



Response to Comments on the
Sustaining Operations Proposal

July 11, 2023

Baffinland Iron Mines Corporation

Mary River Project

NIRB File No. 08MN053

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ON – Executive Summary Attachment 1

HAMLET OF SANIRAJAK

ID#	Recommendations/Requests	Response
N/A	<p>Further to you corresponded dated May 19, 2023 on the above reference matter, be advised that the Hamlet of Sanirajak does not have any technical questions or comments regarding Baffinland’s Sustaining Operations Proposal (SOP).</p> <p>Further, the Hamlet of Sanirajak wishes to advice that the letter from me to the Board dated March 30, 2023 outlining the Hamlet of Sanirajak’s support for Baffinland’s Sustaining Operations Proposal (SOP) and the reasons for that support still stands.</p> <p>On behalf of Council and the entire community of Sanirajak, I urge NIRB to come to a positive decision on BIM’s SOP as soon as possible.</p>	Baffinland appreciates the Hamlet of Sanirajak’s engagement in and support of the Sustaining Operations Proposal.

HAMLET OF ARCTIC BAY

ID#	Recommendations/Requests	Response
N/A	<p>With regard to Baffinland Iron Mine's Sustaining Operations Proposal for 2023 and 2024, please be advised that the Hamlet of Arctic Bay does not have any technical comments or questions on this matter.</p> <p>The Hamlet of Arctic Bay is strongly in favour and supports Baffinland Iron Mine's Sustaining Operations Proposal and we expect this support to continue into the future.</p> <p>The Hamlet Council and the community members of Arctic Bay urge the N.I.R.B. to come to a clear and positive resolution on Baffinland Iron Mine's proposal as soon as is practicably possible.</p>	<p>Baffinland appreciates the Hamlet of Arctic Bay’s engagement in and support of the Sustaining Operations Proposal.</p>

HAMLET OF CLYDE RIVER

ID#	Recommendations/Requests	Response
N/A	N/A	<p>The SOP does not request any expansions to shipping volume or frequency – all shipping activity associated with the SOP will be limited to 84 ships maximum as in 2018 and 2020. It is an application to maintain the status quo with nominal flexibility within that 84 ship maximum to ship leftover ore from previous years on the pads at Milne Inlet. Baffinland has implemented significant changes to its shipping since project shipping began in 2015 and the Production Increase Proposal was first approved in 2018, including reduction and eventually elimination of icebreaking (but for special circumstances reflected in the Project Certificate), and implementation of a 9 knot speed limit for ore carriers.</p> <p>Baffinland prepared a detailed FEIS Addendum to support the SOP application, and embarked on a 4 month pre-NIRB submission engagement effort to share conclusions with the communities and invite feedback (see Appendix 4 of the FEIS Addendum for details as well as response to MHTO-02 for a summary of these efforts). The NIRB SOP process from March 2023 to August 2023 is designed to encourage and support community participation. The time between Baffinland’s SOP application submission on January 23, 2023 (NPC conformity decision issued on February 2, 2023) to the NIRB’s scheduled close of record on August 2, 2023 represents the longest application review period for prior production maintenance proposals for the Mary River Project (191 days from application submission; 181 days from NPC conformity decision).</p>

MITTIMATALIK HUNTERS & TRAPPERS ORGANIZATION

ID#	Recommendations/Requests	Response
MHTO-01	Baffinland be required to provide timelines for commitments it is depending on to address impacts and mitigation for SOP activities	<p>Baffinland has provided timelines for implementation of commitments. Please see NIRB Public Registry No. 344398 on the SOP Public Registry, which is a joint update filed by Baffinland and QIA on the status of implementation of the Appendix B commitments, current to March 2023. This document includes an update on timelines (MHTO-01 Attachment 1; Appendix 1).</p> <p>Baffinland will provide an updated commitment list prior to the closing of the record on August 2, 2023 (at latest), should additional commitments be made after the fling of this submission.</p>
MHTO-02	<p>The NIRB should be prescribing public consultation as part of the process around amendments to Project Certificates. None of Baffinland’s conclusions can be relied upon as being presented to the community. It cannot say that the community supports its proposal. It cannot say the community was informed.</p> <p>This does not meet the test for a proponent to develop a project under the auspice of free, prior, and informed consent. The NIRB allowing assessment of the SOP to reach the final recommendation stage without requiring adequate consultation with affected Inuit is not an appropriate process.</p>	<p>Baffinland did present on the SOP including the initial draft scope and conclusion to the 5 North Baffin communities on multiple occasions and integrated feedback, where possible, into the final SOP FEIS Addendum. The QIA was provided two opportunities to review the draft and revised draft SOP FEIS Addendum, where a significant amount of attention focused on elements related to Inuit views and community engagement.</p> <p>Baffinland's consultation with Inuit is set out in detail in Section 3 of the SOP FEIS Addendum as well as the Consultation Report (Appendix 4).</p> <p>The Mary River Project is potentially moving into its 6th year of operating at a nominal 6.0 Mtpa, providing an equal amount of time and opportunity for Baffinland to understand and respond to Inuit views on the 6 Mtpa Project, and integrate that into the final SOP FEIS Addendum. The SOP is an extension of operating levels in place since 2018 and engagement undertaken in relation to the status quo operation is directly applicable to the SOP. A summary of Baffinland’s community engagement activities for 2022 is included in Appendix B of Baffinland’s 2022 Annual Report to NIRB (see NIRB Registry No. 344609). Many of the mitigations measures that have been developed and/or evolved over the years that have applied to the nominal 6 Mtpa operation and are carried forward in the SOP are a direct result of incorporating Inuit views and feedback about the project. Many of these measures (particularly related to the shipping operation) culminated in an updated Term and Condition (183) at the approval of the Production Increase Proposal Renewal and Baffinland has not suggested an amendment to TC183 through the SOP.</p> <p>As set out in those documents, drafts of the SOP FEIS Addendum were shared with QIA beginning in November 2022, immediately after Amendment No. 4 was issued by NIRB. Direct community engagement commenced in December 2022, with a combination of in-person and virtual meetings occurring with all 5 North Baffin communities in both bilateral and multilateral settings. Following revisions to the draft SOP FEIS Addendum to account for, among other things, integration of feedback received through community engagements, an additional review of the submissions was arranged for QIA, culminating in the submission of the application to NIRB in March 2023.</p> <p><i>Summary of pre-Application Engagements</i></p> <p>Since November 2022, Baffinland has engaged with Inuit on the SOP through a variety of venues, including public forum consultations. For example, in December 2022, Baffinland met in-person with Hamlets, Hunters and Trappers Organizations, and community residents to present on the SOP, which included question and answer periods. A comprehensive list of engagements since November 2022 can be found at Table 3.6 of the SOP and Appendix B of Baffinland’s 2022 Annual Report to NIRB (see NIRB Registry No. 344609).</p> <p>In addition to meetings, pre-application written notices and radio shows, Baffinland participated in a multi-party community meeting organized by the Igloolik Working Group in January 2023, which was participated in by representatives from all of the following communities and organizations:</p> <ul style="list-style-type: none">• Hamlet of Pond Inlet;• Ikajutit Hunters & Trappers Association;• Hamlet of Arctic Bay;• Sanirajak Hunters & Trappers Association;• Hamlet of Sanirajak;• Igloolik Hunters & Trappers Association;

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		<ul style="list-style-type: none">• Hamlet of Igloolik;• Nangmautug Hunters & Trappers Association; and• Hamlet of Clyde River. <p>Baffinland understands that MHTO was invited to participate in this meeting but declined to attend.</p> <p>Baffinland followed up with all of the Mayors and HTO Chairs of the North Baffin Communities on March 16, 2023. That correspondence included a number of appendices to further inform all parties of the SOP, including:</p> <ul style="list-style-type: none">• Engagement Record;• Post- Engagement Follow-Up: Responses to the Arctic Bay Technical Advisor;• Percentage of Inuit Employed Across Job Classification;• PIPR Commitments;• Commitments Carried Forward from Phase 2;• Meeting Minutes (re: January 2023 engagement); and• Draft Risk Communication Strategy. <p>We appreciate and support that the NIRB has designed the SOP reconsideration process to ensure that Inuit have direct opportunities for consultation, including opportunities for written comments and the in person Community Roundtables that are proceeding in Iqaluit and Pond Inlet. We are also grateful to Inuit and Inuit groups that have been willing to engage with us on the SOP.</p> <p>Baffinland has not spoken on behalf of Inuit or any particular community in regard to support for the SOP. We acknowledge that support for the SOP is not unanimous amongst all of the five impacted communities at this time, and that 4 of the 5 impacted community Hamlets and 3 of 5 of the community HTOs have issued public support (we refer the NIRB to the submissions themselves for details, as we do not wish to speak on their behalf). Since the NIRB commenced its process, the following communities and community groups have written directly to NIRB to confirm their support of the SOP:</p> <ul style="list-style-type: none">• Hamlet of Arctic Bay• Hamlet of Igloolik• Hamlet of Sanirajak• Hamlet of Pond Inlet• Igloolik Hunters and Trappers Association• Ikajutit Hunters and Trappers Association• Sanirajak Hunters and Trappers Association

