar data.* ***However, this contrasts with the Proponent's lack of investment in collaring data since the Project started ore production,*** *despite repeated GN recommendations to do so over the last 8 years."* This statement by the GN is misleading and disregards Baffinland's efforts to collaborate. Most recently, Baffinland corresponded with GN representatives on May 19th, 2022 via email to request that the GN present information related to their collaring program at the June 23rd TEWG meeting. The GN offered to present a summary of their ongoing work, but proceeded to say that they could not guarantee their attendance and that the work is not relevant to the project. This claim contradicts GN's comments in this response.

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		purposes of mitigating and monitoring Project-related effects. The fact that no caribou were observed during the last 8 years of these surveys could be a result of the following: 1. Caribou were not detected because they are simply not present in the area during the survey, possibly owing to either low population density or low survey effort. 2. Caribou were not detected due to avoidance behaviour and/or deflection from Project infrastructure and activities. The GN remains concerned that the current survey methods and level of survey effort do not offer the power to distinguish between these two possibilities. The snow track and HOL surveys have insufficient detection range and are conducted so infrequently (covering less than 0.4% of the time caribou could interact with the Project over the year) that they are very unlikely to detect caribou present near the Project. Contrary to the Proponent's view, the GN deems these monitoring methods inadequate as surveillance mechanisms for triggering mitigation of Project effects on caribou or for acting as an early warning mechanism triggering additional monitoring programs. As such, the GN deems BIM to be non-compliant with Project Terms and Conditions 53(b) and (c), and 58(b). **Importance to Review and Supporting Rationale** In 2021, for the purposes of caribou monitoring, the Proponent conducted: • Six snow track survey between February and November (EDI 2022b, Section 9.1.2). And • Thirty-four hours of Height-of-Land (HOL) survey across 24 sites in June (EDI 2022b, Section 9.3.2). These surveys observed no caribou and provided surveillance coverage for less than 0.4% of the time that caribou could have interacted with the Project in 2021. Additionally, 19 of the 24 HOL survey sites were accessed by helicopter, thus requiring at least 76 helicopter flights that could have disturbed caribou. These observations of zero caribou are added to the previous 7 years without caribou observations during these surveys. In contrast, 104 caribou were seen incidentally by Project personnel in 2021 (EDI 2022a, Section 9.5). All were outside the PDA, but some were within the Project's Regional Study Area (RSA). Over the period 2014 to 2021, while snow track and HOL surveys have observed no caribou, incidental observations by Project personnel have recorded 218	statistical power sufficient to detect Project-related effects and support day-to-day mitigation actions.		We agree that incidental observations have played an important role in determining caribou presence in the RSA. Because they occur on a continuous basis, there will, of course, be a greater number of observations through incidentals than through formal surveys. Given that snow track and HOL surveys are not detecting caribou in the Project area, aerial surveys will be used to provide greater certainty about the distribution and density of caribou in the broader RSA (see above). We appreciate the update the GN has provided regarding recently collared caribou on north Baffin Island, as well as the maps demonstrating movement trajectories and helicopter flights. However, it is unclear how these observations change the helicopter mitigations already in place based on well-developed best practices. In the case of helicopter overflights, the potential mechanism for disturbance is quite clear (i.e., sensory disturbance), and mitigations are chosen based on this knowledge. Additionally, collaring more caribou within the vicinity of those collared in 2021 (i.e., farther east and south of the Project) would not provide any information to support assessment of indirect habitat loss. The purpose of a Zone of Influence (ZOI) type analysis is to identify and test potential avoidance behaviour from observations. An identified ZOI would then warrant the investigation of a potential mechanism, followed by the implementation of mitigations based on our understanding of that mechanism. Baffinland requests that the GN explain how collaring would further inform on responses and mitigations related to helicopter overflights. Answers to the GN's questions: 1. The cost of snow track and HOL surveys is irrelevant to annual report review and effects monitoring. Baffinland is committed to conducting those surveys as identified in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP). 2. Helicopter flight information has been provided in Terrestrial Environmental Annual Monitoring Report (TEAMR) reports. The helicopter flights are not summarized specific to surveys. 3. While Baffinland appreciates the GN's concern for the efficient allocation of resources to monitor caribou, it is unclear how relevant providing such costs (of snow tracks and HOL surveys) would be to addressing the GN's concerns. Please see our response, below, for more details. a. Baffinland is considering enhancements to the incidental wildlife sightings log. This could include providing summaries of observations by helicopter as a rate of observation by helicopter hours. Mapping location may also be

<table>
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<td>caribou; 32 within the Project Development Area (PDA) and 186 outside the PDA, some of which were in the RSA (EDI 2015, 2016, 2017, 2018, 2019, 2020, 2021).

Additionally, in 2021, a small sample of north Baffin caribou were collared by the GN. Although the collars were not deployed in the vicinity of the Project for the purpose of studying Project- related effects, it is apparent that the movements of some individuals overlapped significantly with the Project activities reported in the 2021 Annual Report, such as low-level helicopter flights during calving and post-calving periods in June, July, and August (Compare figures 1-3 below with Maps 5-2 to 5-4 in EDI 2022a).

<table>
<tr><th>Month</th><th>Caribou Movements</th><th>Helicopter Flights</th></tr>
<tr><td>June</td><td>See Figure 1 (b) below</td><td>Map 5-2 (EDI 2022a)</td></tr>
<tr><td>July</td><td>See Figure 2 (b) below</td><td>Map 5-3 (EDI 2022a)</td></tr>
<tr><td>August</td><td>See Figure 3 (b) below</td><td>Map 5-4 (EDI 2022a)</td></tr>
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These data from collars and incidental observations show that interactions between caribou and the Project are occurring. However, these interactions are undetected, unstudied, and unmitigated under the Project's current monitoring regimen, which involves infrequent snow track and HOL surveys that are only capable of observing caribou over short distances close to the PDA. The Proponent claims that snow track and HOL surveys can:

"[P]rovide reconnaissance and surveillance data on local caribou behaviours and interactions with the Project, and, when data is available, may provide an early indicator of relative changes in caribou populations." (EDI 2022, section 9).

The GN suggests that these surveys are only useful when and if caribou densities are high and there is a reasonable probability of seeing caribou from which data can be collected. Snow track and HOL surveys are therefore not effective surveillance mechanisms, nor can they provide early indicators of Project effects on caribou as is claimed by the Proponent.

The GN questions the cost effectiveness of these surveys that have yielded no data over 8 years and suggests that these resources could be better allocated to programs that have demonstrated the ability to generate caribou data. Specifically:

1. An enhanced incidental caribou observations program involving the collection and analysis of data from Project personnel and <u>other land-users, including a caribou harvest study.</u></td>
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<td>included if operationally feasible. These metrics may be included in future Terrestrial Environment Annual Monitoring Reports.

b. Baffinland has always supported and accommodated the Government of Nunavut Department of Environments (GNDoE's) regional caribou monitoring efforts when those requests are made.

The GN's repeated request to collaborate on a collaring program is recognized by Baffinland. Baffinland first approached the GN with the idea of collaboration several years ago. The progress on this is the result of two factors:

i) The GN and Baffinland have yet developed a Memorandum of Understanding (MoU) or data use agreement that is acceptable to both Parties.

ii) The GN's disregard of an analytical study design that clearly outlines sample sizes required for a study of the Project's potential effects on caribou. The GN has not provided valid arguments with regards to why that study is not a valid study design, and instead suggests that Baffinland should be supporting a collaring study now, regardless of where or how many caribou are collared. The approach seemingly suggested by the GN is neither robust nor scientifically valid.

Baffinland will support the GN's caribou collaring efforts if the GN and Baffinland are able to finalize an MoU that provides a reasonable guarantee of access to the data and freedom to analyse the data with current and valid analytical techniques (see answer to part i) above.

The GN states in their comment that they question the use of helicopters to access HOL sites and deem helicopters as a potential source of disturbance to caribou. However, the GN also states that Baffinland should implement a more in-depth caribou monitoring program, at a more intensive or regional scale. Baffinland seeks clarification as to what GN recommends as an alternative to helicopters given the limitations that result from terrain, and weather patterns that pose safety risks to field staff. Baffinland requests that GN share details related to their ongoing caribou monitoring with regards to the use of aircrafts.

Additionally, Baffinland requests that the GN clarify how they calculated 0.4% with regards to the following statement: "These surveys observed no caribou and provided surveillance coverage for less than 0.4% of the time that caribou could have interacted with the Project in 2021." Completion times for snow-track surveys are not recorded to allow for this calculation. Baffinland would also like to highlight that snow track surveys can only be completed within 24 hours of a fresh snow fall, to allow for</td>
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Cmt. #	GN Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
		2. Investment in regional scale monitoring of caribou through collaboration with the GN in a collaring program. The GN also questions the use of helicopters to access HOL sites which itself is a potential source of disturbance to caribou. The GN maintains that regional scale monitoring is essential for assessing Project impacts on the north Baffin caribou herd. Even in its current low-density state, Project-related impacts on the herd could be occurring. Data from collars deployed in 2021 demonstrate that interactions between caribou and Project activities are occurring but are going undetected by current Project monitoring. The Proponent has not collaborated with the GN on a collaring program since the Project entered its operational phase; instead choosing to rely on local scale monitoring that has yielded zero data on caribou. The Proponent has argued, through a recent analysis, that data from a collaring program would only be useful for detecting Project effects when the north Baffin caribou herd increases in abundance and reaches much higher densities in the Project's RSA than at present (EDI, 2022b). As noted in a written review, the GN disagrees with the conclusions of this analysis (EDI 2022b, appendix B). For example, the GN commented that: "[W]hile the precision-sensitivity analysis is a useful one, the bootstrapping exercise is limited by the dataset. The report assumes that the source data are representative of caribou behavior under conditions existing when the Project is in its production phase. However, the 2008-2011 data used in the analysis do not satisfy this assumption. The analysis relies on collar data collected during a period of very low Project activity. For example, as indicated in Table 2, only 2 of the 68 collar years in the dataset used in the analyses covered a period when the Tote Road was being used for ore hauling. Even during this short period of hauling (in 2008) Project activity levels were well below those currently in effect and those expected for Phase 2. Additionally, as indicated on Page A-6 of the report, the precision-sensitivity simulations were performed using the winter season dataset only. The power to detect Project effects such as ZOIs depends in part on the magnitude of the effect on caribou. Therefore, the estimated sample size requirements obtained from the analysis represent those needed to detect effects of low-moderate magnitude during periods of low activity. Samples sizes needed during periods of higher activity, will therefore be lower. This should be reflected in the conclusions of the report and consideration should be given to adopting lower trigger thresholds for initiation of a collaring study of Project effects."			differentiation between old and new tracks. It is therefore not justifiable for the GN to cite survey times as a percentage of total time due to limiting factors that affect staff's ability to conduct surveys.

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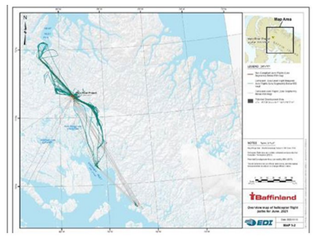
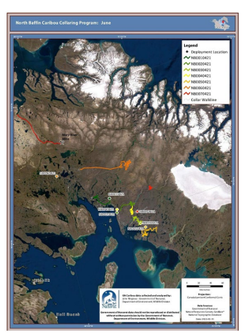
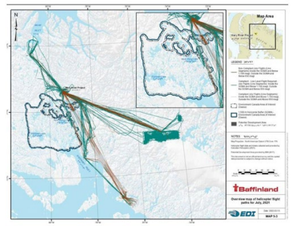
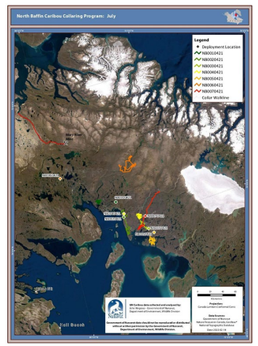
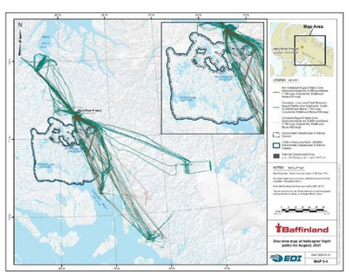
		The Proponent responded to this comment as follows: "Of course, analytical results are influenced by and dependent on the availability of quality data. It should be recognized that the GN provided the data in question. If more fulsome or up-to-date information is available, we are keenly interested in evaluating movement and indirect habitat loss during production years." (Emphasis added by reviewer) Here the Proponent acknowledges the GN's concerns about the limitations of the available collar data and expresses an interest in acquiring additional collar data. However, this contrasts with the Proponent's lack of investment in collaring data since the Project started ore production, despite repeated GN recommendations to do so over the last 8 years (e.g., GN 2019a, b, c; GN 2020). The GN continues to be willing to enter into Agreements with the Proponent to support regional caribou monitoring and data sharing. Figure 1. Maps showing: (a) Helicopter flights made in June 2021, as reported in EDI (2022a) and (b) Movements of 7 collared caribou during the same month (Government of Nunavut, unpublished data). a)  b) 			

Cmt. #	GN Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
		Figure 2. Maps showing: (a) Helicopter flights made in July 2021, as reported in EDI (2022a) and (b) Movements of 7 collared caribou during the same month (Government of Nunavut, unpublished data). a)  b)  Figure 3. Maps showing: (a) Helicopter flights made in August 2021, as reported in EDI (2022a) and (b) Movements of 7 collared caribou during the same month (Government of Nunavut, unpublished data). a) 			

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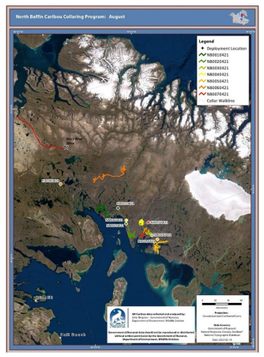
		b) 			
		SOIL AND VEGETATION SAMPLING			
2	GN AR # 02	Soil and vegetation monitoring in 2021 was restricted to sites near Milne Port only. Sites near other Project components (e.g., the mine and Tote Road) were not sampled. Sites further from the Project and reference sites that are key part of the monitoring program's methodology were also not sampled in 2021. This provided limited available data on metal concentrations in soil and vegetation. The 2020 Annual Report conclusions on this topic are not well supported by this limited data set. **Importance to Review and Supporting Rationale** Section 8.1.1.2 of the 2021 Annual Report (EDI 2022) states that: "[T]he study area was divided into three Project areas (Milne Port, Tote Road, Mine Site), and sampling was conducted at three distances from the PDA (Near: 0–100 m, Far: >100–1,000 m, and Reference: >1,000 m)." However, as shown later in the report (table 8-1), this sampling regimen was not employed in 2021. Sampling only occurred at 12 of the 60+ monitoring sites that are part of the Project's Soil and Vegetation Monitoring Program (SVMP). Of these 12, 11 were in the 'Near Distance' category and 10 were at the Milne Port. No explanation is provided for the limited sampling that occurred in 2021. On-going sampling at all monitoring sites, that are part of the program, is essential for detecting trends in metal concentrations or exceedances of thresholds that may pose a risk to the public and wildlife. The Report summarizes the 2021 monitoring results as follows: "Soil-metal concentrations at the Project predominantly indicated no net change (i.e., no significant increases) from the baseline values. Values were below or	The GN recommends that the Proponent: 1. Explain why, in 2021, soil and vegetation sampling for quantification of metal concentrations did not occur at all Program sites. 2. Confirm that sampling in 2022 will occur at all sites that are part of the Program. Provide additional technical information explaining how trends of increasing metal concentrations at the Milne site will be monitored in order to differentiate between natural variation versus a Project-related effect.	NIRB Project Certificate No. 005 (Amendment 3) Terms and Conditions 34 and 36.	1. As described in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) (EDI, 2019), "…pending results from early analyses, monitoring will occur every 3–5 years as determined by changes to base metal concentrations". Comprehensive Soil/Vegetation Metals Monitoring has been conducted annually since 2016. Baffinland has fulfilled its ongoing compliance monitoring requirements during this timeframe. Refer to section 8.1.1.1 Monitoring history and changes in sampling procedures at the Project of the 2021 Terrestrial Environment Annual Monitoring Reports (TEAMR). For logistical reasons, timing and access, Soil/Vegetation Metals Monitoring in 2021 primarily focussed on Milne Port and the Tote Road resulting in a reduced sample size; sampling of Far/Reference sites were less represented in the data capture. These additional descriptors as to "why there was a lower sampling effort compared with previous monitoring years" will be added to Section 8.1.1.1 Monitoring history and changes in sampling procedures. 2. The 2022 program has targeted a comprehensive sampling schedule at the Project. 3. Explanations and rationale about, e.g., discrete and/or isolated spikes soil-metals and lichen-metals are provided in Section 8.1.2 Results and Discussion of the 2020 TEAMR (if/where warranted) to contextualize data trends. It should be noted that most of the sampled soil and lichen have been at or below analytical detection limits suggesting generally low metals concentrations. So far, where soil/lichen metal spikes have been recorded, it cannot be differentiated whether increases in metal concentrations is associated with or caused by Project related effects or the possibility that the sampling locations are naturally rich in certain

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		within an acceptable range for soil-metal concentrations. Lichen-metal concentrations had some discrete increases at the Project, but all sample locations were below or within an acceptable range for lichen-metal concentrations. As such, soil-metal and lichen-metal concentrations presently represent a low risk to environmental and human health." (EDI 2022, Section 8.1.3) These conclusions seemingly disregard some of the key findings of the 2021 SVMP and do not account for the limited sampling that occurred. For example, noting that sampling for this Program has so far only been undertaken for three years (2019-2021) during operation of the Project (i.e., effect years) and during baseline years. Also noting that, in 2021, the only sampling of sufficient intensity for statistical power occurred at the Milne Port, and at sites in the so-called "Near" distance category. Examining results for the Milne Port "Near distance category, there appear to be emerging trends of increases in soil concentrations of metals such as Arsenic and Lead (Figures 8-1 and 8-4). These emerging trends are also apparent in the metal concentrations in vegetation in "Near" distance category at Milne Port (Figures 8-7 and 8-11). If these trends continue over the life of the Project, soil concentrations of these metals could reach a point where they become a concern. In reaching conclusions regarding soil and vegetation metal concentrations, the report fails to account for the limited sampling that occurred in 2021 and does not highlight these trends at Milne Port in the "Near" distance category; the only category for which sufficient data were collected in 2021. Trends for other project components (e.g., the mine and Tote Road) and distance categories may also be occurring but could not be detected because sampling did not take place. Finally, contrary to the report's conclusion that "Lichen-metal concentrations had some discrete increases at the Project", it should be noted that in the 2021 lichen metal concentrations at Milne Port (in the "Near" distance category) were above baseline for 3 of the 6 metals being monitored.			metal constituents. These potential trends are actively being monitored with emphasis on Far/Reference sites for comparison with background values. As mentioned in response to QIA #24, the experimental design emphasizes overlapping sampling sites/locations with the dustfall monitoring programs with the intention of cross-referencing any potential directional trends. In the 2020 TEAMR, a preliminary cross-disciplinary evaluation of dustfall and Soil/Veg metals data was completed (refer to EDI, 2021, Appendix I) where no meaningful and/or unifying data trends were identified. These potential trends are actively being monitored to inform the need for additional mitigation/management action. Reference: Environmental Dynamics Inc. (EDI), 2020. 2019 Mary River Project Terrestrial Environment Annual Monitoring Report - Prepared for Baffinland Iron Mines Corporation. July 2020. Environmental Dynamics Inc. (EDI), 2021a. 2020 Mary River Project Terrestrial Environment Annual Monitoring Report - Prepared for Baffinland Iron Mines Corporation. April 2021.
HELICOPTER TRAFFIC					
3	GN AR # 03	In 2021, between May and September, 2 560 helicopter flights (totally 1 440 hours of flying) were made to support Project-related activities (EDI 2022, tables 5-2 and 5-7). Of these flights, 66% were below the minimum altitudes set by Project Certificate Terms and Conditions (TCs) for reducing disturbance of migratory birds and established in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) to avoid disturbance of other wildlife (EDI 2022, table 5-4; BIMC 2016, section 3.3.2). Although most of these low-level flights had a rationale for flying below minimum	The GN recommends that the Proponent: 1. Clarify what regulatory requirements or specific public/personnel safety concerns necessitate helicopters to fly below the	NIRB Project Certificate 005 (Amendment 3) Terms and Conditions 59, 71, and 72	1. The aerodynamic behaviour of sling loads on site are largely unpredictable. A sudden displacement of the load distribution can create a dangerous pendulum movement that could necessitate a quick landing of the load, therefore the lower you are to the ground, the quicker the load could be rested on the ground safely. The helicopter's airspeed while slinging averages 60 Kt, therefore the pilots aren't expected to be able to reach and come down from 2,132 ft on a distance lower than 10 NM.

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		altitude thresholds (and were therefore deemed compliant with PC TCs), low-level helicopter flights remain a potential source of disturbance to wildlife such as caribou (e.g., Wolfe et al. 2000; Wilson and Wilmshurst 2019). In the 2021 Annual Report, the proponent provides a summary of the various rationales provided by pilots to justify flying below the minimum altitude thresholds. However, based on the information provided, it is unclear what specific constraints, such as regulations, safety, or ease of operations, were the basis for justifying low-level flying. **Importance to Review and Supporting Rationale** Given the relatively high intensity of Project-related helicopter traffic, and the expectation that this will continue, it is important to understand the basis upon which low-level flying is being justified. In this regard the following comments are noted: 1. Table 5-6 (EDI 2022) indicates that 39% of Project-related helicopter hours were flown below altitude thresholds in 2021 with the justification that slinging operations were being undertaken. It is unclear whether flying low during slinging operations is a regulatory requirement, or a decision made for other reasons. Table 5-5 (EDI 2022) states that slinging is performed at low-level for safety purposes, however, there do not appear to be regulations in this regard, and it is unclear what the specific safety concern is. With respect to aircraft safety, flying at a higher altitude would seem to provide greater safety to the crew given the ability to release a loaded sling and autorotate in the event of mechanical problems with the helicopter. Since the helicopters are flying over uninhabited areas, releasing a load at a higher altitude dose not pose a safety risk to persons on the ground. 2. Table 5-6 (EDI 2022) indicates that 2.3, 2.4 and 5.1% of flying occurred below altitude thresholds because they were "Short distance", "Sampling" or "Drop-off/Pick-up" flights, respectively, that were of short time/distance and did do not allow enough time for flying above altitude thresholds. Noting that helicopters are capable of vertical take-off, it is unclear what constitutes a "short distance" or "short duration" as described in table 5-5 (EDI 2022). 3. Table 5-6 (EDI 2022) indicates that 6.7% of Project-related helicopter hours were flown below altitude thresholds in 2021 with the justification that flight altitude was restricted by weather conditions. It is unclear whether there are procedures in place to delay helicopter flights when weather does not permit flying above minimum flight altitudes. To what extent does the Proponent mitigate potential impacts of wildlife through flight delays?	minimum altitudes specified in Project Certificate Terms and Conditions when slinging loads. Please cite any regulatory sources being used in this justification. 2. Clarify what criteria (kilometers and/or minutes) are used to determine when a flight is of short enough distance or duration to justify (as per tables 5-5 and 5-6 of the report) flying below the minimum altitudes specified in Project Certificate. 3. Clarify whether the Project's management plans include procedures for delaying helicopter flights when weather conditions would not permit flying above the minimum altitudes specified in Project Certificate. Please provide information on the number of flights, if any, that were delayed for this reason in 2021. 4. Clarify how the point-to-point flights shown on maps 5-2 to 5-5 of the report were justified. These fights were below minimum altitudes specified in Project Certificate but considered compliant (shown in green). Please clarify what regulatory requirements or specific public/personnel safety concerns necessitated		Slinging operations are largely short distance operations. For these short distances, it would take significantly more time to climb above a certain altitude and have to descend after. The helicopters typically average a climbing and a descending speed of 500 feet per minute. For example, to reach the altitude of 2,000 ft it will take 4 min. and another 4 min. to descend. This is additional time the helicopter would have to spend in the air, which has other negative impacts (cost, noise, delays in field programs). 2. The helicopter's average airspeed when not slinging is much faster then while slinging, therefore the pilots aren't expected to be able to reach and come down from 2,132 ft on a distance lower than 15 NM. Vertical take-off is different than vertical climb. The vertical take-off brings you to around 5 feet, then the acceleration goes up to 40 Kt and from there, at 20 feet, you climb at 60 Kt up to 500 ft, then between 80 and 100 Kt for the rest of the climb. This ascent/ descent is angled to ensure staff do not feel physical bodily effects from repeated vertical climbs over their entire shift. 3. Yes, Baffinland's helicopter pilots delay flights at the beginning of their shifts when there are poor weather conditions. 2021 documentation records were not maintained to enable us to report on 2021 numbers, however Baffinland will implement this reporting mechanism for future flights. The lack of a weather station network in the Project Area makes weather predictions difficult, therefore even if pilots have enough ceiling to reach the required altitude at the helicopter pad, there could always be low ceiling along the route, or later in the day. Flights to return staff from remote work areas to camp are required regardless of the ceiling, to ensure the safe return of staff already working in the field when poor weather starts. 4. The flights shown on the map consist of point-to-point line segments of 2 min flight duration. Flight segments above the altitude requirements were categorized as "compliant", flight segments below the altitude requirement without a pilot provided rationale were categorized as "non-compliant" and flight segments below the altitude requirement with pilot provided rationale were categorized as "compliant with rationale". The length of individual flights cannot be determined from the maps 5-3, 5-4 and 5-5 (July, August, September) since the take-offs and landing points are not identified on the maps. The flight lines on the map may be composed of multiple short flights but would appear as one continuous line. The flights on the map are also not differentiated by rationale type (i.e., short distance), therefore the maps cannot be used to determine the

Cmt. #	GN Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
		Many of the flights displayed on maps 5-3, 5-4 and 5-5 (July, August, Sept) in the report (EDI 2022) are identified as having been flown below minimum altitude thresholds but were deemed compliant because of justification provided. These are shown as green flight lines. Many of these appear to be straight line point-to-point flights that vary in length from approximately 20 to 120km between sites. The GN disagrees that flights of this length are of short duration or distance. It is unclear how these low-level flights were deemed compliant, noting that Project Certificate TC #71 specifically refers to "point-to- point" helicopter traffic and the requirement to mitigate its impacts, subject to safety requirements. What specific safety requirements or regulations necessitated these low- level flights?	flying below the minimum altitudes.		length of flights given a "short distance" rationale as suggested in the reviewer's comment.
GROUND-LEVEL DUST MONITORING					
4	AR # 04	As part of a pilot program to address comments from the Project's Terrestrial Environment Working Group (TEWG) and annual report comments from the Qikiqtani Inuit Association (QIA), six dustfall monitors were deployed at 0.5 m above ground level in 2021. The purpose of these 'ground-level' monitors was to assess whether monitors deploy at the standard 2 m height were underestimating ground-level dustfall (EDI 2022). However, these 'ground-level' monitors may not accurately quantify dust distribution at true ground-level. **Importance to Review and Supporting Rationale** The concern expressed by some TEWG members, including the QIA, was that collection cannisters deployed at 2 m above ground level would underestimate the spatial extent of dustfall. Dust deposited on the ground near the Project could be resuspended and redistributed further from the project over time via ground-level drifting from winds. This ground level drift of dust may not be captured by monitoring cannisters at a height of 2 m. To address this concern the Proponent deployed 6 collection cannisters in 2021 at a height of 0.5 m above ground-level (EDI 2022, section 7.3.1.3). The report does not provide an explanation or rationale for selecting 0.5 m above ground-level as a height to deploy 'ground-level' monitors. Deployment at this height may not accurately quantify dustfall at true ground-level. Recognizing that cannisters deployed at lower heights have the potential be inundated with snow during some months, deployment of monitoring cannisters near or at true ground-level should still be considered, especially during snow free periods.	The GN recommends that the Proponent: 1. Provide a rationale for selecting 0.5 m as the height to deploy 'ground-level' dustfall monitoring cannisters. 2. Consider deployment of cannisters at or nearer to true ground-level during snow-free months.	NIRB Project Certificate No. 005 (Amendment 3) Terms and Conditions 36, 50, 54(d), and 58(c)	1. The 0.5 m sampling height was selected to achieve "as close to ground level" as possible, while minimizing the potential for unintended factors and interactions: e.g., snow drifts, disturbance from rodents and other wildlife. 2. There are no dustfall collectors sufficient for sampling at ground level. Refer to response #15 (QIA 2021 AMR TE #1) for further context of using standardized 2 m tall collectors. Deployment of canisters at or near the ground-level was discontinued at the Meliadine Project at the specific request of Environment and Climate Change Canada (ECCC) (Walker, 2020). The Government of Nunavut Department of Environment (GNDoE) is likely familiar with that correspondence and decision as it is also involved in the review of that project's monitoring programs. Reference: Walker, E., 2020. ECCC Comments RE: 03MN107/16MN056 – Agnico Eagle Mines Ltd. – Meadowbank Gold Mine and Whale Tail Pit Projects - 2019 Annual Report. NIRB File: 03MN107/16MN056, NIRB Registry No. 330678. Environmental Protection Operations Directorate, Prairie and Northern Region, Yellowknife, Northwest Territories, Canada. 15 pp.

Table A.3: Response to ECCC Comments on Baffinland's 2021 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	COMPLIANCE MONITORING			
1	No authorizations from ECCC have been issued. The Mary River Project (the Project) is captured under several pieces of ECCC legislation such as subsection 36(3) of the Fisheries Act, Metal and Diamond Mining Effluent Regulations (MDMER), CEPA, Environmental Emergency Regulations, Interprovincial Movement of Hazardous Waste Regulations, and Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations. In 2021, on-site inspections were planned, but due to COVID-19 travel restrictions, no on-site inspections were conducted at the Project site. **MDMER** The Project is subject to the MDMER. The purpose of the MDMER is to authorize a deposit of certain deleterious substance(s) into water frequented by fish while monitoring the environmental effects of those deposits to ensure that deleterious substances are not released in quantities or concentrations that could result in harmful effects on waters frequented by fish. To do this certain effluent deposit conditions (concentrations, limits and parameters) apply so that regulated facilities are exempted and protected from the more stringent prohibition of subsection 36(3) under the Fisheries Act. Samples of the effluent by the Proponent must be taken and tested at the identified Final Discharge Point (FDP) to ensure the above conditions are met on a scheduled basis and reported. The three current FDP's are as follows: 1. FDP MS-06 Crusher Stockpile Pad Sedimentation Pond intermittently pumped during open water season via pipeline to Mary River. 2. FDP MS-08 Waste Rock Sedimentation Pond intermittently pumped during open water season to Water Treatment Plant then on tundra land to flow naturally to Mary River Tributary then to Mary River. 3. FDP MS-07 KM106 Stockpile Surface Water Management Pond intermittently pumped during open water season on tundra land to flow naturally 250m to Mary River (created in 2021). In April 2022, the Proponent provided notification for a fourth MDMER FDP (MS-11) at the Mary River Mine site for surface water management at KM 105. The MDMER reports are to be submitted via ECCC's online database (Mine Effluent Reporting System - MERS) and are reviewed by an assigned Enforcement Officer on a quarterly basis. The report verifications ensure that sampling and testing has been conducted in accordance with the MDMER and ensure reports are submitted on time. An Enforcement Activity includes a verification of each quarterly report, due 45 days at the end of each quarter: 1st Quarter (due May 15), 2nd Quarter (due Aug 14), 3rd Quarter (due Nov 14) and 4th Quarter (due Feb 14), as well as verification of the 2021 Annual Effluent Monitoring Summary Report (due March 31). Verification was completed on the Environmental Effects Monitoring (EEM) 2021 Annual Report (information related to effluent and water quality monitoring studies) for the Mary River Project. The officer submitted a copy of the EEM report to the EEM Coordinator for review to also confirm compliance. In 2021, the Proponent submitted all required MDMER reports:	N/A	N/A	Baffinland appreciates Environment and Climate Change Canadas (ECCCs) confirmation that no authorizations were issued in 2021.