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MHTO-03	Please clarify the process for consultation with regulatory agencies, the QIA, environmental working groups, communities, and HTOs - including any differentiated processes within these organizations, and rationale for doing so. Please also indicate how feedback will be sought, and whether/how revisions to plans will be made based on input received. Please also indicate how Baffinland envisions the NIRB process facilitating review and comment, and if, or how, it would consider comments raised through that process in addition to its own, for incorporation and revision to plans.	<p>Baffinland is not proposing to change the current process. Baffinland will continue to rely on the established NIRB process facilitating review and comments on our management plans, which occurs during the NIRB annual monitoring report process and annual report process. This is an open public process where individuals and groups who wish to participate can share comments with the NIRB, and Baffinland provides a public response, including any details about the specific revisions that will be made to future plans to reflect such comments.</p> <p>As it does currently, Baffinland will also seek advice from the MEWG and TEWG working groups established under the Project Certificate, which is currently undergoing an update to its terms of reference to help facilitate collaboration between all parties. In 2022, membership in these groups was extended to the HTOs.</p> <p>Baffinland is also open to ad hoc discussions with interested parties and groups on its plans at any time.</p> <p>Baffinland refers the MHTO to its letter to NIRB of May 15 (NIRB public registry no. 344988 -Appendix 1), which describes its recent comprehensive plan update and approach to any updates triggered by the SOP.</p>
MHTO-04	Please clarify what shipping activities are not included within the SOP, and clarify the commitments related to those shipping activities which are not applicable.	<p>The SOP (a continuation of nominal 6 Mtpa levels in place since 2018) is a much smaller scope application than Phase 2. Marine shipping activities are described in SOP FEIS Addendum Section 2.3.4 and the summary of applicable marine mitigations is provided in Section 6.5.6. The Phase 2 commitments related to shipping that could not be carried forward to the SOP relate to reducing the volume and frequency of shipping activities required to transport a 12 Mt nominal volume of ore. For example, under Phase 2 we committed to reduce ore carrier maximums from 176 to 168, since the SOP proposes to use no more than 84 ore carriers in a single shipping season the commitment is no longer necessary.</p>

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MHTO-05	MHTO requests that Baffinland provide specific details on how IQ is already incorporated into its monitoring plans and programs, how it will be improved, and what it has learned from the last 8 years of operations. MHTO also requests that Baffinland explain how it plans to incorporate IQ in its monitoring (plans and programs). If Baffinland does not see a responsibility for it to do this work separately from programs run by the QIA, please clearly indicate this is the case.	<p>Baffinland is pleased to provide these details.</p> <p>Baffinland has included specific examples in the FEIS Addendum that shows how IQ has already been incorporated, how it will continue to improve IQ integration in plans and operations, and incorporation of lessons learned over the last 8 years of operations.</p> <p>The FEIS Addendum includes specific details that are responsive to this comment (i.e. it did not only include a summary statement about IQ at Section 4.3).</p> <p>Examples include:</p> <ul style="list-style-type: none">• In 2022, Baffinland directly hired Inuit Knowledge Holders in each of the five impacted communities as well as Community Relations Guides. These roles are seen as critical to guiding Baffinland in its decision making, facilitating knowledge transfer within and between community members and Baffinland staff and guiding the collection and use of IQ (see Section 3.1 at p. 36).• Baffinland has developed its Mission, Vision and Values to align with Inuit Societal Values, as detailed in Table 3.2.• Baffinland has and remains committed to incorporating IQ throughout all planning and operations phases of the Project, with traditional knowledge sources and IQ considered for integration into the Project (e.g., selection of VECs, VSECs, baseline study design and implementation, definition of temporal and spatial boundary limits, Project infrastructure design and operations, identification and implementation of mitigation and management measures, effectiveness of potential Project-related effects through monitoring programs, etc.). Table 3.3 summarizes various IQ and TK information sources considered for the Mary River Project, including the SOP. Further, Figure 3.2 sets out how Baffinland has considered IQ and community feedback in the EIS process, Project amendments, and existing operations.• Table 3.4 provides detailed examples of IQ incorporation into the EIS, Project amendments and existing operations.• A key part of Baffinland’s approach to adaptive management is incorporation of community review and feedback, particularly the incorporation of IQ to improve or extend the effectiveness of the Environmental Management System for the Project. <p>Baffinland is very supportive of QIA’s efforts to establish the ISP and the enhanced opportunity it will provide to incorporate IQ into the Mary River Project. The existence of the ISP, however, will not replace Baffinland’s own policies and programs relating to the treatment and incorporation of IQ into the Project. Baffinland’s approach to the incorporation of IQ is detailed in the revised draft IQ Management Framework, available for review and public comment as part of the 2022 Annual Monitoring Report.</p> <p>The IQ Management Framework is applicable to the current Project and will apply to the SOP moving forward. The overarching goal of the IQ Management Framework is to support collaboration and decision-making throughout the lifetime of the Project, with an emphasis on direct Inuit participation in monitoring programs and valuable feedback from Baffinland’s Inuit Knowledge Holders and Community Relations Guides. In practice, the IQ Management Framework will identify procedures and provide guidance on:</p> <ul style="list-style-type: none">• The process through which IQ can be shared with Baffinland• Schedule and timing for gathering and integration of IQ• Roles and responsibilities of parties involved• Processes and mechanisms through which IQ informs Project related decision-making <p>Overall, the IQ Management Framework is a living initiative designed and implemented in partnership with QIA and the five North Baffin communities. Baffinland looks forward to continuing its partnership with QIA and the five North Baffin communities to modify and adapt the framework as needed to reflect identified needs and preferences.</p>

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MHTO-06	<p>MHTO requests that Baffinland define the thresholds it would need to see met before considering the “as required” trigger to be met and conducting aerial surveys.</p> <p>MHTO also asks that Baffinland commit to undertaking aerial surveys at a specific timing to ensure data is up-to-date and informing its monitoring programs, and to furthering overall understanding of the herd, and the project’s potential impacts on caribou in the RSA.</p>	<p>An aerial survey of the RSA was conducted in March 2023. Baffinland’s Terrestrial Environment Mitigation and Monitoring Plan Table 4-8 identifies the scope of potential aerial surveys. For regional monitoring, “When caribou numbers are sufficient to provide robust statistical analysis of distribution within the ZOI, an annual aerial survey program will be implemented to document abundance and distribution of caribou in the RSA.” That table identifies the MHTO and the GN among the survey partners. Future survey planning will be considered and discussed in coordination with feedback received by the TEWG on the 2023 annual monitoring report and future discussions.</p> <p>In response to TEWG concerns that Baffinland’s active surveys (e.g., Height of Land) were not evaluating caribou presence in the RSA, that there were more frequent caribou observations reported anecdotally in a broad area that includes the RSA, and increasing caribou quotas (GN-DoE 2022), Baffinland conducted an aerial survey of the RSA in March 2023. The 2023 Terrestrial Annual Monitoring Report will present the survey results, and the need for future surveys can be discussed within the group. That discussion and resulting survey plan does not require a specific “trigger” to occur, as the MHTO suggests.</p> <p>By this comment, Baffinland understands that the MHTO supports RSA-level aerial surveys for caribou. The timing and frequency of those surveys can be discussed further within the TEWG so that all parties can provide technical input on data requirements.</p> <p>Literature Cited:</p> <p>Baffinland Iron Mines Corporation. 2016. Terrestrial environment mitigation and monitoring plan, BAF-PH-830-P16-0027, Rev. 1. 128 pp.</p> <p>Government of Nunavut, Department of Environment. 2022. Effective Immediately: Increase to Baffin Island Caribou harvest Government of Nunavut. (https://gov.nu.ca/environment/news/effective-immediately-increase-baffin-island-caribou-harvest). Accessed July 5, 2023.</p>
MHTO-07	<p>Please clarify if and when the MHTO has been engaged in the adaptive management planning phase, and also clarify when the MHTO has been provided an opportunity to systematically provide input into AMP responses and mitigations? Please include within your response, a reference to the EWI trigger for narwhal (proportion of immature young) referenced above from the 2021 season.</p>	<p>MHTO is provided regular opportunities to engage in discussions with Baffinland related to its shipping activities, including adaptive management, through pre- and post-shipping season meetings, Marine Environment Working Group meetings, the annual Marine Monitoring and Marine Mitigation Workshop and through the annual reporting and comment cycle. In addition, Baffinland staff live and work in the community of Pond Inlet and are available to received feedback and provide responses to any community members. Other Baffinland staff are also frequently in the community and available to work with any community members who wish to discuss aspects of the project, including public opportunities for feedback such as radio shows, as well as responding through online platforms such as Facebook. See Sections 3, 6.2.3, 6.3.3, 6.4.3, 6.5.3, 6.6.3, and Appendix 4 of the SOP FEIS Addendum, for a full listing of public engagements including MEWG meetings which have been held.</p> <p>Ad-hoc opportunities are also provided through Project Certificate Reconsideration processes, and through the development of adaptive management plans, as required (e.g. the 2021 and 2022 Narwhal Adaptive Management Response Plan). Baffinland and the MHTO also share office space within Pond Inlet and Baffinland’s many community based employees (Baffinland Community Liaison Officer, Inuit Knowledge Holder, Community Relations Guide, Shipping Monitors, Community Environmental Coordinator, etc.) are available to record and respond to concerns provided by community members, including the MHTO, related to subjects such as adaptive management.</p> <p>With respect to MHTO involvement in adaptive management with reference to the Early Warning Indicator (proportion of immature young), MHTO was directly engaged in the development and selection of the EWI, which was recorded in the 2021 technical memo (Plan Phase*). Since then Baffinland has presented annual monitoring plans, followed by results to the MHTO through the pre- and post shipping season meetings and MEWG meetings (Implement and Monitor Phase*). At the same time monitoring plans and results are presented to the MHTO, Baffinland requests their input on the programs, results and effectiveness of mitigation strategies (Evaluate & Learn Phase*). To date Baffinland's initial EWI monitoring has only triggered the need to expand the program to include photo observations from aerial surveys (Adjust*).</p> <p>*Baffinland’s adaptive management planning cycle includes Plan, Implement and Monitor, Evaluate and Learn and Adjust.</p>