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	1. First Quarter: Report submitted on time. No administrative verification review was possible or conducted as no effluent discharge from MS-06, MS-08, & MS-07 FDPs occurred in the first quarter; therefore, there were no compliance issues. 2. Second Quarter. Report submitted on time. The following alleged violations were determined: a. 14(2)(b) (did not collect acute lethality 30 days in advance test on pre- determined selected date) The MS-08 FDP acute lethality test 30 days in advance pre-determined selected date was June 1, 2021 but test actually happened on June 23, 2021. b. 14(1) (did not collect acute lethality sample for the month of May 2021) No Enforcement Measures were issued for the above identified alleged violations for the second quarter. 3. Third Quarter: Report submitted on time. The following alleged violations were determined: a. 14(2)(b) (did not collect acute lethality test on 30 days in advance pre- determined selected date as per section 14(2)(a)) The MS-08 FDP acute lethality 30 days in advance test pre-determined selected date was July 6, 2021 but the test actually happened on July 8, 2021. c. 14(2)(b) (did not collect acute lethality test on 30 days in advance pre- determined selected date as per section 14(2)(a)) The MS-06 FDP acute lethality 30 days in advance test was pre-determined selected date was July 6, 2021 but the test actually happened on July 8, 2021. d. 14(2)(b) (did not collect acute lethality test 30 days in advance pre- determined selected date as per section 14(2)(a)) The MS-06 FDP acute lethality 30 days in advance test pre-determined selected date was August 3, 2021 but the test actually happened on August 4, 2021. e. 14(2)(b) (did not collect acute lethality test 30 days in advance pre- determined selected date as per section 14(2)(a)) The MS-06 FDP acute lethality 30 days in advance test pre-determined selected date was Sept 7, 2021 but the test actually happened on Sept 1, 2021. f. 14(2)(b) (did not collect acute lethality test 30 days in advance on pre- determined selected date as per section 14(2)(a)) The MS-07 FDP acute lethality 30 days in advance test pre-determined selected date was July 6, 2021 but the test actually happened on July 8, 2021. g. 14(2)(b) (did not collect acute lethality 30 days in advance test on pre- determined selected date as per section 14(2)(a)) The MS-07 FDP acute lethality 30 days in advance test pre-determined selected date was Aug 3, 2021 but the test actually happened on August 17, 2021. No Enforcement Measures were issued for the above-identified alleged violations for the third quarter. 4. Fourth Quarter: Report submitted on time. No Administrative verification review was possible or conducted, as no effluent discharge from MS-06, MS-08, & MS-07 FDP occurred in the fourth quarter; therefore, there were no compliance issues. 5. 2021 Annual Effluent Monitoring Report: Report was submitted on time and no compliance issues noted.			

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	6. 2021 Annual EEM Report: Report was submitted on time and no compliance issues noted. On April 13, 2021 an email was sent to the Proponent informing them of new amendments coming into force under MDMER on June 1st, 2021, including: a. Authorized limits of prescribed deleterious substances: i) For existing mines, the amendments establish more stringent limits for arsenic, cyanide and lead, and add new limits for un-ionized ammonia. For these mines, the amendments do not change the limits for copper, nickel, zinc, suspended solids or radium 226. ii) For new mines that become subject to the Regulations starting on June 1st, 2021, or recognized closed mines that reopen on or after this date, the amendments impose more stringent limits for arsenic, copper, cyanide, lead, nickel, and zinc, as well as introduce limits for un-ionized ammonia. b. Non-acute lethality requirements: i) The amendments require that mine effluent not be acutely lethal to Daphnia magna. Daphnia magna is a small aquatic crustacean that is a food source for many fish. The amendments provide flexibility, so that a first acute lethality failure for Daphnia magna would not result in a loss of the authority to deposit, while subsequent failures would. c. EEM requirements: i) The amendments remove ammonia from the list of substances to be monitored in the effluent characterization under EEM Studies. **Reported Fisheries Act 2021 Spills** 1. 2021-146, 2021-164, 2021-247– Short-term freshet sediment releases - File closed no enforcement measures issued. 2. 2021-268 – KM 106 Run-of-mine stockpile seepages from toe of berm - File closed no enforcement measures issued. 3. 2021-332 – MS-06 ore crusher pond seepage - File closed no enforcement measures issued. 4. 2021-280 – Milne Port ore pad west ditch seepage - File closed no enforcement measures issued. **Other** As of 2021, the Project is captured under the new Greenhouse Gas Pollution Pricing Act/Output-Based Pricing System Regulations. On January 7, 2021 an email was sent to the Proponent notifying them that ECCC's new Environmental Emergency Regulations, 2019 came into force on August 24, 2019, replacing the previous version of the Environmental Emergency (E2) Regulations (2011). The email informed them that the 2nd version of the Technical Guidelines for these Regulations are available on the ECCC website, as of December 30, 2020. A copy of			

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	this document can be found at: https://www.canada.ca/en/environment-climate-change/services/environmental- emergencies-program/regulations/technical-guidelines.html			
	NO2 DATA			
2	A summary is provided of the results of the air quality monitoring during 2021 at the Milne Inlet site on page 70 (PDF page 116) for Condition No. 7 and page 72 (PDF page 118) for Condition No. 8. The report states that the NO_2 data validity for December falls below the >75% criteria, therefore December's data is considered invalid. This statement is not correct when considering maximum hourly or 24-hour concentration nor the number of occurrences exceeding the 1-hour Canadian Ambient Air Quality Standards (CAAQS). Furthermore, concentrations tend to be highest in the winter.	ECCC requests that the available December NO2 data be included when evaluating the maximum hourly and 24-hour concentrations of NO2 and the number of exceedances of the 1-hour CAAQS.	Mary River Project 2020 NIRB Annual Report • Section 4.6.2 Air Quality, Project Certificate Condition Nos. 7 and 8	The data capture for NO_2 concentrations at the Port Site Complex (PSC) during December 2021 was 46.2% due to an extended power failure resulting in a shutdown of the NO_2 continuous air sampler. There were 344 valid hours of NO_2 concentrations recorded at PSC during December 2021. For those 344 valid hours the mean NO_2 concentration was 10.8 parts per billion (ppb). For those 344 hours the maximum NO_2 concentration was 61.1 ppb which is less than the National Ambient Air Quality Standard (NAAQS) for 1-hour NO_2 concentrations (213 ppb). None of the 344 hourly NO_2 concentrations were greater than the 1-hour Canadian Ambient Air Quality Standard (CAAQS, 113 ppb). The maximum 24-hour average NO2 concentration was 45.6 ppb which is below the NAAQS for 24-hour average NO_2 concentrations (106 ppb).
	NEW INCINERATOR STACK TEST RESULTS			
3	Baffinland installed one new incinerator at the 380-person camp at Milne Port. Prior to operating the unit, the incinerator was subject to initial stack testing to confirm emissions standards were being met, as per Project Certificate Condition No. 12. Due to the results of the initial stack test, the incinerator unit was not commissioned. However, no details are given as to why the incinerator unit did not pass the initial stack test. Additional information is valuable to ensure proper incinerator operation and compliance with the Canada-wide Standards (i.e., emissions standards).	ECCC recommends Baffinland provide the initial stack test results and details on why the new incinerator unit did not meet emission standards.	2021 QIA-NWB Annual Report for Operations • Section 2.3.2.3 Modification No. 11 – Installation of an Incineration Unit at Milne Port's 380-Person Camp	While Baffinland is providing a response below, it would like to clarify that this comment appears to be related to the 2021 Qikiqtani Inuit Association- Nunavut Water Board (QIA-NWB) Annual Report for Operations, and not the 2021 Annual Report to the NIRB. Preliminary stack testing at the 380-person camp incinerator indicated exceedances of dioxin/furan parameter standards compared to the Canadian Council of Ministers of the Environment Canadian-wide Standards (CCME CWS). As a result, Baffinland has not put the 380-person camp Incineration Unit into operation, and will complete confirmatory stack testing to ensure emissions standards are being met, as required by PC Condition No. 12, prior to operation. This confirmatory testing has not been completed to date, and therefore the 380-person camp incineration unit has not been re-commissioned nor operated yet. All results to date are discussed in Appendix G.23 in the 2019 NIRB Annual Report and Appendix G.21 in the 2020 NIRB Annual Report.
	WASTE INCINERATOR EMISSIONS			
4	In 2021, two incinerators (one at the Mine Site and one at Milne Port) were operated throughout the year to incinerate solid waste. Waste incineration has the potential to produce air emissions of dioxins, furans, and mercury, which are toxic, persistent, and can bioaccumulate. Incinerators were operated as per regulatory guidelines, including the Canada-wide Standards (CWS) and the Project's Waste Management Plan (WMP; document BAF-PH1- 830-P16-0028). According to Section 3.5 in the	Given the toxicity, persistence, and ability for dioxins and furans to bioaccumulate, it is important to ensure that emissions from waste	2021 QIA-NWB Annual Report for Operations • Section 5.2.1 Site Incinerators	While Baffinland is providing a response below, it would like to clarify that this comment appears to be related to the 2021 QIA-NWB Annual Report for Operations, and not the 2021 Annual Report to the NIRB. a. All results to date are discussed in Appendix G.23 in the 2019 NIRB Annual Report and Appendix G.21 in the 2020 NIRB Annual Report

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	WMP, initial incinerator stack tests are completed immediately following commissioning of the incinerators, and follow up stack tests will be completed every five (5) years for dioxins, furans and mercury to ensure incinerators are operating within applicable air emission standards (e.g., the CWS). The annual amount of waste incinerated at the Milne Port and Mine Site are approximately 180 and 450 tonnes per year, respectively. The CWS are intended to minimize the emissions and potential effects of dioxins, furans, and mercury. The standards stipulate that facilities which incinerate more than 26 tonnes per year of waste annually must confirm compliance with the CWS by annual stack testing (CCME, 2000 and 2001). The most recent incinerator stack testing for the Mine Site and Milne Port seems to have been completed in August and September 2020 (Appendix G.21 of the 2020 NIRB Annual Report). Both incinerator stacks were tested three times each, and the average of the three stack tests exceeded the CWS for dioxins and furans for both incinerators. According to the Source Testing Report (Appendix G.21 of the 2020 NIRB Annual Report), one of the three samples for each incinerator stack test may represent an outlier and could be excluded from the average. If the outliers are excluded, then the average of the remaining two stack tests are below the CWS for dioxins and furans. The Source Testing Report stated that the high concentrations of dioxins and furans during the tests identified as 'outliers' was likely caused by process faults (Mine Site test) and high level of wet waste (Milne Port test). However, the report does not indicate how frequent these issues are and whether corrective actions were taken to minimize the chance of these issues reoccurring.	incinerators at large facilities are below the CWS. Since recent incinerator stack tests appear to exceed the CWS, ECCC recommends Baffinland: a. Provide results from all incinerator stack tests that have been conducted on the Mine Site and Milne Port incinerators. b. Provide rationale for any stack test results that exceed the CWS, as well as actions that can be taken to minimize the likelihood of future exceedances. c. Update the Waste Management Plan to require annual stack testing for dioxins and furans, and mercury for all incinerator units incinerating more than 26 tonnes of waste per year, consistent with the CWS for dioxins and furans, and mercury.	Baffinland Iron Mines Corporation Waste Management Plan (BAF-PH1-830-P16- 0028, Rev 8, March 2020) Canada-wide Standards for Mercury Emissions (2000); Canadian Council of Ministers of the Environment (CCME), Quebec City, QC Canada-wide Standards for Dioxins and Furans (2001); Canadian Council of Ministers of the Environment (CCME), Winnipeg, MB Mary River Project 2020 NIRB Annual Report – Appendix G.21 2020 Source Testing	(Baffinland, 2021). The 380-Person Camp Incineration Unit has not operated since failing a stack test in 2020, and will not be re-commissioned until stack testing shows it meets the applicable Canadian-wide Standards (CWS) standards. b. As discussed in Appendix G.23 and G.21 of the 2019 and 2020 NIRB Annual Reports, Baffinland has consistently responded to stack testing results that are above the CWS criteria by implementing corrective actions and performing confirmatory testing that the incinerators meet CWS. c. Baffinland will incorporate this requirement into the next revision of the Air Quality and Noise Abatement Management Plan. Reference: Baffinland Iron Mines Corporation (Baffinland), 2021. Baffinland Iron Mines Corporation – Annual Report to the Nunavut Impact Review Board, Rev 0. May 6, 2021. NIRB Registry No. 335134.

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
GROUNDWATER WELL INSTALLATION				
5	In 2020, Baffinland's consultant recommended the installation of permanent 2" diameter monitoring wells, to improve data collection repeatability and to conduct hydraulic conductivity tests. Logistical obstacles prevented the planned installation in 2021, and the Groundwater Monitoring Report notes that installation will be "considered" in 2022.	ECCC recommends Baffinland confirm whether installation of the monitoring wells is proceeding in 2022.	2021 NIRB Annual Report Appendix G.8 Groundwater Monitoring Program Report • Section 2.2 Groundwater Monitoring and Sampling at Landfill Facility	Baffinland continues to investigate and refine the plan to install permanent monitoring wells at the Project, due to the varying challenges of drilling and installing wells in a remote Arctic setting. In the interim, the groundwater monitoring program will continue in 2022 regardless if permanent wells or drive-point piezeometers are installed.
GROUNDWATER WELL LOCATION				
6	There is inconsistency in the designation of one of the exposure (down-gradient) sites. Figures 2 and 4 show the 2021-installed monitoring site as MS-LF-GW-REF1, although it is at the same site as previously sampled MS-LF-GW1 wells, and the 2019-installed MS-LF- GW-REF1 is up-gradient of that. The UTM location in Table B is the same as for down- gradient GW1 sites previously sampled. Sample results refer to both MS-LF-GW-REF1 and MS-LF-GW1 for 2021 data, but for 2021, Figures 2 and 4 only show MS-LF-GW1-REF1 which is at the location of previous sampling sites designated MS-LF-GW1.	ECCC recommends Baffinland clarify whether MS-LF-GW-REF1 (2021) is a reference sample or should be designated MS-LF-GW1, noting that the location corresponds exactly to MS-LF-GW1-18, which is a down-gradient sample from 2018. ECCC recommends Baffinland provide the updated figures which show where the 2021 MS-LF-GW-REF1 and MS-LF-GW1 sites are located.	2021 NIRB Annual Report PC Condition 20 2021 NIRB Annual Report Appendix G.8 Groundwater Monitoring Program Report • Table B: Summary of Monitoring Locations and Depths – Landfill Facility • Figure 2 - Current and Historical Groundwater Monitoring Network – Landfill Facility & Figure 4 - Groundwater Elevation, Contour Map, September 20, 2021 - Landfill Facility	In reviewing the 2021 field notes and photos for the groundwater monitoring program, it was found that the coordinates for the 2021 MS-LF-GW-REF1 location were reported incorrectly due to a transcription error, thus the incorrect table and figure in the 2021 Groundwater Monitoring Report. The correct coordinates for the 2021 MS-LF-GW-REF1 site are 17 W 560837 7912640, which was only a 2 m distance from the previous monitoring event. The 2021 MS-LF-GW1 location did not change from 2020, and mistakenly the label did not get updated to include 2021 on the figure. Baffinland will ensure this figure is updated for future reporting.
CONTAMINANT MIGRATION IN GROUNDWATER ADJACENT TO LANDFILL				
7	Drive-point piezometers were installed in Sept. 2021 up-gradient and down-gradient of the landfill to evaluate concentrations of various parameters in groundwater. The Groundwater Monitoring Report noted that chloride and sulphate concentrations again exceeded Federal Interim Groundwater Quality (FIGQ) guidelines down-gradient of the landfill at MS-LF-GW1, and for sulphate only at MS-LF-GW2. In Section 5.1.1, the report	ECCC recommends assessing the potential for impacts on Sheardown Lake if trends continue to	2021 NIRB Annual Report Appendix G.6 CREMP	Sheardown Lake is assessed annually as part of the Core Receiving Environment Monitoring Program (CREMP), which includes water quality, sediment quality, and biological monitoring components. Surface water quality monitoring under the CREMP has included assessment of sulphate and dissolved uranium. The 2021

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	concludes that chloride is stable or decreasing, although above FIGQ guidelines, and sulphate is exhibiting increasing trends and impacting groundwater in the vicinity of the landfill. Additionally (Section 4.2.2): • "Dissolved metal parameters including boron, cadmium, lead, nickel, and uranium, and total metal parameters including boron, cadmium, chromium, lead, nickel, titanium, and uranium concentrations were greater than their respective FIGQ Guidelines at one or more of the down-gradient drive-point piezometers in 2021; however, these metal exceedances were not detected at any of the reference locations. • Dissolved silver was reported below the laboratory detection limit (LDL, 0.0005 mg/L) at all monitoring locations; however, the LDL is greater than the FIGQ Guideline of 0.00025 mg/L. • Dissolved copper, and total metal parameters including aluminum, copper, iron, and zinc were greater than their respective FIGQ Guidelines at one or more drive-point piezometers in 2021 including at one of the reference locations (MS-LF-GW-REF2)." The report notes in Section 5.1.2 that there are increasing trends in dissolved iron, uranium and nickel with concentrations greater than FIGQ guidelines, indicating groundwater quality impacts due to dissolution from the metal debris that has been disposed of in the landfill. Section 5.1.3 provides discussion of down-gradient total organic carbon (TOC) and dissolved organic carbon (DOC) concentrations, which were an order of magnitude greater at MS-LF-GW1 and MS-LF-GW2 than other monitoring sites. DOC concentrations at the down-gradient monitoring locations ranged from 4.34 mg/L to 28.6 mg/L, compared to DOC concentrations at the reference locations which ranged from 2.83 to 4.48 mg/L. The highest concentrations occurred down-gradient of the landfill at MS-LF-GW1 (28.6 mg/L) and MS- LF-GW2 (20.8 mg/L). TOC concentrations followed similar patterns, with the highest concentrations detected at down-gradient locations MS-LF-GW1 (30.3 mg/L) and MS-LF- GW2 (21.6 mg/L). There are no FIGQ Guidelines for DOC or TOC, but the report concluded that the measured levels of TOC and DOC combined with historical data indicates potential petroleum hydrocarbon impacts in the groundwater adjacent to the landfill. In their response to QIA/NWB comments, Baffinland noted that: "The groundwater monitoring indicated increasing trends of sulphate and dissolved iron, nickel, and uranium. Of these parameters, sulphate and dissolved uranium concentrations were elevated at Sheardown Lake NW and sulphate was elevated at Sheardown Lake SE in 2021, as compared to at the reference lake in 2021 as well as compared to baseline. Despite slight elevation of concentrations of these parameters at Sheardown Lake compared to the reference lake and/or to baseline, concentrations remained well below AEMP benchmarks and/or water quality guidelines. Therefore, Baffinland will continue to monitor concentrations of the parameters indicated above in surface water of Sheardown Lake, and will implement trend analyses in future CREMP studies for these parameters in order to track changes over time."	show increasing concentrations of parameters in groundwater. This may include tracking concentrations in Sheardown Lake in 2022 and conducting trend analyses for sulphate and dissolved uranium, as well as flagging any increases in water quality parameters that may be correlated to groundwater inputs. ECCC recommends using lower detection limits to analyse silver in groundwater (i.e. below guidelines levels of 0.00025 mg/L).	2021 NIRB Annual Report Appendix G.8 Groundwater Monitoring Program Report • Section 4.2.2 Landfill Facility • Section 5.1 Landfill Facility 2021 QIA-NWB Annual Report Appendix E.14 2021 Responses	CREMP (Minnow, 2022) indicated that: "Of the parameters elevated at Sheardown Lake NW in 2021 compared to baseline and the reference lake, sulphate and dissolved uranium concentrations have recently shown increasing trends in groundwater adjacent to Sheardown Lake NW (Tetra Tech, 2022), suggesting that the nearby landfill was a possible source of these parameters. However, no other parameters that exhibited increasing concentrations in groundwater over time at wells adjacent to Sheardown Lake NW (i.e., dissolved iron and nickel), or showed elevation and/or increasing trends in surface water of Sheardown Lake NW in 2021." To date, no adverse effects to phytoplankton, benthic invertebrates, and fish (Arctic char) health were indicated at Sheardown Lake NW based on comparisons to reference conditions and to applicable Sheardown Lake NW baseline conditions. The 2022 CREMP will flag potential increases in concentrations of parameters in surface water of Sheardown Lake SE that may be correlated to groundwater inputs. Baffinland will be conducting additional monitoring in September 2022, as described in response to QIA's Comment # QIA 2021 AMR M&AE #6. An important aspect of the 2022 program is leachate sampling from test pits excavated within the landfill, to understand the potential generation of leachate. This data will also help in predicting contaminant transport rates. Baffinland has also noted the high 2021 detection limits for silver, and is engaging the external lab to ensure a lower detection limit is used for 2022 analyses, if possible. Reference: Minnow Environmental Inc. (Minnow), 2022. 2021 Core Receiving Environment Monitoring Program Report. Prepared for Baffinland Iron Mines Corporation. March, 2022. Tetra Tech Canada Inc. (Tetra Tech), 2022. 2021 Groundwater Monitoring Program. Prepared for Baffinland Iron Mines Corporation. Ref. 704-ENG.EARC03209-02. March 24, 2022

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	ECCC notes that while Sheardown Lake NW parameters were below Aquatic Effects Monitoring Plan (AEMP) benchmarks and guidelines, elevated concentrations of aluminium, chloride, nitrate, sulphate, and uranium were measured. Sheardown Lake SE was similarly below benchmarks and guidelines, but showed increases in aluminum, nitrate, manganese, molybdenum, uranium and sulphate. At the Hazardous Waste Berm site there were elevated concentrations of ethylbenzene, zylene, petroleum hydrocarbon (PHC) F2 and naphthalene, with two monitoring locations showing possible groundwater impacts. Further sampling is to be conducted in 2022.			
MONITORING OF TOTAL AND DISSOLVED METALS IN GROUNDWATER				
8	The Groundwater Monitoring Report again states in Section 7.0 Recommendations: "Discontinue the analysis of total metals as dissolved metals results are more representative for assessing groundwater quality impacts." The basis for this is to be consistent with the FIGQ Guidelines which apply to dissolved contaminants, potential sorption of contaminants to soil particles, and factors such as turbidity, sediment content, or surface water infiltration. In response to this recommendation in the 2020 Annual Report, ECCC noted: *However, it would be helpful to have an evaluation of contaminant mobility in the substrate adjacent to the landfill; specifically, the likelihood of movement of particulate-associated contaminants whether through direct transport or desorption processes.* In the response to comments, Baffinland states: "Baffinland has retained a consultant to review existing groundwater data and prepare a memo to evaluate contaminate mobility in the substrate adjacent to the landfill. The analysis is ongoing and Baffinland will submit this memo to the NWB and ECCC by April 30, 2022." ECCC has not seen this memo yet, and looks forward to reviewing the analysis.	ECCC notes that focusing the groundwater analyses on the dissolved fraction is reasonable, provided there is an understanding of contaminant mobility and behaviour of particulate- associated contaminants.	22021 NIRB Annual Report Appendix G.8 Groundwater Monitoring Program Report • Section 7.0 Recommendations 2021 QIA-NWB Annual Report Appendix E.14 2021 Responses	Baffinland is continuing to work with a consultant to review existing groundwater data to evaluate contaminant mobility in the substrate adjacent to the landfill. A contaminant mobility assessment will be conducted based on additional monitoring data including sampling and characterization of leachate within the landfill itself. Conservative ions (i.e., chloride or sulphate) will be modelled, which will make the model conservative and potential sorption/desorption less relevant. The analysis is ongoing and Baffinland will submit this memo upon completion.
BENCHMARKS FOR CHROMIUM, TABLE NOTES AND BASELINE DATA				
9	Several parameters in the water quality tables have "Not Calculated" shown for the baseline data for Camp, Mary and Sheardown lakes. It is not clear why values have not been included. For Table 3.1, Note 5 references changing detection limits for chromium 6+ and changes to be made in 2014. The current table includes the Cr3 and not the Cr6 benchmark. It is not clear what the rationale for changing the species of chromium used for the benchmark, noting that this increased the benchmark from 0.001 to 0.089 mg/L. While Mary Lake shows Cr3 baseline at 0.005 mg/L it isn't clear if this is a detection limit or measured value. No data are provided for Camp or Sheardown Lakes. Under Table 3.1, Notes 1, 2, 3, 4 and 6 appear to be relevant but Notes 5, 7, and 8 do not appear to be related to current data in the table. For Table 3.2, Notes 5 and 7 should be removed, and Note 6 should be included in the table for relevant parameter(s).	ECCC recommends updating Tables 3.1 and 3.2 of the AEMP document to include baseline data for the 3 sites. Notes under both tables should be updated and corrected for clarity. A rationale or discussion should be provided on the change to Cr3 from Cr6 and use of the associated less conservative benchmark.	2021 NIRB Annual Report Appendix G5 AEMP • Tables 3.1 – 3.3 Water Quality Benchmarks for Lakes, Streams, & Sediments	Parameters in the water quality Tables 3.1 and 3.2 for which a "Not Calculated" note is indicated for a particular waterbody is related to baseline data being below respective laboratory Method Detection Limits (MDL) for that parameter (see Intrinsik, 2014). Therefore, no statistical value was indicated/ applies to "NC" acronym references in Tables 3.1 and 3.2. For additional clarity, the footnote related to "NC" will be updated to "Not Calculable" for the reason stated herein. Footnotes for Table 3.1 and 3.2 will be updated to reflect the ECCC comments for better clarity. Because speciation of chromium (Cr) is not conducted, the benchmark selected reflects the fact that trivalent Cr is the most thermodynamically stable oxidation state under ambient redox conditions and no anthropogenic sources of Cr are likely at the Baffinland Mary River Project.

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	Table 3.3 would clearer with the abbreviations defined (i.e. NGA, SEL).	Abbreviations should be defined for Table 3.3.		Footnotes for Table 3.3 will be updated to include definition of abbreviations as suggested by ECCC. Reference Intrinsik, 2014. Development of Water and Sediment Quality Benchmarks for Application in Aquatic Effects Monitoring at the Mary River Project. June 26, 2014.
MARINE ENVIROMENTAL EFFECTS MONITORING PROGRAM				
10	Under Condition 83a of the Annual Report a summary is provided of work done under the MEEMP, which is required by Condition 76. This section of the report notes that detailed information is available in the draft 2021 Annual Report for the MEEMP and Aquatic Invasive Species (AIS) Monitoring Program (cited as Golder 2022a) which was released to the Marine Environment Working Group (MEWG). The Draft MEEMP report for the previous year is normally circulated in April to the MEWG for comments, then once comments are received, a final version is submitted to the NIRB in the late summer or fall. The timing for report release and review is problematic with respect to aligning comments with the NIRB Annual Report each year.	ECCC recommends that Baffinland submit the draft MEEMP in conjunction with the Annual Report for review, with any comments on the draft MEEMP to be either addressed in an updated final version or in a separate response.	2021 NIRB Annual Report Condition 76 2021 NIRB Annual Report Condition 83a	Baffinland is currently reviewing and updating the Terms of Reference for the Marine Environment Working Group (MEWG) and plans to address this recommendation therein. In its review of the MEWG Terms of Reference, Baffinland continues to evaluate the logistics of an adjusted annual meeting schedule and information exchange timelines to accommodate the submission of draft plans (with comments) in conjunction with Annual Report submissions.

Table A.4: Response to DFO Comments on Baffinland's 2021 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	DFO Topic / Reference	Reference Section	Baffinland's Response
1	DFO and Baffinland have met on several occasions to discuss on going impacts of sediment and erosion on the tote road. Passage issues on several sites have been identified. DFO notes that culverts need to maintained as designed to ensure adequate fish passage. Any restriction of flow due to sedimentation or loss of pipe integrity is considered an impact to fish passage. DFO has received a request for review for some remediation work for the Tote road and is conducting a site visit in late June.	Baffinland continues to routinely inspect fish bearing water crossings at the Project and address identified concerns. Remedying fish passage concerns at water crossings remains a top priority for Baffinland to ensure compliance with the Project's Tote Road Fisheries Act Authorization (NU-06-0084; DFO, 2007) and No Net Loss and Monitoring Plan (Knight Piésold, 2007). Assessments of fish bearing water crossings will be continued in 2022 as part of the Project's fish habitat monitoring program.	Project Certificate Condition No. 19/45/ 47	Baffinland will continue to work with DFO to address issues with fish passage along the Tote Road.
2	DFO supports the continued revisions the TOR to ensure that the intent and vision as an advisory body is achieved. The ability of the Group to develop key thresholds and suggest mitigations has been discussed throughout the Phase 2 processes.	Revisions to the MEWG Terms of Reference (TOR)	Project Condition Certificate No.77	Baffinland thanks the author for its continued support of revisions to the Marine Environment Working Group (MEWG) Terms of Reference. Baffinland continues to review and update the MEWG Terms of Reference to ensure the intent and vision of the Working Group is clearly defined and that, overall, the Working Group can effectively consult with and make recommendations to Baffinland on Project-related activities and infrastructure related to the marine environment.
3	Add draft reports as appendices	Referencing Draft 2021 MEEMP and NIS/AIS (Golder, 2022a) however it is not in the reference list.	Project Certificate Condition 86/87	Baffinland is currently reviewing and updating the Terms of Reference for the Marine Environment Working Group (MEWG) and plans to address this recommendation therein. In its review of the MEWG Terms of Reference, Baffinland continues to evaluate the logistics of an adjusted annual meeting schedule and information exchange timelines to accommodate the submission of draft reports (with comments) in conjunction with Annual Report submissions.
4	Please inform DFO the results.	Of the new taxa, all but one (*Tricellaria* sp.) had clear records of occurrence in the Canadian Arctic with no record on the AIS databases. Accordingly, *Tricellaria* sp. was sent for independent verification, and results are pending.	Project Certificate Condition 86/87	A review of the genus indicated that Tricellaria sp. contains four species native to the Arctic, and one species *(T. inopinata*) flagged as a potential invader. It is thus considered most likely that the unidentified Tricellaria specimen would be one of the four species with a documented Canadian Arctic range rather than an unconfirmed Non-Indigenous Species (NIS); therefore, this identification was designated "No Risk". However, due to the presence of *T. inopinata* on Aquatic Invasive Species (AIS) databases, the specimen was treated with extra caution and sent for independent verification. Should the identification be resolved to *T. inopinata,* the risk determination would be revised, the taxa would be placed on the watchlist and flagged for further review. Should more specimens of *Tricellaria sp*. be found in future studies, they would be treated with the same caution and sent for independent verification by a third-party independent taxonomic expert for this genus (i.e., treated as non-indigenous until confirmed otherwise). Baffinland will inform DFO of the results as soon as they become available.