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MHTO-08	Please cross-reference commitment ID in text with applicable page in Appendices to allow for proper review. Including completed commitments in text, rather than indicating x number of “commitments have been carried forward relating to the atmospheric environment” and providing no further reference to which those are, or where to find them beyond directing reviewers to the 40+ pages that make up Appendix 7 or 8. Please clarify in text, timeline for completion, and status if currently in progress or already complete/in place.	<p>The Commitment List is admittedly lengthy due to the large volume of commitments applicable to the current project, inclusive of the SOP.</p> <p>A summary of commitments related to each topic is provided in Section 6.2.6, 6.3.6, 6.4.6, 6.5.6 and 6.6.6 of the SOP. The table of carried forward Phase 2 Commitments in Appendix 7 includes applicable references to corresponding sections of the SOP where commitments are described, and page numbers for each section can be found in the table of contents.</p> <p>Baffinland and QIA provided a joint update on the status of the Appendix B Project Certificate commitments in March 2023 (see NIRB Registry No. 344398). Baffinland is working with the QIA to provide the next scheduled update of the current status of the PIPR commitments. These will be shared on or before September 30, 2023 as part of the bi-annual interim report on implementation required under TC189.</p> <p>If the MHTO advisor requires further clarification, Baffinland would be pleased to meet with the advisor to explain the commitment list layout further at any time prior to the Community Roundtable.</p>
MHTO-09	Please provide a discussion of Baffinland’s assessment of impacts to harvesting and harvesting rights. A standalone assessment memo should be prepared to provide this information in a succinct and easily reviewed format. References should be made to impacts on harvesting from changes to marine wildlife distribution abundance, and behaviour.	<p>Harvesting and harvesting rights are assessed directly in the SOP FEIS Addendum therefore a stand-alone memo is not necessary.</p> <p>Table 3.4 of the SOP provides a summary of how harvesting and harvesting rights were considered in the EIS Addendum. Potential impact pathways of the Project are identified based on the feedback Baffinland received through the QIA’s Tusaqtavut Studies. The Tusaqtavut Studies identified the following Valued Components: marine hunting, terrestrial harvesting, fishing and freshwater, travel, trails, and habitation, and cultural continuity. The effect pathways consider four geographic areas relevant to the SOP: Mine Site, Tote Road, Milne Port and Northern Shipping. Where this feedback was relevant to components of the Approved Project that are common to the SOP this information was brought forward into the assessment.</p> <p>Baffinland respects the importance of harvesting and harvesting rights to the assessment, and consideration is given to harvesting rights throughout the SOP, including for example:</p> <ul style="list-style-type: none">• Commentary from Inuit workers (which include members of the MHTO) that employment with the mine provides increased capacity to undertake successful harvesting of narwhal and other traditional foods, including reference to 2020 Inuit employee survey results (Section 2.1 at p. 19).• Development of the Marine Research Equipment and Wildlife Monitoring Program in partial response to harvesters’ concerns and the desire for more community-based monitoring planned, led and carried out by Inuit in the North Baffin Communities (Section 3.2.1 at p. 54).• Reference to Baffinland’s 2019 provision to MHTO of \$205,000 to undertake a community-based monitoring program which MHTO elected to use to study fish health and narwhal harvesting efforts (Section 3.2.2 at p. 59). Baffinland looks forward to MHTO sharing the results and associated reporting of these programs.• Detailed description and analysis of the importance of hunting in the socio-economic setting of the five North Baffin communities (Section 5.4 at p. 108).• Identification of concerns related to air, dust, noise and vibration associated with the Project and the potential effect on harvesting, combined with Baffinland’s continued commitment to work with QIA to manage such effects through improved monitoring and updating control measures (Section 6.2). <p>Baffinland would also be interested in discussing how to interpret the success of harvesting in the past several seasons where full quotas were met or exceeded.</p>
MHTO-10	Please provide a firm date as to when this will be in place. Please provide a plan to develop interim Inuit OITRs that can be used until such time as the QIA program is in place.	<p>A date is in place. Per the Appendix B Commitment List appended to the Project Certificate, Baffinland and QIA have agreed to target April 2024 to have agreement on the adaptive management components of monitoring programs related to narwhal, seal, Arctic char, caribou, dust and culture resources and land use. This timeline was maintained in the joint update filed by QIA and Baffinland with NIRB in March 2023 (see NIRB Public Registry No. 344398). On May 15, 2023 Baffinland submitted revised draft management plans to NIRB for public review, inclusive of objectives, indicators, thresholds and responses (OITRs), as they apply to our existing monitoring programs. QIA will lead the development of Inuit specific OITRs directly with communities through the development of the ISP and/or the CRLU Assessment.</p>

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MHTO-11	<p>a. When will BIM confirm its intention and time- line for implementation of recommendations from the Dust Audit?</p> <p>b. Please update commitments within the FEIS Addendum where deadlines for actions, reports, etc, have clearly passed (i.e. 2022), and include current status in text, rather than referring to Appendices 7/8 where status is simply marked “complete” or “in progress”.</p> <p>c. Please explain how the Risk Communication Program is designed to serve as a mitigation for the SOP, and which impacts it is particularly focused on mitigating.</p> <p>d. Please confirm if Baffinland is preparing to resource community members and organizations for their participation in the development and ongoing work of this program, and if not, what contingencies to continue the program will be implemented, in the instance that the community is unable or unwilling to participate in the ongoing work.</p>	<p>a. See response to QIA AE-3 and QIA AE-4.</p> <p>b. See response to MHTO-8.</p> <p>c. See response to QIA CRLU 3. Overall, the program is intended to evolve based on expressed community interests following engagement. Baffinland intends to add a more detailed schedule for the development of the Risk Communication Program following further collaboration with QIA. The SOP is an application to continue to operate at levels permitted by NIRB since 2018, and to address the concern expressed by some community members and participant that harvesting patterns have changed based on fear of potential impacts of the operating mine. The Risk Communication Program is a mitigation to communicate information in a manner that is more accessible to the community, and provide a culturally sensitive avenue for Inuit with health-based concerns to be heard.</p> <p>d. Baffinland will resource community members and/or organizations for their participation in the development and ongoing work of this program, commensurate with its honorarium policy. Baffinland looks forward to its engagements with communities on this program.</p>
MHTO-12	Please confirm if Baffinland will be employing a review of satellite imagery in its dust monitoring protocol for the SOP, and provide details.	Please see response to QIA AE-7.
MHTO-13	Please explain why Baffinland has not been able to develop the Inuit indicators and thresholds up to this point. The explanation that it is awaiting direction to work with the QIA is not an adequate rationale.	<p>Based on feedback received through previous NIRB processes, Baffinland accepted the request for the QIA (as the representative Inuit organization) to lead the development of Inuit objectives, indicators, thresholds and responses for inclusion in the adaptive management plan. QIA, on behalf of Qikiqtani Inuit, is currently actively advancing the Inuit Stewardship Plan, with Baffinland's full support of this initiative, which will help facilitate development of Inuit-led indicators and thresholds. . Baffinland will continue to provide support (including financial, technical, participation, collaboration etc.) as this initiative unfolds. Baffinland is very appreciative of QIA’s efforts to establish this program, and will continue to supplement the ISP with its ongoing relevant initiatives.</p> <p>While the ISP remains under development, Baffinland has also responded directly to Inuit feedback and concerns in relation to the project and has adjusted its project operations. The fact that triggers and thresholds continue to be identified and refined does not delay Baffinland taking action to respond to change its operations to address Inuit experience. Examples include Baffinland’s on-going efforts to reduce dust emissions and continuous actions in this area including increased monitoring through the addition of dust monitors at the 0.5m level despite scientific evidence to support its use. The shipping operations have evolved over the last five years to include limitations on the number of vessels anchored at Ragged Island, speed restrictions, restrictions on ice-breaking in the early season followed by the cancellation of ice-breaking to commence the season etc. Prior to and in parallel with the on-going work of the QIA to also respond to community concerns and continue development of the ISP, Baffinland has acted on community feedbacks and concerns as if specific triggers or thresholds have been in place.</p> <p>We encourage the MHTO to participate in the ISP initiative, and welcome any direct opportunities to discuss MHTO concerns at their convenience.</p> <p>See also answer to MHTO-10.</p>