Cmt. #	Reviewer's Detailed Comment	DFO Topic / Reference	Reference Section	Baffinland's Response
5	DFO notes that in the 2021 Marine Environment Effects Monitoring Program and AIS Monitoring Program a modification was made to remove zooplankaton sampling. DFO recommends that BIM consult with DFO and the MEWG prior to modifying monitoring programs.	NIS/AIS results will continue to be presented to the MEWG on an annual basis, and adjustments to the programs will be made as needed. It is recommended that sampling across multiple trophic levels continues in 2022, that the taxonomic inventory for Milne Inlet continue to be expanded upon, and that all flagged specimens continue to be screened for known geographic ranges and NIS/AIS status.	Project Certificate Condition 87	See response to QIA 2021 AMR M&AE #15 (above). Baffinland has, and will continue to, consult with DFO and the MEWG prior to modifying or expanding its Aquatic Invasive Species/ Non-Indigenous Species (AIS/NIS) monitoring program.
6	-Provide data or references that are specific to Eclipse Sound and Admiralty Inlet. At the moment, there is no support for the hypothesis that the conditions have changed between Eclipse Sound and Admiralty Inlet and are the cause of the change in distribution of narwhals. Based upon DFO's review of the draft 2021 Marine Mammal Monitoring Report, DFO recommends reassessing how the abundance measurement is calculated. Best practice is to average all the study replicates. Recent publications have indicated effects to Narwhal caused due to anthropogenic noise even if it is below ambient noise levels. Trevo, Blackwell, Ditlevsen, Conrad, Samson, Garde, Hansen and Peter (Nov 2021) Narwhals react to ship noise and airgun pulses embedded in background noise. Biol. Lett. 17: 20210220. https://doi.org/10.1098/rsbl.2021.0220 To state that open water shipping is not the likely cause of displacement, is in conflict with the precautionary approach, and is not supported by literature or IQ. Further mitigations should discussed by the MEWG. Currently, DFO recognizes efforts by BIM to further reduce ship interactions with marine mammals, including the proposal to travel within convoys and no ice breaking.	Lessons Learned: e) Despite the elimination of both potential anthropogenic causal factors (underwater noise from icebreaking and impact pile driving for small craft harbour construction) in 2021 through adaptive management, results from the 2021 monitoring programs again indicated lower narwhal numbers in Eclipse Sound during the 2021 shipping season. Underwater noise from these sources is therefore not considered to be an influencing factor on narwhal abundance in Eclipse Sound during the 2021 season. Open-water shipping, the other Project contributor of noise in the RSA, is also not considered a likely cause of narwhal displacement from the RSA based on the available visual, acoustic, and tagging results collected to date. Given that the combined stock estimate for Admiralty Inlet and Eclipse Sound indicate that the regional narwhal population remains stable relative to pre-shipping conditions, and in consideration of the available IQ regarding the degree of exchange between narwhal groups on their summering grounds, the observed decrease in narwhal relative abundance in Eclipse Sound most likely reflects natural exchange between the two putative stock areas, or alternatively, that animals, at this point in time, are finding more favourable ecological conditions enroute to, and in Admiralty Inlet, due to changing ice conditions, prey availability and/or predation pressure, all of which are known to be influenced by a rapidly changing climate in the Arctic. It is also possible that what is occurring is a combination of the two instances, where a natural	Project Certificate Condition 101.	Available Inuit Qaujimajatuqangit (IQ) does support the hypothesis that narwhal modify their distribution between Eclipse Sound and Admiralty Inlet (as well as with other areas in Northern and Eastern Baffin Island (NEBI)) during the early shoulder and open-water period, in response to environmental factors such as changing food concentrations, killer whales, and shipping, in addition to other factors largely unknown to humans. We refer Fisheries and Oceans Canada (DFO) to Baffinland's response to QIA 2021 AMR M&AE #22 (above) for these references. DFO has also stated on record some support for this hypothesis, as per the following: *"When we do our aerial surveys, what we're trying to count is the number of narwhal that come back repeatedly to the same summering areas; right? So the goal for our surveys is to look at what we are calling management units, and our collective thinking is that all of these animals come back predictably to the same areas every year. But narwhals are like people, you know, they change over time. And we're also looking at the effects of climate change and reduced ice. So climate change may account for some of this western shift in distribution that we're seeing where people in Kugluktuk are now seeing narwhals, and also sometimes in Cambridge. We heard in the springtime during our consultation meetings that people are seeing different narwhal now here that they suspect come from Greenland. This could be because we think that these narwhals share a common wintering area in Baffin Bay, and it could be that some Greenland narwhal are following Canadian narwhal back to summering areas. It could be that they're chasing food. There is a lot of information yet to acquire to improve our collective knowledge of these narwhal. It's my view that things don't stay the same from year to year to year to year. So some of these new observations that we're seeing could be due to changes in habit, food supply…"* Patt Hall, DFO Resource Manager, 28 Nov 2016 (NWMB, 2016). We acknowledge that DFO considers averaging survey replicates as best practice. However, the objective of the August (Leg 2) aerial survey program was to survey both the Eclipse Sound and the Admiralty Inlet grids over a maximum span of 3 days. This was only accomplished for one of the replicate surveys (i.e., Survey 4) due to weather and ceiling limitations. Given it is known that narwhal can and do move between the two 'putative' summer stock areas (Eclipse and Admiralty), priority was assigned to the surveys that met the 3-day survey window threshold,

Cmt. #	Reviewer's Detailed Comment	DFO Topic / Reference	Reference Section	Baffinland's Response
		exchange of narwhal is being driven by local and temporary ecological differences. To better understand what is occurring additional engagement and monitoring is needed, inclusive of regional scape monitoring that looks at the population dynamics of the Baffin Bay narwhal stock as a whole.		as these would be associated with more accurate abundance estimates for the combined stock. We agree with averaging survey replicates if more than one survey meets this requirement. With regards to Trevo et. al. (2021), this paper focuses mainly on narwhal reactions to airgun sounds. Airguns generate high intensity, impulsive noise that is not comparable to the low intensity non-impulsive sound from vessels. As such, narwhal reactions to these two sources of noise are not expected to be the same. Heide-Jorgensen et al. (2021) provides more details of the study in question, and that paper does allude to similar narwhal responses to the seismic vessel when the airguns were not active also. JASCO understands from communication with the authors that a subsequent paper by Trevo et. al. (2021) is forthcoming that will provide more details about narwhal responses during exposure to the airguns and to the seismic vessel alone (with a multi-beam sonar in use). It is our understanding that no trials were conducted with only vessel noise prior to any exposure to airgun noise, which may have biased the results. Nevertheless, inclusion of any discussion of results from this study is best reserved until detailed results of responses to narwhal to the vessel without airguns are available. Enhanced mitigation measures for implementation in 2022, in light of the precautionary principle, were discussed in detail with DFO and other MEWG members during four (4) separate MEWG meetings in May and June 2022 (14 hours total, 03 May, 14 June, 22 June, 29 June). A 2022 shipping update with mitigation measures was provided to MEWG members by Baffinland during the June 14th, 2022 meeting. These enhanced measures for 2022 are also outlined in Baffinland's 2022 NAMRP (Baffinland, 2022). References: Baffinland Iron Mines Corp. (Baffinland), 2022. 2022 Narwhal Adaptive Management Response Plan (NAMRP). Document # BAF-PH1-830-P16-0024. Rev1. 19 July 2022. Heide-Jørgensen, M.P., S.B., Blackwell, O.M. Tervo, A.L. Samson, E. Garde, R.G. Hansen, MC Ngô, A.S. Conrad, P. Trinhammer, H.C. Schmidt, M.-HS. Sinding, T.M. Williams and S. Ditlevsen. 2021. Behavioral Response Study on Seismic Airgun and Vessel Exposures in Narwhals. Front. Mar. Sci. 8:658173. doi: 10.3389/fmars.2021.658173 Nunavut Wildlife Management Board (NWMB), 2016. Public Hearing to Consider Modifications to Total Allowable Harvests for the Eclipse Sound and Admiralty Inlet Narwhal Management Units. Volume 1 (28 Nov 2016) and Volume 2 (29 Nov 2016) – Hearing Transcripts. Adele Jones Court Reporting Trevo, O.M.., S.B. Blackwell, S. Ditlevsen, A.S. Conrad, A.L. Samson, E. Garde, R.G. Hansen and M.P. Heide-Jorgensen, 2021. Narwhals react to ship noise and airgun pulses embedded in background noise. Biology Letters. 17(11).

Cmt. #	Reviewer's Detailed Comment	DFO Topic / Reference	Reference Section	Baffinland's Response
7	On page 363 and table 4.33 for the 2021 NIRB Annual report, BIM indicates a decrease of 24% in the Early Warning Indicator (EWI) Annual Proportion of Immature Narwhal compared to the 2014 to 2015 Baseline Condition. BIM states that this change is not statistically significant. However, BIM also notes that "*The effect size observed in 2021 […] may be the result of a low sample size in 2021 which may also explain the absence of power to detect a statistically significant decrease in the EWI*". In addition, in APPENDIX B Power Analysis - Bruce Head Shore-based Monitoring Program, BIM performs a power analysis and states that "*the original analysis did not find a significant difference between 2021 and the baseline 2014-2015 data due to the insufficient power.*" Therefore the power analysis shows that the sample size was too small to detect statistical significance. However, the observed 24% decline in the Annual Proportion of Immature Narwhals. The 24% decline should trigger further assessment as it is meant to be an early warning indicator. DFO continues to recommend additional EWIs beyond calf/cow proportion to better mitigate inter annual variation of tracked indices, as stated in our review of the 2020 Annual report.	Early warning indicators: During 2021, a total of 80 narwhal groups (comprising 263 individuals) were observed in the Behavioral Study Area, including 19 calves and 7 yearlings. The combined annual proportion of immatures relative to the total number of narwhal observed in 2021 was 0.102. This represented a 24% decrease from the 2014 to 2015 baseline condition but did not statistically significantly differ from the 2014 to 2015 baseline (p=0.13)	Project Certificate Condition 111	The 24% decline did trigger a further assessment. The additional analysis of aerial photographic survey data to quantify the Early Warning Indicator (EWI) will be shared with the Marine Environment Working Group (MEWG) once this analysis is complete (Q3 of 2022). Baffinland has already incorporated additional EWIs beyond calf/cow proportion, which include numerous behavioural response indicators for narwhal. These are summarized in the marine mammal Trigger, Action and Response Plan (TARP) which is integrated in Baffinland's Marine Monitoring Plan (MMP) (Baffinland, 2021). This information has and continues to be available to the NIRB and to members of the MEWG. These are also summarized in Baffinland's 2022 Narwhal Adaptive Management Response Plan (NAMRP) (Baffinland, 2022a), which was submitted to the NIRB (and MEWG members) as part of (Baffinland, 2022b – see Appendix D). Baffinland will continue to engage with the MEWG for the potential development of additional EWIs. To date, no additional EWIs with identified available baseline data and corresponding thresholds have been proposed by the MEWG. Baffinland welcomes DFO to provide detailed written recommendations with regards to EWIs implemented for the Project, including available baseline data and proposed thresholds. References: Baffinland Iron Mines Corp., (Baffinland), 2021. Marine Monitoring Plan (MMP). Marine Mammal TARP and Action Toolkits. NIRB File # 334146. Baffinland Iron Mines Corp., (Baffinland), 2022a. 2022 Narwhal Adaptive Management Response Plan (NAMRP). Document # BAF-PH1-830-P16-0024. Rev1. 19 July 2022. Baffinland Iron Mines Corp., (Baffinland), 2022b. Marine Shipping and Vessel Management Report to the Nunavut Impact Review Board. 19 July 2022. 301 p.

Table A.5: Response to PCa Comments on Baffinland's 2021 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	PCa Recommendations	Reference Section	Baffinland's Response
1	This annual report presents results based on both 2020 monitoring reports as well as draft 2021 monitoring reports. MEWG members are currently reviewing and providing comments to BIMC on the draft 2021 monitoring reports, as a result, MEWG feedback has not been considered or incorporated into the draft 2021 monitoring reports that inform this Annual Report. PCA would like to reiterate that the inclusion of MEWG feedback on draft individual monitoring reports is important as this feedback has the potential to influence BIMC's analysis and final reports which, in turn, inform this Annual Report. The timing of annual report submission to NIRB results in the NIRB seeking comments from interested parties on a report that is based on monitoring reports that have not benefitted from MEWG input.	BIMC should work with the NIRB, MEWG, and other relevant parties to determine a reporting and review schedule that provides for the inclusion of MEWG feedback to BIMC's draft monitoring reports and resolution of associated issues, prior to preparation of this annual report. To ensure that all of Parks Canada's concerns related to the 2021 draft monitoring reports are clear to the NIRB, we have included our comments to BIMC on the 2021 draft monitoring reports as an attachment here.	N/A	Baffinland is currently reviewing and updating the Terms of Reference for the Marine Environment Working Group (MEWG) and plans to address this recommendation therein. In its review of the MEWG Terms of Reference, Baffinland continues to evaluate the logistics of an adjusted annual meeting schedule and information exchange timelines to accommodate the submission of draft reports (with comments) in conjunction with Annual Report submissions.
2	The assumption of narwhal remaining stationary is not clear throughout the conclusions made regarding the estimate of the amount of time that narwhal behavior is impacted by shipping. For example, under group size (p. 318) the 2021 Annual Report states, "However, given the temporary nature of the effect (i.e., up to 7 min per vessel transit), this would not be considered a biologically significant behavioural response…" This wording only takes into account that the estimate of time that narwhal behaviour is impacted may be lesser based on the assumption that narwhal remain stationary when the time impacted may also be greater than the estimate provided. For example, narwhal may travel in the direction of the transiting ship or may move to an area where sound propagation and received levels of sound increases (e.g., deeper water or in areas that are not sheltered by features such as islands) and therefore narwhal may be impacted for a greater amount of time than the estimate suggests.	Parks Canada recommends revising wording throughout this section (pp. 318-321) and elsewhere where the impacts of vessels on marine mammal behavior is discussed to account for the fact that the amount of time narwhal may be impacted may be both lesser or greater than the estimate provided based on the assumption that narwhal remain stationary during a vessel transit.	2021 BIM Annual Report Table 4.2.6 Marine Mammals Impact Evaluation PC No. 101 Results, g. Group Composition and Behaviour p. 318-321	Given the large disparity between the speed of a transiting ship and that of a transiting narwhal (the ship being much faster than a narwhal), the difference in disturbance time with respect to noise exposure (>120 dB) between a stationary narwhal, and that of a narwhal moving in the same direction of the ship, would be negligible. The disturbance time with respect to sound exposure would not extend beyond the nature or magnitude of the response described (i.e., temporary, localized low-level effects that are not considered biologically significant behavioural responses).
3	The exchange of narwhal between putative summer stocks for the Baffin Bay narwhal population is presented without clarifying the current observed magnitude of exchange compared to the level of exchange identified by the best available science in past studies and Inuit Qaujimajatuqangit.	Parks Canada recommends clarifying that although both western science and Inuit Qaujimajatuqangit have identified that there is a natural exchange of narwhal between putative summer stocks for the Baffin Bay narwhal population (i.e., between summer stock areas such as Eclipse Sound and Admiralty Inlet), the current **magnitude of exchange** on an annual basis and resulting large-scale distribution shift has not been observed to date with satellite tag data or aerial survey abundance estimates and to our knowledge has not been identified by Inuit Qaujimajatuqangit. For example, scientific evidence from Fisheries and	2021 BIM Annual Report Table 4.2.6 Marine Mammals Impact Evaluation PC No. 101, Results, Trends, e. p. 324	The summary provided by Parks Canada misrepresents the Inuit Qaujimajatuqangit (IQ) shared with the Nunavut Wildlife Management Board (NWMB) by the Qikiqtaaluk Wildlife Board (QWB). The QWB does not say that there is "natural exchange between stocks" but that there is no separate Eclipse Sound and Admiralty stock at all. Narwhal move freely throughout North East Baffin Island (NEBI). We refer Parks Canada to Baffinland's response to QIA 2021 AMR M&AE #22 (above).

Cmt. #	Reviewer's Detailed Comment	PCa Recommendations	Reference Section	Baffinland's Response
		Oceans Canada identified 16% of narwhal tagged in 2012, and from 2016-2018 visited other summer management areas during July 25-August 24 (i.e., the period corresponding to when aerial surveys typically take place) and 33% of narwhal travelled to one or more summer management areas during the typical open water season (DFO, 2020). Based on point estimates of abundance in Eclipse Sound from 2019 to 2021 the approximate decline on an annual basis from 2019-2021 ranges from 50-52% during the typical aerial survey period compared to 16% of narwhal tagged in 2012, and from 2016-2018. Reference: DFO (2020). Information Related to the Delineation of the Eclipse Sound and Admiralty Inlet Narwhal Stocks. Canadian Science Advisory Secretariat, Science Advisory Report 2020/048.		
4	Regarding the Early Warning Indicator of proportion of immatures, the 2021 Annual Report states, "The EWI threshold for narwhal has not been exceeded to date despite an increase in year-over-year shipping associated with the project." The EWI has decreased 24% in 2021 and the lack of detection of a statistically significant decline may be attributed to a low sample size and absence of statistical power rather than conclusive evidence that the EWI threshold has not been exceeded to date. Further, Baffinland also states that, "In 2022, Baffinland plans to resume icebreaking operations in 2022 in conjunction with mitigation measures implemented in 2020…".	Parks Canada recommends clarifying whether a precautionary approach to icebreaking and shipping will be taken during the 2022 operational season if more conclusive results are not available from the secondary assessment of the EWI metric with a photo analysis of the 2021 aerial survey data or if the secondary analysis of the EWI threshold does indicate a statistically significant decline in the proportion of immatures.	2021 BIM Annual Report PC No. 111, Trends, Early Warning Indicators p. 368	Baffinland confirms that a precautionary approach to icebreaking and shipping will be taken during the 2022 operational season. For more information on planned measures under this approach, please see the 2022 Narwhal Adaptive Management Response Plan (NAMRP), submitted to the NIRB on July 19, 2022. Key precautionary approach measures under the 2022 NAMRP include: • no icebreaking to commence the 2022 shipping season; • use of convoys throughout the 2022 season to further reduce total sound exposure; and • no more than 80 ore carriers will be chartered during the 2022 season to transport 6 Mtpa, if approved.
5	The appended 2020 Open Water Passive Acoustic Monitoring Report (Appendix G.25, p. 51) states that "It is well known that currently there are no established regulatory thresholds under any jurisdiction that would aid in the determination of significance of acoustic masking effects on narwhal…There is no vocalization masking model developed in the literature that is narwhal-specific and no research is available on the hearing ability (i.e., audiogram) of narwhal. More research is needed to understand the process and biological significance of masking, as well as the risk	Parks Canada recommends clarifying in the appropriate sections of the 2021 Annual Report the current limitations for interpreting the metric of Listening Range Reduction and its lack of thresholds, narwhal- specific research, literature comparisons with other species, and mitigation approaches.	2021 BIM Annual Report PC No. 109, pp.353- 360 Appendix G.25 – 2020 Open Water Passive Acoustic Monitoring Report	There is no NIRB process or mechanism for updating Baffinland's 2021 Annual Report to the NIRB. The limitations of the Listening Range Reduction (LRR) metric have been clearly outlined in JASCO's annual acoustic monitoring reports to date (see Section 4.1 of Austin et al., 2022). We acknowledge this recommendation from Parks Canada and will include a note on this limitation in Baffinland's

Cmt. #	Reviewer's Detailed Comment	PCa Recommendations	Reference Section	Baffinland's Response
	of masking by various anthropogenic activities, before masking can be incorporated into regulation strategies or approaches for mitigation." Baffinland's 2021 NIRB Annual Report does not provide this context for the interpretation of results for Listening Range Reduction (LRR).		Appendix G.25, p. 51	2022 Annual Report to the NIRB (in the appropriate acoustic sections where LRR is mentioned). Reference: Austin, M.E., C.C. Wilson, K.A. Kowarski, and J.J.-Y. Delarue. 2022. Baffinland Iron Mines Corporation – Mary River Project: 2021 Underwater Acoustic Monitoring Program (Open-Water Season). Document 02633, Version 1.0. Technical report by JASCO Applied Sciences for Golder Associates Ltd.

Table A.6: Response to CIRNAC Comments on Baffinland's 2021 Annual Report to the NIRB

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
EFFECTS MONITORING - DUST MANAGEMENT AND MONITORING					
1	1	In the past review of the 2020 Annual Report, CIRNAC recommended that Baffinland consider including the following measures to increase quality of monitoring activities to address ongoing concerns regarding the generation of dust by Project components and the potential effects of dustfall on land-based ecology and the aquatic receiving environments: a. Amend the current dustfall monitoring program to address Project Condition #21 (iii) to determine the chemical composition of dust entering aquatic systems along representative distance transects at right angles to the Tote Road and radiating outward from Milne Port and the Mine Site. b. Chemical composition testing of soil base sites for bioavailable metal loadings from the dust as a result of contact with surface water / soil moisture (for example, acidity, leachable metals, sulphate, nitrate). Baffinland has addressed item a) in their Terrestrial Environment Annual Monitoring Report (TEAMR) 2021 and clarified that the passive dustfall program does include the chemical composition of dust and the passive sampling system provides a proportion of each metal in the total dustfall sample expressed as a rate. CIRNAC recognizes that monthly (seasonal) dustfall rates are provided in the TEAMR 2021. There is also active sampling of the terrestrial biota to assess metals uptake in plants/lichen from dustfall. Bulk chemistry soil sampling is also ongoing to assess dustfall impacts across the site. While bulk chemistry soil sampling is a good measure of the spatial extent of dustfall related to the Project Development Area, it is not an indicator of mobility of contaminants within the receiving environment. To characterize contaminant mobility and potential impacts to aquatic environments CIRNAC suggests pairing bulk metal soil sampling with leachability sampling to better understand the soluble constituents in the dustfall. Characterizing the leachability would help Baffinland understand the indirect transport pathways of dissolved soluble constituents to aquatic receptors. Dissolved soluble constituents are generally more bioavailable to aquatic receptors. In order to visualize and evaluate of the sources and extent of contamination within the Project Development Area, Baffinland should consider developing a dustfall impact Conceptual Site Model (CSM). The CSM should be a living document that is used to continually evaluate the sources of contamination, direct and indirect dustfall transport pathways and support identifying where impacts to aquatic receptors may be occurring.	CIRNAC recommends that Baffinland consider including the following measures to increase the quality of monitoring activities: a. Develop a dustfall impact Conceptual Site Model (CSM). The CSM should be a living document that is used to summarize and evaluate the sources and extent of contamination, transportation pathways and where impacts to receptors may be occurring within the Project Development Area. b. Clearly indicate how dustfall rate correlates with direct or indirect contaminant loading into the aquatic receiving environments. c. Undertake leachability and geochemical testing on the soil and sediment samples to assess the mobility and uptake of metals, from dustfall, in the environment.	• Project Certificate No. 005 (Amendment 03) Terms and Conditions 10, 20, 21 • Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board (March 31, 2022): ○ Section 4.6.2 Air Quality, Table 4.6 – Air Quality Impact Evaluation ○ Section 4.6.5 Groundwater & Surface Water, ○ Section 4.6.6 Vegetation and Self-assessed Performance on Project Conditions #10, 20, 21. • Baffinland. Response to Reviewer Comments on the 2020 NIRB Annual Report Mary River Project, Project Certificate No. 005. (August 11, 2021). • EDI. Terrestrial Environment 2021 Annual Monitoring Report (TEAMR 2021) (March 31, 2022).	a/b. CIRNAC's questions/comments relate to fundamental understanding of potential mobility pathways for metals. We recognize that the proposed conceptual model would provide value for risk assessment and derivation of effects predictions. However, the Project is presently at the effects monitoring stage; it's not clear that this understanding would necessarily enhance existing/established and ongoing environmental monitoring procedures and data capture. Recommendations [a-c] are outside the scope and intent of the Terrestrial Environment Monitoring Program. c. Soil metals at the project are presently at or below lab/analytical detection limits. It is not clear what the value of pursuing further geochemical testing on soil and sediment under these circumstances.

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
EFFECTS MONITORING – DUST MANAGEMENT AND MONITORING PLAN AND ROADS MANAGEMENT PLAN					
2	2	In 2021, Baffinland used dust suppressants, including Dust Stop® (rebranded as Dust Blockr®) on roads in addition to other products described in its Roads Management Plan. The application was completed along the full length of the Tote Road in late June 2021, with maintenance applications when deemed necessary until July 10, 2021. Water was used as the primary dust suppressant, including periods when DustBlockr® could not be implemented due to suboptimal ambient air temperature. The application of DusTreat ® was also tried in 2019 and implemented in November 2020. In response to CIRNAC 2020 request to update the Dust Management and Monitoring Plan, Baffinland reported updates to the Dust Management Protocol in the Air Quality and Noise Abatement Management Plan, where the protocol specifies the use of Dust Stop® (now Dust Blockr®) on roads. CIRNAC notes the Air Quality and Noise Abatement Management Plan was updated in 2021 to include Dust Stop® and DusTreat ®, however, there are no procedures or application protocols included specifically for DusTreat® on the stockpiles. In addition, the correct dust suppressant product name- Dust Blockr® - should be referenced instead of Dust Stop®. Both the Air Quality and Noise Abatement Management Plan and the Roads Management Plan meet the requirements outlined in Term and Condition 10.	CIRNAC recommends that Baffinland update the Air Quality and Noise Abatement Management Plan to include procedures and protocols surrounding the application of DusTreat ® on stockpiles. CIRNAC also recommends that Baffinland update the Air Quality and Noise Abatement Management Plan and Roads Management Plan to reflect the appropriate product used on site.	• Project Certificate No. 005 (Amendment 03) Term and Condition #10 • Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board (March 31, 2022) ○ Baffinland. Appendix G.3. Air Quality and Noise Abatement Management Plan (2021); ○ Baffinland. *Roads Management Plan* (2020); and ○ Self-assessed Performance on Project Conditions 10. • EDI. TEAMR 2021 (March 31, 2022); and • Baffinland Response to Reviewer Comments on the 2020 NIRB Annual Report Mary River Project, Project Certificate No. 005. (August 11, 2021).	Baffinland confirms that the next revision of the Air Quality and Noise Abatement Management Plan will include this information.
EFFECTS MONITORING – WASTE ROCK FACILITY – IDENTIFICATION AND MANAGEMENT OF ACID ROCK DRAINAGE / METAL LEACHING WASTE ROCK MATERIALS AND PERMAFROST					
3	3	Baffinland is compliant in relation to the operation of the WRF. It appears that Baffinland is seeking to address the previous ARD/ML issues via updating their water quality model and the next update to the Phase 1 Waste Rock Management Plan in 2022. However, CIRNAC's recommendation for Baffinland to use additional instrumentation and monitoring, and update the thermal analysis, including heat balance and oxygen balance across the WRF, remains outstanding. There have been no further updates of the Waste Rock Management Plan after 2019. CIRNAC further notes that the expanded footprint and/or volume of the WRF is provided but there are no plans noted for additional thermal instrumentation. In response to Baffinland's request for available detail on regulatory criteria to be used to evaluate potential contaminants of concern (PCOC) in net acid generation (NAG) material at	CIRNAC recommends that Baffinland: a. Continue with use of additional thermal instrumentation and monitoring to update the thermal analysis, including heat balance and oxygen balance across the WRF (aligned with the expanded footprint and/or volume of WRF). b. Adhere to the commitment that the water quality model is updated accordingly when the	• Project Certificate No. 005 (Amendment 03) Terms and Conditions 16, 17, 23, 24, 46 • Baffinland. 2021 Annual Report to NIRB (March 31, 2022): ○ Section 4.6.4, 4.6.5 and 4.6.7; and ○ Self-assessed Performance on Project Conditions 16, 17, 23, 24 and 46.	As a general note, these comments would be more appropriate on the Nunavut Water Board/ Qikiqtani Inuit Association (NWB/QIA) Annual Report for Operations and the intervenor review process administrated by the NWB. Providing comments on water and waste management where it is unrelated to the effects assessment or a specific Project Certificate condition creates unnecessary duplication in the reporting review and comment processes. a-d. Baffinland acknowledges that the commitments referenced by CIRNAC will be completed as part of the next update to the Phase 1 Waste Rock Management Plan by the end of 2022.

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
		closure, CIRNAC notes the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories, 2013 states "fuel, chemicals, tailings, ore-associated metals, and other substances can contaminate soils and groundwater through accident or failure of management systems." It is our interpretation that this includes native soils impacted by any mining activity (i.e., soils along Tote Road, in the Crusher Area, Run of Mine (ROM) ore storage, etc. The Interim Closure and Reclamation Plan (ICRP) (BAF-PH1-830-P16-0012) Rev 5, October 30, 2018, states that at closure "residual soils meet federal/territorial soil quality guidelines or site-specific risk-based criteria as required (CCME agricultural is assumed at this time). If soil exceeds the adopted criteria, it will be removed, or risk managed to the satisfaction of a qualified professional to achieve protection of ecological and human health." CIRNAC notes that best practice requires a human health and ecological risk assessment approach. This could include a comparison of soil bulk chemistry (including nickel and copper) to toxicological endpoints, various lines of evidence and background conditions specific to each area of the mine. The risk assessment will determine if the PCOCs are contaminants that require physical management (i.e., removal, covers, landfills, etc.) to reduce risks to acceptable levels and this would be based on the intended land use. The PCOCs in final cover over the WRF will need to be risk assessed if an open exposure pathway is present at mine closure.	Phase 1 Waste Rock Management Plan is next updated in 2022 and that Plan acknowledges a clear link between water quality at MS-08 diversion ditches and the nature of ARD/ML materials stored in the WRF. c. Adhere to the commitment that 'Further evaluation of the geochemical monitoring dataset and screening criteria' will be completed during the next update to the Phase 1 Waste Rock Management Plan. Additionally, the review of screening criteria needs to make direct linkage between NAG / potentially acid generating (PAG) materials and both laboratory leachate data sets [for example, Shake Flask Extraction (SFE)] and water quality at MS- 08 diversion ditches. d. Adhere to the commitment that 'Further evaluation of the geochemical monitoring dataset and screening criteria' will be completed during the next update to the Phase 1 Waste Rock Management Plan. Additionally, CIRNAC is requesting the following: ○ Review the 0.2% total sulphur threshold as an analogue for a Neutralization Potential Ratio (NPR) of 2, based on further geochemical test work and data review, to consider the implications of an absence of	• Baffinland Response to Reviewer Comments on the 2020 NIRB Annual Report Mary River Project, Project Certificate No. 005. (August 11, 2021); • Baffinland 2021 Qikiqtani Inuit Association (QIA) and Nunavut Water Board (NWB) Annual Report for Operations (March 31, 2022); and • Baffinland 2021 QIA and NWB Annual Report for Operations: Appendix E.6 Waste Rock Geochemistry Analytical Sampling Results. (March 31, 2022).	e. The overall proportion of Potentially Acid Generating (PAG) in the waste rock is 15%, so Baffinland expects there to be sufficient Non-Potentially Acid Generating (Non-AG) to cover the WRF throughout the mine life. Waste characterization, volume estimation, and water quality monitoring is ongoing. Non-AG rock exposures on the pit walls will be derived from this work, and post-closure contingencies will be identified, if required.