ID#	Recommendations/Requests	Response
MHTO-14	Please clarify how Baffinland has measured and reported on community experienced project effects to date. Please explain the process by which ongoing or future effects will be tracked, measured and reported upon across disciplines where community perception of effects are referenced within the SOP FEIS Addendum. This should include a description of consultation events, surveys, town hall meetings, one on one discussions with organizations, and any other methods proposed.	<p>Section 3.2 of the SOP outlines Baffinland’s approach to engagement and provides a summary of all relevant Project -related engagement carried out for the SOP. Baffinland provides engagement records and community comments and concerns in their Annual Report to NIRB. Appendix B 2022 <i>Engagement Records and Community Comments and Questions</i> of the 2022 Mary River Project 2022 NIRB Annual Report is on the NIRB Registry (See NIRB Registry Nos. 344610-344612).</p> <p>Baffinland also relied on information such as previous NIRB Recommendation Reports and the Tusaqtut Reports to reflect community-experienced Project effects. The SOP FEIS Addendum also includes various references to community-experienced Project effects, including but not limited to:</p> <ul style="list-style-type: none">• Communities identified climate change as a key issue and, in response, Baffinland submitted its Climate Change Strategy that describes how Baffinland will undertake to validate and update climate change impact predictions for the Project and the effects of the Project on climate change (Section 6.2.3.2 at p. 133).• Baffinland’s implementation of additional dust mitigation and monitoring measures in response to community observations of foxes and rabbits discoloured by dust and concerns regarding dust contaminating wildlife and the health and safety impacts associated with consuming discoloured wildlife. (Section 6.3.3.2 at p. 148)• Community members and organizations, including MHTO, expressed concern about acoustic disturbances and impacts on shipping operations on marine animals. In response, Baffinland introduced a number of additional precautionary-based mitigation measures, including but not limited to, suspension of icebreaking during the early shoulder shipping season, reducing the maximum number of ore carriers in a shipping seasons, and using convoys to reduce sound exposures. (Section 6.5.3.2 at p. 185) <p>A comprehensive list of engagements since November 2022 can be found at Table 3.6 of the SOP and Appendix B of Baffinland’s 2022 Annual Report to NIRB (see NIRB Registry No. 344609) including a description on the method/venue for each engagement event.</p>
MHTO-15	It is unclear which workshop is being referred to from the citation “Workshop #4”. Please provide details on specific workshops being referenced within the FEIS Addendum. Note that providing a reference to Appendix 4 is not an adequate level of detail.	Table 3.3 of the SOP provides a summary of some of the key sources of information made available to and/or collected by Baffinland for consideration over the life of the Project. Workshop #4 refers to the series of contemporary land use workshops conducted between 2015 and 2016 in relation to the Phase 2 Proposal. Workshop #4 was the fourth workshop in the series of the five (5) targeted workshops on contemporary land use.
MHTO-16	Please clarify how Baffinland plans to measure and track deterrence of Inuit harvesting and altered harvesting or land use patterns due to dust deposition for the SOP application currently, and any proposed revisions to that work in future years, should caribou population numbers change.	Please see response to QIA CRLU-4.
MHTO-17	<p>Please clarify what new or additional mitigation for the protection of caribou has been proposed.</p> <p>Please clarify what new interim measures Baffinland has agreed to.</p> <p>Please also indicate a timeline for completion of the study of North Baffin caribou, and when Baffinland anticipates incorporating the results into its ongoing monitoring and TEMMP.</p>	<p>New mitigations are described in Section 6.3.6.2 of the SOP FEIS Addendum and include setbacks for quarry blasting and helicopter transits, contingent on caribou presence, numbers, locations and timing.</p> <p>The Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) already contains commitments to suspend operations or avoid certain areas to protect wildlife. Additional mitigations to apply in specific areas and seasons will require a full understanding the scope of the areas and season, which requires the release of the North Baffin Caribou Study.</p> <p>QIA is leading the development of the North Baffin Caribou Study directly with communities (resourced by Baffinland). Baffinland defers to the QIA to communicate development plans directly to the MHTO.</p>
MHTO-18	Please provide an update with regard to the commitment listed, including detail about additional mitigation measures and the interim Project Zones. If the response refers to Table 6.13: Summary of Residual Effects of the SOP on Terrestrial Environment VECs from the SOP FEIS Addendum, please provide additional details on new mitigation measures listed on p. 162, and clarify the status of the development of the measures and timing for implementation.	Please see response to MHTO-17.

ID#	Recommendations/Requests	Response
MHTO-19	Will the results or a summary of results be made available to the NIRB and/or to all re- viewers? If no, why not? MHTO requested to be included in caribou-specific data sharing agreements between the GN and Baffinland a number of years ago.	The aerial caribou survey carried out in March was led by Baffinland and not subject to the Baffinland-GN data sharing agreement (given that the data generated from the aerial caribou survey is not GN-owned data). The data sharing agreement only applies to data generated by GN led monitoring programs, which we understand the MHTO is consulted on directly by the GN. The results of the Baffinland led survey will be presented in the 2023 Terrestrial Environment Annual Monitoring Report.
MHTO-20	<p>Summary : Whether or not an effect is Project-related will be determined by comparing post-construction monitoring results to baseline data and reference site data. Monitoring results that are significantly different from baseline and reference sites, have a mechanism for change due to the Project, and cannot be attributed to natural causes or natural variation, may be deemed to be Project-related.</p> <p>Please clarify if this definition will be applied across disciplines to determine whether an effect is Project-related.</p> <p>Please confirm how Baffinland will determine whether changes are attributed to natural causes or natural variation?</p>	<p>The following definition provided in Section 6.3.6 of the SOP applies across disciplines.</p> <p><i>Whether or not an effect is Project-related will be determined by comparing post-construction monitoring results to baseline data and reference site data. Monitoring results that are significantly different from baseline and reference sites, have a mechanism for change due to the Project, and cannot be attributed to natural causes or natural variation, may be deemed to be Project-related.</i></p> <p>As described in Section 6.1 of the SOP effects will be monitored through comparison of the baseline data and monitoring results. Determining if changes in the environment are Project related require focused investigations after effects monitoring or community feedback identify an unanticipated change. In most instances the investigation will review the existing baseline data, as well as any reference site material, however, there are other factors that will also form part of the investigation, like new activities in the area, or more recent third party studies relevant to the investigation. In most cases a second year of monitoring can confirm if the unanticipated effect was an anomaly, or if it responses to project changes. All disciplines will be subject to this investigation process as outlined in the draft Adaptive Management Plan.</p> <p>Baffinland provided a description of how it may respond to a moderate or high level threshold exceedance in Section 4.5.6.1 of the SOP FEIS Addendum, and included Figure 4.3 to outline the process steps to determine if 1) a threshold has been passed, and 2) whether it is project related and requires a response.</p> <p>Each case of adaptive management will be unique and subsequent investigations will have to be adaptive to the circumstances of the potential exceedance. The draft Adaptive Management Plan provides the framework for this process, regardless of the VEC under investigation.</p>
MHTO-21	How does BIM propose to collect IQ on caribou calving locations? When does it plan to commence this data collection? Will the methods and participants be similar to those from the referenced Mary River Project Wildlife Baseline 2006–2011? Given that it has been 17 years since that collection began, and 12 years since its completion - and assuming no newer data collection has been undertaken, can Baffinland please provide details on its plans to collect this data and update the current status of calving data relative to the RSA?	<p>Baffinland has already collected information on caribou calving locations based on Inuit traditional knowledge for the FEIS beginning in 2008 (Baffinland 2018) and summarized that information in the FEIS Wildlife Baseline report (EDI 2012). Contemporary knowledge about caribou calving was collected during Inuit knowledge workshops in 2015 (Prno 2017). Please see response to MHTO-17 for details on the Baffinland funded and QIA led North Baffin Caribou Study in relation to updated studies.</p> <p>Literature Cited:</p> <p>Baffinland Iron Mines Corporation. 2018. Mary River Project — Phase 2 Proposal Technical Supporting Document No. 05: Mary River Inuit Knowledge Study Mapbook. NIRB Public Registry 320559.</p> <p>EDI Environmental Dynamics Inc. 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.</p> <p>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.</p>

ID#	Recommendations/Requests	Response
MHTO-22	<p>MHTO recommends that Baffinland clarify which of its monitoring programs to date, and going forward (as they are undertaken) have had, are, or will be suspected to, have issues or may be problematic from a statistical or analytical perspective. When we see results from a monitoring program (specifically related to marine mammals), MHTO would like to know which ones have sample size or other methodological issues - this should be identified at the outset, instead of waiting until a trigger has been met before considering methodological issues. Can this information be provided at the front end, either as monitoring is being undertaken, or when you have results? How will Baffinland ensure future programs have sample sizes that result in data that can be relied upon by its own experts? How could Baffinland consider Inuit input into this monitoring program, to supplement the scientific counts and low sample size, with Inuit experiences and observations?</p> <p>Please confirm that additional analysis of methodology was the only adaptive response undertaken. Did Baffinland consult with DFO or other intervenors to discuss the trigger? Please provide details.</p> <p>What additional monitoring is planned for this year to ensure a similar situation does not recur in 2023?</p>	<p>Any behavioural response or population study involving marine mammals in their natural environment is at an inherent risk of low sample sizes and high error margins. Many steps are taken by Baffinland to minimize this risk, to the extent possible, based on technical advancements in science and study design improvements. For instance, marine mammal aerial surveys now include a high-resolution photographic survey component to minimize uncertainty typically associated with distance-based visual aerial surveys. The statistical power of all analyses pertaining to narwhal behavioural response variables evaluated as part of the Bruce Head Program and the Narwhal Tagging program is included in the annual report for the 2022 Bruce Head Shore-based Monitoring Program (Golder 2022; WSP 2023a) and the 2017-2018 integrated Narwhal Tagging Program (Golder 2020), therefore providing an upfront estimate of the statistical robustness of the analysis (due to either data variability or sample size). Power analysis results for the Narwhal Tagging Program indicate that there is reasonable prediction confidence for detecting medium (≥ 0.25) to large (≥ 0.50) effect sizes for the majority of the response variables evaluated. Power analysis results for the Bruce Head Program indicate that is reasonable prediction confidence for detecting large (≥ 0.50) effect sizes for the most of response variables evaluated.</p> <p>Inuit input into the monitoring programs is facilitated through the use of Inuit researchers to collect observational data during the field programs (in collaboration with WSP marine mammal biologists) and via feedback through mechanisms such as the NIRB marine workshops and direct Baffinland engagement sessions (pre- and post- field seasons). The ISP and TK framework presently in development will provide further opportunities for Inuit input into the programs moving forward.</p> <p>The additional EWI analysis of aerial survey data was the initial adaptive response undertaken in response to the Bruce Head EWI results. Given that the aerial survey EWI results did not indicate that the proportion of immature narwhal in the RSA in 2022 had declined compared to 2021–2020 estimates or the 2014–2015 baseline estimates, no further action was undertaken.</p> <p>Dedicated EWI aerial surveys will be flown in 2023 (at 1,000 ft altitude) at multiple locations in the RSA and Admiralty Inlet to undertake an equivalent EWI analysis as completed in 2022 (in addition to the Bruce Head visual-based EWI surveys in the BSA).</p> <p>Reference:</p> <p>Golder. 2020. 2017-2018 Integrated Narwhal Tagging Study - Technical Data Report. Reference # 1663724-188-Rev0-12000. 14 August 2020.</p> <p>Golder. 2022. 2021 Bruce Head Shore-based Monitoring Program. Reference #1663724-354-Rev0-43000. 6 October 2022.</p> <p>WSP Canada Inc. (WSP). 2023. 2022 Bruce Head Shore-based Monitoring Report. Reference # 1663724-438-Rev0-63000. 27 April 2023.</p> <p>WSPb. 2023. 2022 Marine Mammal Aerial Survey Report. Reference # 1663724-428-Rev0-59000. 27 April 2023.</p>