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
			calcium or magnesium carbonate mineral content and the associated neutralization potential in the waste rock. ○ Perform a sensitivity analysis around the effect of uncertainty in the 0.2% total sulphur threshold and expected tonnages of acidic soluble sulphate waste rock on projected volumes of PAG and NAG rock and implications in the design and operation of the WRF. e. Confirm whether potentially problematic source materials will be disturbed towards end of mine life (for example, final materials in the WRF and the final exposed open pit shell are PAG) and clarify whether post closure contingencies need to be in place, or do not need to be in place, at least as suggested by the current geological understanding of the project and the mining schedule.		
EFFECTS MONITORING – GROUNDWATER MONITORING AND MANAGEMENT PLAN					
4	4	Baffinland continues to implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater within the Project area. In 2021, Baffinland continued the groundwater monitoring program around the landfill area. A third-party consultant specializing in groundwater within permafrost environments completed this program, with the objectives of continuing to monitor, prevent, and/or mitigate any potential effects on groundwater within the landfill facility, as well as evaluating the program's effectiveness and making recommendations for updates. There are no non-compliance issues with respect to the 2021 groundwater monitoring results of the Landfill Facility and Mine Site Hazardous Waste Berm; however, CIRNAC notes	CIRNAC recommends that Baffinland expand the groundwater monitoring program to include the WRF area and other potentially significant sources of groundwater contamination at the mine in 2022 and future years to gain a better understanding of the groundwater levels, stratigraphy characterization, permeability,	• Project Certificate No. 005 (Amendment 03) Term and Condition 23 • Baffinland 2021 Annual Report to NIRB (March 31, 2022): ○ Section 4.6.5 Groundwater & Surface Water (Project Certificate Condition No. 23); and	Moving forward, Baffinland is applying a risk-based approach to groundwater monitoring, focusing on the facilities presenting the greatest potential risk to impacting surface water. This is a function of: 1. Distance to a potential surface water receiver; 2. Known or suspected issues (e.g., seepage); 3. The age of the facility; 4. Potential contaminants of concern; and

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
		that Baffinland did not expand the program to include the Waste Rock Facility (WRF) as was recommended in 2021. Baffinland has acknowledged they continue to investigate other areas of the Project where groundwater assessment may be warranted outside of the currently assessed area of the Landfill Facility.	groundwater quality and groundwater flow direction.	○ Appendix G.8 2021 Groundwater 2021 Monitoring Program Report. • Baffinland 2021 QIA and NWB Annual Report for Operations (March 31, 2022); and • Baffinland Response to Reviewer Comments on the 2020 NIRB Annual Report Mary River Project, Project Certificate No. 005. (August 11, 2021).	5. Soil types (and attenuation potential). Groundwater monitoring at the WRF is no longer proposed, as runoff is being collected in the pond, which has had no recent evidence of seepage since the pond was re-constructed, and is treated prior to discharge. Additionally, the receiving surface waters (Tributary-F) is a significant distance from the facility.
EFFECTS MONITORING – BORROW PIT/QUARRY/SOURCE MANAGEMENT					
5	5	Baffinland has updated the Quarry Management Plan to identify PAG sources on quarry walls as well as monitoring and mitigation for operation and closure. The 2021 Annual Report includes specific follow-up on 2017 geochemistry test work results. Concerns with respect to the Quarry Management Plan have been addressed. There are no non-compliance issues in relation to the operation of the borrow and quarry pit sites; however, CIRNAC maintains that there is a significant benefit to the addition of markers of Acid Rock Drainage/Metal Leaching (ARD/ML) beyond pH (for example, sulphate) to the set of measured parameters and data evaluation in quarry water license monitoring. Additionally, Baffinland should compare monitoring results to FEIS Addendum predictions and present these in future annual reports. This will assist in the identification of ARD/ML problematic materials that may be inappropriate for construction purposes.	CIRNAC recommends that Baffinland consider: a. Addition of markers of ARD/ML beyond pH (for example, sulphate) to the set of measured parameters and data evaluation in quarry water license monitoring. Compare monitoring results to FEIS Addendum predictions and present these in future annual reports.	• Project Certificate No. 005 (Amendment 03) Terms and Conditions 25, 26, 28, 30, 41, 42, 43, 44, 46 and 60 • Baffinland 2021 Annual Report to NIRB (March 31, 2022): ○ Sections 3.1 and 3.3 – quarrying activities; and ○ Section 4 - 4.6.5, 4.6.7 and 4.6.8 Self-assessed Performance • on Project Conditions 25, 26, 28, 30, 41, 42, 43, 44, 46 and 60. • Baffinland Appendix G.28 Quarry Management Plan (March 31, 2022); • Baffinland 2021 QIA and NWB Annual Report for Operations (March 31, 2022); • Section 5, Section 6, Appendix D, E Nunavut Water Board Water	Baffinland will continue to collect samples for analysis that are currently prescribed by Baffinland's approved Type 'A' Water Licence. Additional monitoring would be considered through the Type 'A' Water Licence Amendment process. Baffinland will compare monitoring results to Final Environmental Impact Statement (FEIS) Addendum predictions, and report on these in future annual reports.

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
				Licence No. 2AM-MRY1325, Part F, Section 3; and • Baffinland Response to Reviewer Comments on the 2020 NIRB Annual Report Mary River Project, Project Certificate No. 005. (August 11, 2021).	
EFFECTS MONITORING – FRESHWATER AQUATIC ENVIRONMENT – WATERCOURSES					
6	6	Term and Condition 47 of the Project Certificate requires Baffinland 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 and rivers." As noted in the Annual report, perches at several culverts (CV-129, CV-114, CV-111, BG-50, CV-106 and CV-216) and recurring sedimentation issues (culvert CV-057, BG-01 and CV-186) were identified during the 2021 surveys. It is understood that appropriate remedial measures are being identified and will be discussed with Fisheries and Oceans Canada (DFO) and implemented to address these issues.	CIRNAC recommends that Baffinland update the Surface Water and Aquatic Ecosystem Management Plan to include the remedial measures, determined in consultation with DFO, to address the perching and sediment concerns at the remaining crossings.	• Project Certificate 005 (Amendment 03) Term and Conditions 19, 47 • Baffinland. 2021 Annual Report to NIRB (March 31, 2022): ○ Section 4.6.7 Freshwater Environment: Performance on PC Conditions, Project Certificate Condition No. 47; ○ Appendix G.7 Lake Sedimentation Monitoring Report; ○ Appendix G.20 Review of 2020 Dust Suppression Water Withdrawals; ○ Appendix G.24 2021 Freshet Monitoring Report; ○ Appendix G.27 Tote Road Priority Item Action Schedule; ○ Appendix G.30 Hazardous Materials and Hazardous Waste Management Plan; ○ Appendix G.31 Snow Management Plan; and	The Surface Water and Aquatic Ecosystem Management Plan (SWAEMP) describes mitigation measures for stream crossings and fish habitat in Sections 4.3. and 4.4. Descriptions of remedial measures to be implemented at specific crossing location are not considered to be within the scope of the SWAEMP. Baffinland is working with DFO to develop plans to address fish passage issues along the Tote Road at specific locations. A Request for Review was submitted to DFO in May 2022, and DFO staff visited the Mary River site in June 2022 to inspect fish-bearing crossing locations along the Tote Road.

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
				○ Appendix G.33 Freshwater Supply, Sewage and Wastewater Management Plan. • Surface Water and Aquatic Ecosystem Management Plan; • 2021 QIA and NWB Annual Report for Operations (March 31, 2022); and • Baffinland Response to Reviewer Comments on the 2020 NIRB Annual Report Mary River Project, Project Certificate No. 005. (August 11, 2021).	
EFFECTS MONITORING – AQUATIC EFFECTS MONITORING PLAN AND DUSTFALL MONITORING					
7	7	CIRNAC anticipates that dustfall monitoring results reported in the TEAMR 2021 would support validating the effectiveness of Baffinland's approved Aquatics Effects Monitoring Plan. Baffinland should consider adapting the TEAMR 2021 dustfall monitoring results or emerging dustfall trends into the reporting for the Core Receiving Environment Monitoring Program (CREMP) and Lake Sedimentation Monitoring Program. Linking dustfall results from TEAMR 2021 to the results from these programs would support validating the effectiveness of the respective monitoring activities, taking an adaptive management approach to identify the need for added protection measures, adaptations to the monitoring programs and updates to the Aquatics Effects Monitoring Plan.	CIRNAC recommends that Baffinland consider adapting TEAMR dustfall monitoring results or any reported emerging dustfall trend into the reporting for the CREMP and Lake Sedimentation Monitoring Program to facilitate adaptive management of these activities, and to identify added measures to mitigate for dustfall from operations.	• Project Certificate 005 (Amendment 03) Term and Condition 21 • Baffinland. 2021 Annual Report to NIRB (March 31, 2022): ○ Section 4.6.5 Groundwater & Surface Water (Project Certificate Condition No. 21); ○ Appendix G.5 *Aquatics Effects Monitoring Plan* (March 31, 2022); ○ Appendix G.6 Minnow Environmental Core Receiving Environment Monitoring Program Report (March 31, 2022); and ○ Appendix G.7 Minnow Environmental Mary River Project Lake Sedimentation	Baffinland will include this assessment in the linkage between dustfall monitoring, the Core Receiving Environment Monitoring Program (CREMP) and Lake Sedimentation Program, and atmospheric monitoring to identify potential mitigative measures in future reporting.

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
				Monitoring: 2020 to 2021 (March 31, 2022). • EDI. TEAMR 2021 (March 31, 2022).	
EFFECTS MONITORING – FEIS PREDICTIONS INCLUDED IN THE 2021 SOCIO-ECONOMIC MONITORING REPORT					
8	8	Consistent with CIRNAC's review of the 2020 Annual Report, Baffinland's 2021 Socio-Economic Monitoring Report does not provide detailed references to predictions included in the original Final Environmental Impact Statement (FEIS) and subsequent addendums when presenting monitoring results. CIRNAC notes that the 2021 Socio-Economic Monitoring Report quotes selected FEIS predictions for each Valued Socio-Economic Component and summarizes FEIS predictions for the residual effects of selected indicators. No mention is made to where this information can be located in the original FEIS and subsequent addendums that have been filed with the NIRB, including the applicable sections. As communicated in CIRNAC's review of the 2020 Annual Report, providing complete references to FEIS predictions, including anticipated residual effects, would improve the Socio-Economic Monitoring Report. Reviewers would have greater ease of cross-referencing FEIS predictions with monitoring results. In response to CIRNAC's 2020 Annual Report review, Baffinland agreed to "supplement references to the FEIS in future Socio- Economic Monitoring Reports with clear references to applicable sections of the original FEIS and subsequent addendums (p. 119)." This action has not yet been completed.	CIRNAC recommends that Baffinland ensure future Socio- Economic Monitoring Report submissions include clear references to applicable sections of the original FEIS and subsequent addendums where predictions are made.	• Baffinland. Response to Reviewer Comments on the 2020 NIRB Annual Report Mary River Project, Project Certificate No. 005 (August 11, 2021) • Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board (March 31, 2022) ○ Appendix G.13: 2021 Socio-Economic Monitoring Report	Baffinland agrees with Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC's) recommendation, and will ensure future Socio-Economic Monitoring Reports include appropriate references to the original Final Environmental Impact Statement (FEIS) or addendums predictions within the report.
EFFECTS MONITORING – LEVEL OF EDUCATION OF HIRED NUNAVUMMIUT					
9	9	Pursuant to Project Certificate No. 005 (Amendment 03) Term and Condition 140, Baffinland is "…encouraged to survey Nunavummiut employees as they are hired and specifically note the level of education obtained and whether the incoming employee resigned from a previous job placement or education institution in order to take up employment with the Project." Baffinland's 2021 Annual Report and 2021 Socio-Economic Monitoring Report provide results obtained from the most recent 2020 Inuit Employee Survey to address this Term and Condition. The survey questions relating to education and employment status prior to project employment (Questions 15 and 16 presented in Appendix D of the 2021 Socio-Economic Monitoring Report: 2020 Mary River Project Inuit Employee Survey Report) do not distinguish between individuals (Nunavummiut employees and contractors) as they are hired (i.e., 2020) with those who have worked at the project in prior years. Without providing information on surveyed individuals as they are hired it is impossible to compare results from year to year in support of effectively implementing Term and Condition 140.	CIRNAC recommends that Baffinland revise its Inuit Employee Survey, to collection information from Nunavummiut employees and contractors that started working at the Mary River project within the year being reported, on their level of education obtained and whether they resigned from previous job placements or education institutions in order to take up employment with the Project, to better reflect the intent of Project Certificate No. 005 (Amendment 03) Term and Condition 140.	• Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board (March 31, 2022) • Project Certificate No. 005 (Amendment 03) Term and Condition 140	In the most recent version of Baffinland's Inuit Employee Survey, Question 6 asks employees to indicate length of time they have worked for Baffinland, which includes the option of 'Less than 1 year'. In future SEMRs, Baffinland can use responses to Question 6 in conjunction with responses to Question 17 & 18 on whether the employee discontinued education or resigned from a previous job to take up employment at the Project, to better reflect the intent of Term and Condition No. 140.

Cmt. #	CIRNAC Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
EFFECTS MONITORING – PROJECT-RELATED PRESSURES TO COMMUNITY HEALTH CENTERS					
10	10	Pursuant to Project Certificate No. 005 (Amendment 03) Term and Condition 159, Baffinland is: "…encouraged to work with the Government of Nunavut to develop an effects monitoring program that captures increased Project- related pressures to community infrastructure in the Local Study Area communities, and to airport infrastructure in all point-of-hire communities and in Iqaluit." Section 6.1 of the 2021 Socio-Economic Monitoring Report provides information on the use of community health centres as an indicator for the project's potential effects on community public services. The number of health centre visits by community within the Local Study Area (LSA) is presented on a per capita basis using 2016 data (most recent) sourced from the Nunavut Bureau of Statistics. The number of community health centre visits is much greater in the North Baffin LSA communities relative to Iqaluit in the three time periods for which data is available (i.e., 2003-2007, 2008-2012 pre-development period, and 2013-2016 post-development period). For example, the average number of community health care visits for North Baffin communities in the 2013-2016 post-development period was 9.7 whereas Iqaluit had an average of 2.0. It would be helpful for Baffinland to clarify how community health care visits are calculated in future Socio-Economic Monitoring Reports. Consideration should be directed toward whether visits to the Qikiqtani Regional Health Centre by Iqaluit residents, in addition to the local public health centre, are included in the available data.	CIRNAC recommends that Baffinland describe how health centre visits per capita in the North Baffin LSA and Iqaluit are calculated. Attention should be directed toward determining whether values provided for Iqaluit include visits to the Qikiqtani Regional Health Centre in addition to the local public health centre.	• Baffinland Iron Mines 2021 Annual Report to the Nunavut Impact Review Board (March 31, 2022) ○ Appendix G.13: 2021 Socio-Economic Monitoring Report • Project Certificate No. 005 (Amendment 03) Term and Condition 159	Baffinland uses data prepared and reported by the Nunavut Bureau of Statistics to report on health centre visits per capita in the North Baffin Local Study Area (LSA) and Iqaluit. From 2003 to 2016, which is the most recent year that this table has been updated by the Government of Nunavut, data includes community health centre visits only and does not include visits to the Iqaluit hospital.

Table A.7: Response to ON Comments on Baffinland's 2021 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	ON Recommendations	Reference Section	Baffinland's Response
1	Problems in valid reasoning when reaching conclusions about the impacts of the project	Baffinland states in its report that "[d]espite the elimination of both potential anthropogenic causal factors (underwater noise from icebreaking and impact pile driving for small craft harbour construction) in 2021 through adaptive management, results from the 2021 monitoring programs again indicated lower narwhal numbers in Eclipse Sound during the 2021 shipping season. Underwater noise from these sources is therefore not considered to be an influencing factor on narwhal abundance in Eclipse Sound during the 2021 season. Open-water shipping, the other Project contributor of noise in the RSA, is also not considered a likely cause of narwhal displacement from the RSA based on the available visual, acoustic, and tagging results collected to date." Baffinland appears to be suggesting that only icebreaking and pile driving activities could have influenced narwhal decline in the study area. This conclusion is not consistent with mainstream science, acoustic data and analysis from the study area, as well as harvester input, all of which confirm that prolonged and intensive industrial open water ship noise is indeed an influencing factor. Baffinland states in the Annual Report Popular Summary that "elimination of early season ice- breaking in 2021 further reduced residual uncertainty in that Project shipping is the primary driver of the observed change in narwhal abundance in Eclipse Sound." This is poor reasoning and, without explanation, seems to ignore measured and potential effects of project shipping as a cumulative disturbance. i) Assessing narwhal disturbance levels at 120 dB Baffinland's marine monitoring program has shown that the disturbance threshold for narwhal is in fact much lower than 120 dB. The point of long term monitoring in the RSA is to be able to detect changes, inform mitigation, and protect the region from project impacts. Baffinland should be using its own research in order to determine impact on whales, cumulative impacts over time, and mitigation required. This means using the known impact thresholds. ii) Decline in narwhal could be due to natural exchange between summer stocks There is some debate as to whether the Admiralty Inlet stock and the Eclipse Sound stock constitute one single stock. Currently DFO does not believe there is enough data to suggest this to be true. Regardless, mixing of the two stocks (should that be the case) should not look like extirpation from Eclipse Sound. Hunters have suggested that numbers have never been this low in recent history or historically. If this was a natural exchange, we would expect fluctuations to have occurred before based on prey or other environmental factors. iii) Not addressing cumulative effects Oceans North continues to implore the NIRB that cumulative effects are not sufficiently addressed in the current monitoring and reporting regimes. Baffinland's assessment methods remain predicated on an assumption that each individual transit results in no significant impacts, and that, therefore, the combined impacts of ship transits each day, season, and year are likewise believed to be insignificant. This is an erroneous assumption and results in a conclusion unsupported by data collected over a meaningful timeframe. We suggest that validating the impacts of cumulative	N/A	Baffinland responds to each of Ocean North's comments below: i. Oceans North provides no evidence or analysis to support this claim. Baffinland cannot respond to claims that are made without supporting evidence or analysis. Baffinland does not agree with this claim and cannot provide further comment without supporting evidence to evaluate. Baffinland reminds Oceans North that the Annual Report comment review process requires reviewers to propose clear recommendations backed by relevant supporting evidence and analysis. ii. Oceans North has characterized documented Inuit Qaujimajatuqangit (IQ) that indicates there is a single narwhal stock, as opposed to separate Admiralty Inlet and Eclipse Sound stocks, as mere debate and has expressed a preference for DFO's views on this topic. Oceans North does this while sharing what appears to be local knowledge without any substantiation. Baffinland is not willing to take such a dismissive and one sided approach to the IQ collected on this topic. iii. Oceans North provides no supporting information for this claim. The NIRB should not place any weight on Ocean North's general statements regarding IQ or western science without any supporting evidence or analysis to support such statements. iv. In this comment, Oceans North inappropriately mischaracterizes Baffinland's approach to cumulative effects. Baffinland is committed and continues to take a holistic approach to cumulative effects and does not draw conclusions based on one limited isolated variable. Again, Oceans North provides no supporting information, evidence, or analysis to support this inaccurate rendering of Baffinland's work.