MHTO-23	<p>Does Baffinland employ multiple types of monitoring programs to determine behavioural responses of narwhal to shipping? What are they, and what were the sources of the conclusion highlighted in Section 6.5.3.1 above? What is the confidence level for this/ these surveys, and for the stated conclusion? Are any surveys available to measure longer term avoidance and responses to shipping?</p>	<p>For studying behavioural responses of narwhal to shipping, a total of 32 different response variables (i.e., indicators) have been investigated/monitored over a seven-year period (2015-2022) through implementation of five different marine mammal monitoring programs. This includes Baffinland’s Bruce Head Shore-based Monitoring Program, Narwhal Tagging Program, Marine Mammal Aerial Survey Program (i.e., dedicated EWI surveys), Ship-based Observer Program, and Passive Acoustic Monitoring Program. Detailed monitoring results for each response variable are readily available in Baffinland’s annual monitoring reports, along with an associated power analysis which discusses the level of confidence associated with each response variable model (Golder 2020a; 2020b; 2022; WSP 2023a, 2023b; Austin et al. 2022, 2023). For the benefit of the Board, a summary of all behavioural response variables evaluated in the monitoring programs is provided in Table X in Baffinland’s response to MHTO-28. This ‘multiple lines of evidence’ approach to Project effects monitoring is one of the reasons Baffinland has high confidence in the stated conclusions.</p> <p>The conclusion made in Section 6.5.3.1 is based on results of the statistical analyses conducted for each response variable (i.e., reasonable prediction confidence for moderate to large effect sizes), in combination with the nature of the observed effect (e.g., type of behavioural response including duration of effect and context of exposure) (as outlined in WSP 2023a, 2023b). For example, current scientific practice involves categorizing marine mammal behavioural responses to anthropogenic stressors based on a scale of increasing severity, commonly referred to as a “severity scale”, which includes descriptors of response type, magnitude, and duration (Southall et al. 2007, 2021; Finneran et al. 2017). Initially proposed by Southall et al. (2007) and adapted by Finneran et al. (2017), the severity scale scoring system includes tiered behavioural responses (categorized as low, moderate, or high severity), and has recently evolved to include a framework for linking behavioural responses of free-ranging marine mammals to vital rates (Southall et al. 2021). In general, low severity responses are considered those within an animal’s range of typical (baseline) behaviours and are unlikely to disrupt an individual to a point where natural behaviour patterns are significantly altered or abandoned. Moderate severity responses are not considered significant behavioural responses if they last for a short duration (i.e., temporary) and the animal immediately returns to their pre-response behaviour. Moderate severity responses however have the potential to become significant if sustained over a longer duration (lasting over a period of several hours, or enough time to significantly disrupt a narwhal’s daily routine). High severity responses are considered significant as they include responses with immediate consequences to growth and survival, and those affecting animals in vulnerable life stages (Southall et al. 2007, Finneran et al. 2017). Within Baffinland’s monitoring programs, prolonged moderate severity responses and high severity responses are considered likely to result in significant biological consequences, with potential to impact critical life functions and/or vital rates. These would be responses consistent with the level of ‘harassment’ as defined under the U.S. Marine Mammal Protection Act (MMPA). To date, narwhal behavioural responses to Project shipping have been limited to no discernable response, low severity responses and moderate severity responses that are short-term in nature (Southall et al. 2007, 2021; Finneran et al. 2017). No evidence of prolonged moderate severity responses or high severity responses to shipping has been demonstrated in the monitoring programs. Furthermore, current vital rates of narwhal do not appear to be affected in the North Baffin region as the abundance estimate for the combined Eclipse Sound–Admiralty Inlet stock has remained consistent since the start of shipping operations. Reproductive rates also do not appear to be negatively affected in the RSA as the proportion of immature narwhal in the RSA (relative to the observed population) has remained consistent with baseline levels throughout the early warning indicator (EWI) monitoring period (WSP 2023b). In summary, the available empirical evidence (based on both behaviour and population-based studies) does not support that Project shipping has contributed to higher mortality or lower birth rates among narwhal in the RSA (i.e., a significant biological consequence on reproduction or survival).</p> <p>Baffinland’s confidence level in the stated conclusion is further supported by 2022 aerial survey results, indicating that narwhal numbers in Eclipse Sound in 2022 (4,592 narwhal; CV = 0.10, 95% CI of 3,754–5,617; Golder 2022a) appear to be increasing from the low numbers observed in 2021 (2,595 narwhal; CV = 0.33, 95% CI of 1,369–4,919; Golder 2022a) despite no material change in shipping levels between these years. However, the 2022 estimate still remains statistically lower than the 2016 estimate of 12,039 (CV = 0.23, 95% CI of 7,768–18,660; Marcoux et al. 2019) (t-test = 2.651, p = 0.038) and the 2019 abundance estimate of 9,931 (CV = 0.05, 95% CI of 9,009–10,946; Golder 2020a) (t-test = 7.808, p < 0.001).</p> <p>The continuation of the existing monitoring programs (inclusive of periodic tagging studies) will enable the continued monitoring of potential large-scale or long-term avoidance responses by narwhal to potentially contributing factors, including shipping.</p> <p>Reference:</p> <p>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) Final Report. Document 02633, Version 1.0. Technical report by JASCO Applied Sciences for Golder.</p>
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ID#	Recommendations/Requests	Response
		<p>Austin, M.E., K.A. Kowarski, and C.C. Wilson. 2023. Baffinland Iron Mines Corporation – Mary River Project: 2022 Underwater Acoustic Monitoring Program (Open-Water Season). Document 02975, Version 1.0. Technical report by JASCO Applied Sciences for WSP Canada.</p> <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.</p> <p>Golder. 2020a. 2019 Ship-based Observer Program. Reference #1663724-185-R-Rev0-31000</p> <p>Golder. 2020b. 2017-2018 Integrated Narwhal Tagging Study - Technical Data Report. Reference # 1663724-188-Rev0-12000. 14 August 2020.</p> <p>Golder. 2022a. 2021 Bruce Head Shore-based Monitoring Program. Reference #1663724-354-Rev0-43000. 6 October 2022.</p> <p>Golder. 2022b. 2021 Marine Mammal Aerial Survey. Golder Report No.1663724-353-R-Rev0. Prepared by Golder Associates Ltd., Victoria, BC for Baffinland Iron Mines Corporation, Oakville, Ontario. 109 p.+ appendices.</p> <p>Marcoux, M., L.M., Montsion, J.B., Dunn, S.H., Ferguson, and C.J.D Matthews. 2019. Estimate of the abundance of the Eclipse Sound narwhal (Monodon Monoceros) summer stock from the 2016 photographic aerial survey. DFO Can. Sci. Advis. Sec. Res. Doc. 2019/028. iv + 16 p.</p> <p>Southall B.L., A.E. Bowles, W.T. Ellison, J. J. Finneran, R. L. Gentry, C.R Greene Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E., Nachtigall, W.J. Richardson, J. A. Thomas, and P.L Tyack. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. Aquatic Mammals 33(4): 521 p.</p> <p>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 Behavioural Responses to Human Noise. Aquatic Mammals. 47(5): 421-464.</p> <p>WSP Canada Inc. (WSP). 2023a. 2022 Bruce Head Shore-based Monitoring Report. Reference # 1663724-438-Rev0-63000. 27 April 2023.</p> <p>WSP. 2023b. 2022 Marine Mammal Aerial Survey Report. Reference # 1663724-428-Rev0-59000. 27 April 2023.</p>
MHTO-24	What was the source/reference for the DFO proposal regarding natural exchange, and has DFO confirmed the implication made in Baffinland’s text?	<p>Doniol-Valcroze et al. 2015 is the DFO reference stating "DFO proposed that natural exchange between the two summering areas was a possible reason for this observed decline in 2013 (implying that the ‘missing’ animals in Eclipse in 2013 may have been present in Admiralty at the time of the Eclipse Sound aerial survey)."</p> <p>DFO has acknowledged there is evidence of Narwhal movement between stock areas and that there is a single Narwhal population, consistent with Inuit Qaujimajatuqangit (see DFO TRC 01 comment #2 above).</p>
MHTO-25	What is the current measure of Eclipse Sound summering narwhal from the latest year available - is the net count showing an increase or decrease over baseline?	<p>The 2022 abundance estimate for the Eclipse Sound narwhal stock was 4,592 narwhal (CV = 0.10, 95% CI of 3,754–5,617) which is statistically higher than the 2021 estimate of 2,595 (CV = 0.33, 95% CI of 1,369–4,919; Golder 2022a) (t-test = 2.017, p = 0.049), indicating that narwhal numbers in Eclipse Sound appear to be increasing from the low numbers observed in 2021 despite no material change in shipping levels between these years. The 2022 estimate remains statistically lower than the 2016 estimate of 12,039 (CV = 0.23, 95% CI of 7,768–18,660; Marcoux et al. 2019) (t-test = 2.651, p = 0.038) and the 2019 abundance estimate of 9,931 (CV = 0.05, 95% CI of 9,009–10,946; Golder 2020a) (t-test = 7.808, p < 0.001) despite no material change in shipping levels between these years.</p> <p>it is important to note that a decreasing trend in the estimated abundance of narwhal in Eclipse Sound (corresponding with an inverse increasing trend of narwhal in Admiralty Inlet) has been observed since 2004. These trends were in place well before Baffinland shipping commenced in the RSA, which supports the assumption that this may represent natural movement of narwhal between Admiralty Inlet and Eclipse Sound, as strongly supported by available IQ (see Baffinland response to ON-01 and NTI-01); or that a separate external factor is responsible for the observed change in narwhal distribution between these areas.</p>

ID#	Recommendations/Requests	Response
MHTO-26	<div><div>a.</div><div>What evidence does Baffinland have that ice breaking in one season has no effect on re- turn of narwhal the next season? Or that long term displacement is not occurring as a result of repeated years of disturbance? Please ex- plain and provide evidence.</div></div> <div><div>b.</div><div>Did Baffinland conduct ice breaking in the early shoulder season in 2020?</div></div> <div><div>c.</div><div>Why does Baffinland suggest that ice breaking in the early shoulder season of 2020 is not linked to the observed decline in that same year?</div></div>	<div><div>a.</div><div>In the professional opinion of WSP, there are several lines of evidence indicating that shipping is not the cause of narwhal displacement in the RSA. Please see response to MHTO-28 for a comprehensive review of this evidence. Further to this, it is important to note that a decreasing trend in the estimated abundance of narwhal in Eclipse Sound (corresponding with an inverse increasing trend of narwhal in Admiralty Inlet) has been observed since 2004. These trends were in place well before Baffinland shipping commenced in the RSA, which supports the assumption that this may represent natural movement of narwhal between Admiralty Inlet and Eclipse Sound, as strongly supported by available IQ (see Baffinland response to ON-01 and NTI-01); or that a separate external factor is responsible for the observed change in narwhal distribution between these areas. Finally, the timing of the supposed displacement of narwhal from the RSA does not reasonably align with periods of increased or sustained shipping activity and/or icebreaking operations in the RSA. As an example, Project icebreaking was first initiated in the RSA in 2018, and continued the following year. In 2019, the estimated abundance of narwhal in the Eclipse Sound stock was shown to be similar to previous surveys flown in 2013 (prior to the start of Baffinland shipping operations) and in 2016. Other evidentiary support is provided in consideration of the 2022 aerial survey results, indicating that narwhal numbers in Eclipse Sound in 2022 (4,592 narwhal; CV = 0.10, 95% CI of 3,754–5,617; Golder 2022a) were shown to increase from the low numbers observed in 2021 (2,595 narwhal; CV = 0.33, 95% CI of 1,369–4,919; Golder 2022a) despite no material change in shipping levels between these years. We do note however that the 2022 Eclipse Sound estimate still remains statistically lower than the 2016 estimate of 12,039 (CV = 0.23, 95% CI of 7,768–18,660; Marcoux et al. 2019) (t-test = 2.651, p = 0.038) and the 2019 abundance estimate of 9,931 (CV = 0.05, 95% CI of 9,009–10,946; Golder 2020a) (t-test = 7.808, p < 0.001).</div></div> <div><div>b.</div><div>Yes. Baffinland conducted ice breaking in the early shoulder season in 2020.</div></div> <div><div>c.</div><div>As discussed above in response (a), the timing of the supposed displacement of narwhal from the RSA in 2020 does not reasonably align with the period when icebreaking operations first began in the RSA or when icebreaking activities and heavy ice conditions were most pronounced in the RSA.</div></div>

ID#	Recommendations/Requests	Response
MHTO-27	<p>a. What evidence of displacement would Baffin- land require during its surveys, to confirm if displacement were occurring?</p> <p>b. Are these surveys the best method to document displacement?</p> <p>c. Would Baffinland agree that displacement might occur at times when surveys are not taking place? or that surveys may not be able to document the displacement events?</p> <p>d. How has Baffinland considered and account- ed for cumulative disturbances over years of sustained shipping and ice breaking operations to affect the possible displacement and seasonal return of narwhal to the Eclipse Sound and Milne Inlet areas?</p>	<p>a. As per Baffinland’s ‘Marine Mammal Trigger Action Response Plan (TARP), the following empirical evidence would be required to indicate that large-scale displacement of narwhal was occurring due to Project shipping:</p> <ul style="list-style-type: none">Confirmed moderate severity behavioural responses (Severity Score 5 and 6) that persist for a prolonged period (i.e., for several hours) following the exposure event, as described in Section 3.0 of the 2022 Bruce Head report (WSP 2023). <p>AND/OR</p> <ul style="list-style-type: none">Confirmed high severity responses (Severity Score 7 to 10) as described in Section 3.0 of the 2022 Bruce Head Shore-based Monitoring Report (WSP 2023a). <p>AND</p> <ul style="list-style-type: none">>25.0% decrease in the stock size (abundance) relative to the 2019 aerial survey abundance estimates. <p>b. For studying behavioural responses of narwhal to shipping including displacement effects, a total of 32 different response variables (i.e., indicators) have been investigated/monitored over a seven-year period (2015-2022) through implementation of five different marine mammal monitoring programs, as described in Baffinland’s response to MHTO-23. This ‘multiple lines of evidence’ approach to Project effects monitoring is one of the reasons Baffinland has high confidence our ability to monitor for potential Project-induced displacement effects of narwhal within the RSA.</p> <p>c. Baffinland’s monitoring programs begin each season before the first ship enters the RSA in order to appropriately monitor for narwhal displacement that may be triggered due to the onset of shipping. The monitoring programs are also strategically scheduled to overlap with the peak shipping period in mid-August when narwhal responses to shipping would be expected to be most acute. This approach, combined with Baffinland’s multiple lines of evidence’ approach to Project effects monitoring (see response to MHTO-23 and MHTO-28), provides high confidence in our ability to document any narwhal displacement that would be directly associated with Project shipping, should this occur. The annual frequency of project monitoring is determined based on historical monitoring results, and the resulting level of confidence that observed results will remain stable between successive monitoring periods (and that shipping levels remain consistent during this period), and that any significant effects which may occur between those years would either be detected by one of the related monitoring programs (i.e. Bruce Head Program when aerial surveys are in off years), or through community input (as occurred in 2018 following reports of low narwhal harvests by hunters in Pond Inlet).</p> <p>d. The effect of multiple seasons of shipping and icebreaking on narwhal is considered a Project effect not a cumulative effect. As such, this impact pathway was assessed in the SOP application package using the defined temporal scope of the SOP and using the outlined effects assessment protocol (i.e., the assessment contained in Section 6.5 of the SOP FEIS Addendum considers the effect of Project shipping and icebreaking on narwhal over multiple years). Baffinland also notes that icebreaking only presently occurs for a limited period at the end of the shipping season when the majority of narwhals would have already departed the RSA for their wintering grounds in Baffin Bay, minimizing any interactions between narwhal and icebreaking activities during this period.</p>