Cmt. #	Reviewer's Detailed Comment	ON Recommendations	Reference Section	Baffinland's Response
		effects should begin with the integration of the results of the currently separate marine mammal and acoustic monitoring programs. The current approach stands as a failure to appropriately incorporate consideration of cumulative effects into this process, and represents a major flaw in the impact assessment's conclusions. iv) Misunderstanding cumulative effects Baffinland's analyses suggest a critical misunderstanding surrounding the nature of cumulative effects. Cumulative effects monitoring is fundamentally holistic in nature; it requires a degree of additive and synergistic analysis. It is not premised on assessing each year of data against the next, and drawing conclusions based on a linear relationship between one limited, isolated variable, and another. Accordingly, stating that shipping was lighter in 2020 versus 2019 does not preclude the possibility that overall cumulative effects may have caused the 2020 decrease in narwhal numbers.		
2	Issues pertaining to approaches to reporting and omissions of information	i. Cumulative effects still not monitored –there is ongoing uncertainty, raised in this process by, inter alia, Fisheries and Oceans Canada and Baffinland on jurisdiction and responsibilities. This requires clarity from NIRB. ii. Currently, marine monitoring program draft reports have been provided to the Marine Environmental Working Group only, which excludes communities and some other intervenors from reviewing the information in tandem with the Annual Report. As it stands, the 2021 Annual Report is incomplete. DFO and other MEWG members also raised these issues in their comments on the 2020 Annual Report. iii. In our previous comments on the 2020 Annual Report, we suggested that the reports should focus on the data from the year in the title (in this case, 2021) as well as avoid including superfluous materials that have been previously filed. Ideally, the Annual Report should provide regulators, communities, working groups, technical experts, and others with appropriate information to allow for an understanding of how conditions, including impacts and potential impacts, may have changed during the year in question. It is important to integrate older data into a cumulative effects monitoring review, but we note again that this has neither been included nor, to the best of our knowledge, completed. There are analyses and summaries of individual monitoring programs, but very little synthesis and many missing components.	N/A	Oceans North's commentary does not engage with the collaborative work required by reviewers in a Nunavut Impact Review Board (NIRB) process. Oceans North must provide expert analysis based on supporting western science or verified Inuit Qaujimajatuqangit (IQ). This particular commentary focuses on advocacy and generalized, unsupported opinion rather than being framed as a technical response supported by evidence intended to advance understanding and seek resolution. The NIRB's goal is to monitor and improve the Mary River Project. Rather than constructively contribute to that goal, Oceans North has used this opportunity for constructive commentary and advice as a vehicle to emphasize its own views and goals, making inaccurate claims against Baffinland in the process. For example: • Item (ii) uses inflammatory language that appears to suggest Baffinland intentionally excludes communities and other reviewers from the opportunity to review draft reports. This is categorically false. Oceans North is well aware that the current Marine Environment Working Group (MEWG) report review schedule and process was designed specifically at the request of MEWG members with the NIRB's support. Further, Baffinland continues to review the Terms of Reference for the MEWG to evaluate the feasibility of providing further opportunities for draft report review without compromising the MEWG's ability to fulfil its role within allotted review schedules. • Oceans North inaccurately references uncertainty. Experts in the area of environmental assessment (both IQ and western science) understand that despite best efforts, there is always some residual uncertainty. However, as has been acknowledged by Canadian courts, as well as the NIRB in its recommendation report on Baffinland's Production Increase Proposal Extension, uncertainty can be addressed through stringent mitigations and adaptive management. Oceans North's

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				implication that perfect certainty is achievable is irresponsibly misleading and risks confusing the public.
3	Recommended changes to the project scope, monitoring programs, reporting structure and reporting requirements	The Annual Reports would benefit from a clearer Terms of Reference from the NIRB on what to include and what not to include in the report. They should include all 2021 data, including draft data if necessary. Right now some of the data is from 2020, and some is from 2021. For example, the narwhal numbers are only included in the draft to the Marine Environmental Working Group. This is not public, other intervenors do not have the opportunity to comment on these reports in the Annual Report review process. Oceans North remains concerned that many impacts to marine mammals are assumed by Baffinland throughout the assessment to be temporary and not significant, and therefore cumulative impacts on the animals of the repeated daily, weekly, and seasonal exposures are assumed to be non-significant. The failure to appropriately account for cumulative impacts is especially precarious considering the poor progress and development of Early Warning Indicators (EWIs) within the existing project. To some extent, a robust and effective EWI system can help compensate for a degree of uncertainty in impact assessment. The lack of appropriate Early Warning Indicators ultimately amplifies the risk generated through current operations and by insufficient cumulative effects monitoring. In the NIRB's review of the 2020 Annual report, it is noted that marine monitoring programs "struggle to disentangle correlation and causation" and note that the relevant Term and Conditions are deficient. DFO, in their 2020 feedback, provided specific instructions on how to improve the current draft Early Warning Indicators. In the past, DFO has also provided a potential list of Early Warning Indicators. There continues to be debate around the role of consensus-based decision making at the Working Group. Both the NIRB and relevant Ministers have made it clear that Baffinland should take direction from DFO. As yet, DFO's recommendations have not been implemented nor fully discussed within the MEWG. Baffinland's discussion of working group activities (2021 Annual Report Appendix E, Attachment 3, pg. 4) omits many details of the Early Warning Indicator discussion, including that DFO has previously suggested multiple early warning indicators, in addition to publishing a major paper on the importance of understanding the correlation between cortisol in narwhal and shipping. Baffinland's explanation minimizes the importance of these contributions from DFO and neglects to mention Baffinland's directed efforts to diminish DFO's peer-reviewed research during the Phase 2 hearings. NIRB representatives have been present for many of these discussions. We suggest that a more detailed terms of reference for the annual reports may improve this situation. In sum, there is a persistent and increasing acute need for greater transparency and openness in this process.	N/A	Taken from Oceans North *"The Annual Reports would benefit from a clearer Terms of Reference from the NIRB on what to include and what not to include in the report. They should include all 2021 data, including draft data if necessary. Right now some of the data is from 2020, and some is from 2021. For example, the narwhal numbers are only included in the draft to the Marine Environmental Working Group. This is not public, other intervenors do not have the opportunity to comment on these reports in the Annual Report review process."* Baffinland will implement any advice or direction received from the NIRB on what to include in its Annual Report, should the NIRB decide to issue such guidance in the future. Similarly, Baffinland notes that intervenors such as Oceans North would benefit from direction from the NIRB on what to include and not include in their comments on Annual Reports. With respect to the comment regarding timing of submission of draft reports, please see our response in QIA 2021 AMR GC #3 above. *"Oceans North remains concerned that many impacts to marine mammals are assumed by Baffinland throughout the assessment to be temporary and not significant, and therefore cumulative impacts on the animals of the repeated daily, weekly, and seasonal exposures are assumed to be non-significant."* Oceans North has provided no supporting analysis or evidence for its stated "concern" and, as such, the NIRB should give no weight to this comment. Oceans North has not accurately characterized Baffinland's approach to the monitoring of cumulative impacts on marine mammals. *"The failure to appropriately account for cumulative impacts is especially precarious considering the poor progress and development of Early Warning Indicators (EWIs) within the existing project. To some extent, a robust and effective EWI system can help compensate for a degree of uncertainty in impact assessment.* *The lack of appropriate Early Warning Indicators ultimately amplifies the risk generated through current operations and by insufficient cumulative effects monitoring.* *DFO, in their 2020 feedback, provided specific instructions on how to improve the current draft Early Warning Indicators. In the past, DFO has also provided a potential list of Early Warning Indicators.* *There continues to be debate around the role of consensus-based decision making at the Working Group. Both the NIRB and relevant Ministers have made it clear that Baffinland*

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				should take direction from DFO. As yet, DFO's recommendations have not been implemented nor fully discussed within the MEWG. *Baffinland's discussion of working group activities (2021 Annual Report Appendix E, Attachment 3, pg. 4) omits many details of the Early Warning Indicator discussion, including that DFO has previously suggested multiple early warning indicators, in addition to publishing a major paper on the importance of understanding the correlation between cortisol in narwhal and shipping. Baffinland's explanation minimizes the importance of these contributions from DFO and neglects to mention Baffinland's directed efforts to diminish DFO's peer-reviewed research during the Phase 2 hearings."* This comment completely mischaracterizes the nature of Baffinland's relationship with DFO. To correct the record, Baffinland emphasizes it has the utmost respect for DFO, collaborates frequently with DFO scientists, is generally aligned with DFO, and has incorporated many DFO recommendations into the Project. For example, during the Phase 2 NIRB process, Baffinland developed a large number of marine environment-specific commitments through deep collaboration with DFO and others, which resulted in resolution of all of DFO's technical issues. DFO's recommendations and comments brought forward through the MEWG and related processes are not "directions" pursuant to Term and Condition No. 183. DFO has not any such recommendations to date. In its comment, Oceans North references a recently published study that examined cortisol levels in narwhal harvested near or in the RSA (Watt et al., 2021; the "Watt Study"). Asking questions and providing expert peer review, recommendations, and commentary on published science is not "diminishing research" – it is an essential component of the scientific method. Baffinland recognizes and respects the hard work that DFO has put into its independent research efforts, including the referenced analysis of cortisol in narwhal. DFO has not proposed that cortisol should be an early warning indicator, per the response DFO provided to the Golder Review of the Watt Study (see NIRB Registry No. 337076). That DFO response says: *"As stated in the paper, the data presented in Watt et al. (2021) show the results of cumulative sources of stress, thus the increase in blubber cortisol levels, post-commencement of shipping, cannot be directly attributed to Baffinland's shipping activities" and that "Although cortisol may be a sufficient indicator of cumulative and combined stress in narwhal, there are other indicators that may be better suited to detect early warning signs of specific project-related impacts. These indicators should be selected based on discussions with the MEWG and Inuit."* In fact, the authors of the Watt Study acknowledged the limitations with cortisol as well, indicating that:

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				"It is difficult to determine what the root cause of increased stress may be. Changing ice conditions (Laidre and Heide-Jorgensen 2005), changes to Arctic food webs (Post et al. 2013), an increase in killer whales in the Canadian Arctic (Higdon and Ferguson 2009), and/or increased vessel traffic (Egulluz et al. 2016), could all contribute to increasing stress levels for narwhals." Baffinland has carefully considered whether measuring cortisol levels in narwhal would be a useful component of its marine mammal monitoring program. However, the indicators already used by Baffinland to monitor effects on marine mammals are better for tracking Project-related changes than monitoring cortisol levels as it is very challenging to dissect stress levels that would be related to Project effects from the more obvious drivers that would impact narwhal such as reduced sea ice cover, increased predation, increased hunting pressure or changes in the food web (see Phase 2 Public Hearing Transcript, Vol. 8, p. 1426-1427). Recognizing the concern of North Baffin Communities with respect to Project-related shipping and whether it has an effect on the health of narwhal, in September 2021, Baffinland responded by committing to adding body condition monitoring to its narwhal monitoring program (see Baffinland Written Comments, NIRB Registry No. 336778-336781, p. 63). Our understanding is that DFO is supportive of this commitment. Given the uncertainty and limitations acknowledged by the authors of the Watt Study and DFO with respect to monitoring cortisol in narwhal, this commitment will better serve to address the underlying concerns of parties: to determine whether Project-related shipping is having an adverse effect on the health of narwhal. On the topic of Early Warning Indicators, it should be noted that Mary River is unique amongst all other shipping projects in Canada as it is the only one to develop and adopt an Early Warning Indicator to monitor for potential Project effects on marine mammals from shipping (see NIRB Registry No. 334146-334147). Following consultation with the MEWG as well as reviews of best available science, narwhal calf ratio was selected as the first Early Warning Indicator, which is expressed as the proportion of immature narwhal, calves, and yearlings, relative to adult population. This is considered an effective Early Warning Indicator because it is thought that if the population was being harmed, changes in reproductive output can be monitored to indicate an overall change to the population. This Early Warning Indicator was also selected because of what we have heard from Inuit in that Bruce Head and Koluktoo Bay are very important areas for narwhal calving. Data for this Early Warning Indicator has been collected at Bruce Head prior to the start of shipping and throughout shipping operations since 2015. The data available to date demonstrate that the proportion of immature animals at Bruce Head has not changed since Project shipping started (see NIRB Registry No. 331325).

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				Reference: Watt, C., J. Simonee, V. L'Herault, R. Zhou, S.H. Ferguson, M. Marcoux, and S. Black. 2021. Cortisol levels in narwhal (Monodon Monoceros) blubber from 2000-2019. Arctic Science.

Table A.8: Response to TC Comments on Baffinland's 2021 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	TC Recommendations	Reference Section	Baffinland's Response
MARINE SAFETY AND SECURITY				
1	• The Milne Inlet Marine Facility is in compliance with marine transportation security regulations. TC completed a marine security inspection of the Milne Inlet Marine Facility in 2021, as well as one foreign vessel inspection; no deficiencies were noted and TC confirms that the facility is in compliance with marine transportation security regulations. • The oil handling facility (OHF) at Milne Port is in compliance with regulatory requirements as per part 8 of the Canada Shipping Act, 2001 (CSA 2001). TC did not conduct a physical inspection of the OHF in 2021. • TC inspected seven vessels in 2021, including ballast water oversight; no deficiencies were noted.	N/A	N/A	Baffinland appreciates Transport Canada providing an update to the Nunavut Impact Review Board (NIRB) that the facilities at Milne Port comply with marine transportation security regulations and regulatory requirements as per the Canada Shipping Act, and that no deficiencies were noted during vessel inspections in 2021.
NAVIGATION PROTECTION				
2	• TC confirms that Baffinland is compliant with all conditions within its regulatory approvals under the Navigable Waters Protection Act for the Mary River Project. TC did not conduct a physical inspection of these works in 2021.	N/A	N/A	Baffinland appreciates Transport Canada providing an update to the Nunavut Impact Review Board (NIRB) that the Mary River Project had no compliance issues related to regulatory approvals under the Navigable Waters Protection Act in 2021.
TRANSPORTATION OF DANGEROUS GOODS				
3	• There were no TDG inspections conducted in person nor remotely by any TC TDG inspectors at the Mary River mine site in 2021. • There were no complaints or enforcement activities related to TDG in 2021.	N/A	N/A	Baffinland appreciates Transport Canada providing an update to the Nunavut Impact Review Board (NIRB) that there were no complaints or enforcement activities related to Transportation of Dangerous Goods in 2021.