MHTO-28	<p>a. How many behavioural responses have been documented by Baffinland surveys? Please confirm which are made by shore based observers, and which are derived from tagging programs or other programs.</p> <p>b. How have harvester observations been considered in reaching the conclusion that narwhal responses to shipping are temporary and localized?</p> <p>c. What evidentiary support is there for the statement that behavioural responses are “not thought to result in any significant biological consequences on reproduction or survival”?</p> <p>d. Is anti-predator response” to shipping a normal, well documented response for narwhals?</p> <p>e. Is it possible that narwhal can discern between being hunted by an animal, and being disturbed by ships as two separate threats, each invoking a separate and distinct response pattern?</p> <p>f. Is there a well supported rationale for BIM to suggest narwhal response to killer whales and to shipping are similar?</p>	<p>a. For studying the effects of shipping on narwhal, a total of 32 different behavioural response variables have been investigated/monitored over a seven-year period (2015-2022) as part of Baffinland’s integrated marine mammal monitoring programs. This information is readily available in Baffinland’s annual monitoring reports (Golder 2020a; 2020b; 2022a, 2022b; WSP 2023a, 2023b; Austin et al. 2022, 2023), but for the benefit of the Board, a summary is provided in the attached Table MHTO-28 (MHTO-28 Attachment 1, Appendix 1).</p> <p>For additional context, it should be noted that narwhal behavioural responses are not classified as single events observed during each of the respective monitoring programs. Multiple different behavioural responses by narwhal are considered within a defined observation period following repetitive exposure to shipping, while taking into account potential variability in the responses by different group types (where possible). Through statistical modelling, it is determined if and how each of these response variables change when ships are present relative to when no vessels are present. Collectively, the available empirical data stemming from these programs has demonstrated that behavioural responses to shipping are limited to temporary and localized disturbance effects at close range to vessels (up to 5 km distance). These effects, when present, last for a brief duration with animals returning to their pre-response behaviour shortly following exposure.</p> <p>b. The conclusion stating that ‘narwhal responses to shipping are temporary and localized’ is based on results of the statistical analyses conducted for each of the 32 response variables using experimental data collected systematically from the field by both scientists and Inuit researchers as per a defined scientific study design. As part of the study design for each monitoring program, statistical testing is undertaken of multiple hypotheses (i.e., hypothesis testing) regarding potential shipping effects on the observed population (e.g., shipping does or does not have an effect on narwhal travel speed). In support of this process, a null and alternative hypothesis are developed for each response variable. The origin of each hypothesis is based on Inuit observations and/or stakeholder concerns regarding shipping impacts on narwhal (e.g., Inuit hunter observations indicating narwhal are avoiding areas in the RSA with increased shipping). Statistical analyses of the data are then performed to determine whether the evidence supports the alternative hypothesis (e.g., there is an effect of shipping on narwhal travel speed). The tests are core elements of statistical inference, used in the interpretation of collected experimental data, to separate a relationship (e.g., correlation between proximity of vessel and narwhal travel speed) from data noise (i.e., variability in the collected data). The results of the statistical analyses are then compared to the corresponding hunter observations to determine if there is agreement or not between the two sources of information. Even if there are discrepancies between the empirical data and Inuit observations, this can still trigger specific adaptive management measures (e.g., follow-up studies, enhanced monitoring, alternative study designs, and new or enhanced mitigation measures).</p> <p>c. The evidentiary support for the statement that behavioural responses are “not thought to result in any significant biological consequences on reproduction or survival” is based on results of the statistical analyses, in combination with the nature of the observed effect (e.g., type of behavioural response including duration of effect and context of exposure) (as outlined in WSP 2023a, 2023b). For example, current scientific practice involves categorizing marine mammal behavioural responses to anthropogenic stressors based on a scale of increasing severity, commonly referred to as a “severity scale”, which includes descriptors of response type, magnitude, and duration (Southall et al. 2007, 2021; Finneran et al. 2017). Initially proposed by Southall et al. (2007) and adapted by Finneran et al. (2017), the severity scale scoring system includes tiered behavioural responses (categorized as low, moderate, or high severity), and has recently evolved to include a framework for linking behavioural responses of free-ranging marine mammals to vital rates (Southall et al. 2021). In general, low severity responses are considered those within an animal’s range of typical (baseline) behaviours and are unlikely to disrupt an individual to a point where natural behaviour patterns are significantly altered or abandoned. Moderate severity responses are not considered significant behavioural responses if they last for a short duration (i.e., temporary) and the animal immediately returns to their pre-response behaviour. Moderate severity responses however have the potential to become significant if sustained over a longer duration (lasting over a period of several hours, or enough time to significantly disrupt a narwhal’s daily routine). High severity responses are considered significant as they include responses with immediate consequences to growth and survival, and those affecting animals in vulnerable life stages (Southall et al. 2007, Finneran et al. 2017). Within Baffinland’s monitoring programs, prolonged moderate severity responses and high severity responses are considered likely to result in significant biological consequences, with potential to impact critical life functions and/or vital rates. These would be responses consistent with the level of ‘harassment’ as defined under the U.S. Marine Mammal Protection Act (MMPA). To date, narwhal behavioural responses to Project shipping have been limited to no discernable response, low severity responses and moderate severity responses that are short-term in nature (Southall et al. 2007, 2021; Finneran et al. 2017). No evidence of prolonged moderate severity responses or high severity responses to shipping has been demonstrated in the monitoring programs. Furthermore, current vital rates of narwhal do not appear to be affected in the North Baffin region as the abundance estimate for the combined Eclipse Sound–Admiralty Inlet stock has remained consistent since the start of shipping operations. Reproductive rates also do not appear to be negatively affected in the RSA as the proportion of immature narwhal in the RSA (relative</p>
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		<p>to the observed population) has remained consistent with baseline levels throughout the early warning indicator (EWI) monitoring period (WSP 2023b). In summary, the available empirical evidence (based on both behaviour and population-based studies) does not support that Project shipping has contributed to higher mortality or lower birth rates among narwhal in the RSA (i.e., a significant biological consequence on reproduction or survival).</p> <p>d. No, an anti-predator response is not a well-documented narwhal response to shipping based on Project effects monitoring to date. There has been no demonstrated evidence of high-severity (e.g., anti-predator) responses by narwhal to shipping. In the SOP application and in the applicable annual monitoring reports (WSP 2023a, 2023b), it is documented that narwhal behavioural responses to shipping are pronouncedly different than narwhal responses to predators (e.g., killer whales) which appears to be misinterpreted by the MHTO.</p> <p>e. Yes, it is highly probable that narwhals are able to acoustically discern between a predator (i.e., killer whale) and a ship. Narwhals are also likely able to acoustically discern between a large ship and a small hunting vessel based on their differential sound signatures and movement patterns. Narwhal would not be naïve to either sound source in their current day environment and would have learned to associate each with a commensurate level of threat based on the context and nature of their prior exposures to both vessel types. The predictive nature of large ship movements (constant low frequency sound source travelling at a constant reduced speed along a defined shipping lane in the RSA), combined with the absence of direct harm inflicted from this sound source over time (based on their exposure experience) is unlikely to trigger an equivalent response to that elicited by hunting vessels, which narwhal would have come to associate with erratic (unpredictable) high-speed movements in the RSA combined with a high potential for direct harm (via active pursuit of animals, injury and/or mortality from hunting, breakdown of group structure). Animals are able to learn (via repeated exposure) that certain threats have the potential to result in injury or death while others do not. Habituation to repeated presentations of a signal that is not associated with physical discomfort or overt social stress is a common adaptive feature of sensory systems that predates the evolution of mammals (NRC 2003). Available IQ also supports the assumption that narwhal are capable of differentiating large ships from smaller hunting vessels and predators (i.e., killer whales) and exhibit different magnitude responses for each (Gonzales 2001; JPCS 2017; NWMB 2016; QIA 2019) T</p> <p>f. MHTO appears to be misinterpreting the statement extracted from the SOP submission, as provided in their summary. Baffinland has stated the opposite, in that narwhal behavioural responses to vessels are dissimilar to their response to killer whales. Specifically, see p. 182-183 of SOP, stating “<i>Behavioural responses to shipping have been limited to temporary and localized disturbance effects at close range to vessels (up to 5 km distance). These effects, when present, last for a short duration with animals quickly returning to their pre-response behaviour following exposure. These are considered to be low to moderate severity responses that are not thought to result in any significant biological consequences on reproduction or survival, and hence on the stock or population. In comparison, narwhal responses to killer whales in the RSA consist of rapid dispersal to shallow water nearshore areas, freeze behaviour and suspension of vocal activity, with effects persisting for periods well beyond the exposure event. This would be considered a high severity response with potential significant biological consequences. To date, no similar anti-predator response has been demonstrated by narwhal to shipping as part of Baffinland’s monitoring programs.</i>”.</p> <p>References:</p> <p>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) Final Report. Document 02633, Version 1.0. Technical report by JASCO Applied Sciences for Golder.</p> <p>Austin, M.E., K.A. Kowarski, and C.C. Wilson. 2023. Baffinland Iron Mines Corporation – Mary River Project: 2022 Underwater Acoustic Monitoring Program (Open-Water Season). Document 02975, Version 1.0. Technical report by JASCO Applied Sciences for WSP Canada.</p> <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.</p> <p>Golder. 2020a. 2019 Ship-based Observer Program. Reference #1663724-185-R-Rev0-31000</p> <p>Golder. 2020b. 2017-2018 Integrated Narwhal Tagging Study - Technical Data Report. Reference # 1663724-188-Rev0-12000. 14 August 2020.</p> <p>Golder. 2022a. 2021 Bruce Head Shore-based Monitoring Program. Reference #1663724-354-Rev0-43000. 6 October 2022.</p>
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		<p>Golder. 2022b. 2021 Marine Mammal Aerial Survey. Golder Report No.1663724-353-R-Rev0. Prepared by Golder Associates Ltd., Victoria, BC for Baffinland Iron Mines Corporation, Oakville, Ontario. 109 p.+ appendices.</p> <p>Gonzalez, N. 2001. Inuit Traditional Ecological Knowledge of the Hudson Bay Narwhal (Tuugaalik) Population. Department of Fisheries and Oceans, Iqaluit, Nunavut, Canada. pp. 1-26. Iqaluit, Nunavut</p> <p>Jason Prno Consulting Services Ltd (JPCS). 2017. Technical Supporting Document (TSD) No. 03: Results of Community Workshops Conducted for Baffinland Iron Mines Corporation’s – Phase 2 Proposal. Report submitted to Baffinland Iron Mines Corporation. January 2017.</p> <p>National Research Council (NRC). 2003 Ocean Noise and Marine Mammals. National Research Council (US) Committee on Potential Impacts of Ambient Noise in the Ocean on Marine Mammals. National Academies Press. 20023.</p> <p>Nunavut Wildlife Management Board (NWMB). 2016. Qikiqtarjuaq Narwhal IQ Interview Report. Prepared by Sheila Oolayou, Inuit Qaujimajatuqngit Coordinator for the NWMB. 10 November 2016.Southall, B. L., J.J. Finneran, C. Reichmuth, P.E. Nachtigall, D.R. Ketten., A.E. Bowles, W.T. Ellison, D.P.</p> <p>Qikiqtani Inuit Association (QIA). 2019. Tusaqtavut Study (Study) on the Baffinland Iron Mines Corporation’s (Proponent) Mary River Project (Project) Phase 2 Proposal. Report submitted to Nunavut Impact Review Board. June 2019.</p> <p>Southall B.L., A.E. Bowles, W.T. Ellison, J. J. Finneran, R. L. Gentry, C.R Greene Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E., Nachtigall, W.J. Richardson, J. A. Thomas, and P.L Tyack. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. Aquatic Mammals 33(4): 521 p.</p> <p>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 Behavioural Responses to Human Noise. Aquatic Mammals. 47(5): 421-464.</p> <p>WSP Canada Inc. (WSP). 2023a. 2022 Bruce Head Shore-based Monitoring Report. Reference # 1663724-438-Rev0-63000. 27 April 2023.</p> <p>WSP. 2023b. 2022 Marine Mammal Aerial Survey Report. Reference # 1663724-428-Rev0-59000. 27 April 2023.</p>

ID#	Recommendations/Requests	Response
MHTO-29	<p>The MHTO urges the NIRB to consider Baffinland’s assertions regarding the cause of shifts in narwhal distribution with the utmost caution. It is very convenient for a Proponent to excuse itself and its activities, while also providing explanations for changes to narwhal population that involve variables that are entirely outside of its scope or willingness to evaluate. Unless we have information to sup- port links to causation for these external variables, the assessment must be cautious in allowing their entry as plausible explanations for shifts in distribution.</p> <p>The MHTO requests that Baffinland be re- quired to undertake an updated cumulative effects assessment focused on impacts of shipping on narwhal, and perhaps which in- corporates external environmental factors as well, where these are known to affect narwhal behaviour and distribution but where questions remain as to their influence on narwhal in the RSA.</p>	<p>We know from multiple years of extensive marine mammal monitoring in Eclipse Sound (involving 33 different response variables) (see response to MHTO-28 and Table MHTO-28; MHTO-28 Attachment 1, Appendix 1) that narwhal reactions to open-water shipping are subtle, localized and temporary, and unlikely to result in a large-scale displacement of narwhal from the RSA in spite of a gradual increase in iron ore shipping since 2015. Behavioural studies indicate that open-water shipping results in, at worst, low to moderate (short-term) severity responses (Finneran et al. 2027; Southall et al. 2007; 2021) at close distances to the ships with animals returning to pre-response behaviour shortly after the initial response. Please also see response to MHTO-23 and MHTO-28.</p> <p>The aim of Project effects monitoring is not to study and quantify the effects of external environmental factors, but to ensure that the effects of the Project itself are being identified and quantified as best as possible. This is precisely what Baffinland has accomplished to date. For additional discussion on this point, please see response to QIA-ME-2.</p> <p>As previously stated, Baffinland is keen to support community-based regional monitoring programs aimed at studying the effects of external environmental factors on Arctic marine mammal populations, including narwhal. Baffinland will continue to engage with the local communities and the responsible agencies (i.e., DFO) regarding these types of regional-based collaborative opportunities.</p> <p>References:</p> <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.</p> <p>Southall B.L., A.E. Bowles, W.T. Ellison, J. J. Finneran, R. L. Gentry, C.R Greene Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E., Nachtigall, W.J. Richardson, J. A. Thomas, and P.L Tyack. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. Aquatic Mammals 33(4): 521 p.</p> <p>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 Behavioural Responses to Human Noise. Aquatic Mammals. 47(5): 421-464.</p>
MHTO-30	Please confirm if Section 6.5.4.3 of the SOP FEIS Addendum was meant to include the OTIRs as referenced in Table 6.19. If they are not included, please provide them as a follow up item.	Please see response to MHTO-10.
MHTO-31	Baffinland should be required to provide timelines for development of new plans, mitigation measures, or monitoring programs.	Please see response to MHTO-10.
MHTO-32	<p>Are other organizations involved in the process of developing the TARPs, including incorporation of Inuit-based objectives, indicators, thresholds, and responses? If so, which organizations? Has the MHTO been asked for input?</p> <p>Have the Indicators and thresholds for the MMP outlined in Table 6.20 been selected at this point? What is the process remaining to have this table and the relevant thresholds finalized?</p>	Please see response to MHTO-10.

ID#	Recommendations/Requests	Response
MHTO-33	<p>Summary: “To monitor changes in harvesting and traditional pursuits, the Mary River SEMP monitors and reports on a key VSEC from the FEIS, Land and Resources. Under the VSEC, residual effects are monitored through specific indicators, number of recorded land use visitor person-days at Project sites and the number of wildlife compensation fund claims.”</p> <p>Baffinland should be required to update its effect assessment to properly consider Inuit harvesting as a VSEC, and to identify indicators and thresholds which would appropriately measure impacts to this component.</p>	Please see response to MHTO-9.
MHTO-34	<p>Summary: “Wildlife remains a key source of food for most people in the North Baffin communities as well as Nunavummut as a whole. A comparison of contemporary harvest data to data from the 1996-2001 Nunavut Harvest Study shows a substantial decline in country food harvesting in the North Baffin communities. The Aboriginal Peoples Surveys completed in 2012 and 2017 indicate a minor decrease in the percentage of people hunting, fishing, trapping, and wild plant gathering Nunavut-wide.</p> <p>Time, money and location were found to be the primary barriers to participation in harvesting. These data also indicate employed Inuit were more likely to participate in harvesting than the unemployed because finances were less of a barrier.”</p> <p>Baffinland should be required to update its effect assessment to properly consider Inuit harvesting as a VSEC, and to identify indicators and thresholds which would appropriately measure impacts to this component.</p>	Please see response to MHTO-9 and MHTO-13.
MHTO-35	<p>Please describe how Baffinland will “continue to monitor Inuit land use and harvesting” and when we can expect a discussion of monitoring results.</p> <p>Please describe Baffinland’s current monitoring plans, and clarify if the MHTO may be invited to participate at MRSEMWG and QSEMC meetings where these results are discussed?</p>	<p>Baffinland reports on Inuit land use and harvesting through its annual Socio-Economic Monitoring Report (SEMR) for the Mary River Project. Specifically, Inuit land use and harvesting are monitored through three indicators: recorded land use visitor person-days at project sites (Section 8.1), wildlife compensation fund claims (Section 8.2) and Inuit employee survey responses regarding project interactions with harvesting (Section 10.2). The 2022 SEMR was submitted to NIRB on April 30 for public review as part of the regular reporting and comment cycle. [See NIRB Registry No. 344663].</p> <p>The Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) is administered by the Government of Nunavut. Typically the mayors of each community are asked to attend given the subject matter. The Mary River Socio-Economic Monitoring Working Group is administered by Baffinland but membership is limited to parties that possess and can share socio-economic monitoring data. If the MHTO is willing to collect and share data that is relevant to the SEMR Baffinland would be happy to discuss this further and support an additional member to the MRSEWG.</p>
MHTO-36	<p>“Harvest effort will likely be captured under the QIA’s Inuit Stewardship Plan, however, Baffinland is open to tracking this indicator itself as well.”</p> <p>Baffinland is requested to commence the collection of information and tracking this indicator as soon as possible. Please clarify how this will be undertaken, and when Baffinland expects to commence.</p>	<p>Please review response to MHTO-9 and MHTO-13. To accurately collect additional data on harvesting and harvesting effort Baffinland would require direct collaboration and information sharing with the HTA/HTO’s of the five (5) most impacted communities.</p> <p>If this remains of interest to the MHTO, Baffinland suggests this be put forward at both the MEWG and TEWG where all five impacted HTOs are members and it can allow for a more fulsome discussion between the parties implicated in the suggestion (principally Baffinland, QIA and each impacted community HTO).</p>

ID#	Recommendations/Requests	Response
MHTO-37	Please clarify this statement applies to Inuit employees, or Inuit who experience spin-off benefits from the mine (i.e. contractors) who wish to practice traditional activities.	Yes, the comment was based on information shared (via the Inuit employee surveys) by Inuit and their families that directly or indirectly rely on the Mary River Project for wage employment that indicates employment at the mine and spinoff activities make hunting equipment and supplies more available to Inuit who wish to practice traditional activities.
MHTO-38	<p>“The Pond Inlet Elders’ letter indicates: “Those that were not born in Pond Inlet stated that there were no more narwhales and that the hunters were not getting any narwhales. That is not true at all! In the year, 2020-2021, Inuit of Pond Inlet did go over the limit of their narwhale quota. Fisheries and Oceans did in fact have to give them from previous year’s quotas to make up the difference. Pond Inlet residents over harvested that year 2020-2021.”</p> <p>“Concerning seals, the numbers have not changed, those hunted have not decreased or have risen in numbers.”</p> <p>Please clarify whether this letter has been filed on the registry with NIRB, and if so, provide the document ID.</p>	This letter was filed on the registry for PIPR (NIRB Registry No. 340843) and is re-attached (MHTO-38 Attachment 1, Appendix 1) to this submission for convenient reference. Please note that during the community roundtable held by NIRB on the PIP Renewal in Pond Inlet in August 2022, a community member indicated that his name was affixed to the letter in error and that he wished for his name to be removed (NIRB Registry #341461), and so Baffinland has redacted that name on the attachment.
MHTO-39	Baffinland be required to include additional considerations in its assessment of narwhal harvest, and to complete an assessment of impacts to harvesting including effort per catch, time and money spent on resources and hunting trips, distance travelled for catch, and weight of maktaaq brought in from catch.	<p>Baffinland appreciates MHTO’s comment and request regarding the consideration of additional data than total numbers of narwhal reported harvested when assessing potential impacts on narwhal harvesting. To the best of Baffinland's knowledge the data points listed are information in the care and control of the MHTO. Such information is not publicly available and MHTO has not shared this information with Baffinland to date.</p> <p>Consistent with responses to MHTO-34 and MHTO-36, Baffinland welcomes any additional data related to narwhal harvesting from the MHTO and/or other interveners and suggests this be a topic of discussion at the MEWG as other parties with responsibilities in this area are implicated in the request.</p> <p>Baffinland also notes that the 2022 total narwhal harvesting numbers have not been shared with Baffinland to date, and request NIRB ask MHTO/GN/DFO to provide up to date information on the 2022 reported narwhal harvest numbers to be placed on the NIRB public registry for consideration as part of its decision making on the SOP.</p>
MHTO-40	<p>Please confirm what increase activity levels are being considered and explain the term being sought for these increased activity levels under the SOP. Is this assessment considering a 2 year term, or longer?</p> <p>Should the SOP be approved by the NIRB and responsible ministers, what are Baffinland's plans during the next 2 years in terms of seeking additional approvals to continue with these operations? When would Baffinland be filing any subsequent applications for further approvals?</p>	Please see response to CIRNAC-TRC-04.

GOVERNMENT OF NUNAVUT

ID#	Recommendations/Requests	Response
GN-FWS-01	<p>If the SOP is approved, the GN recommends the following Term and Condition:</p> <ul style="list-style-type: none">• Within 6 months of issuance of the amended Project Certificate, the Project’s caribou protection measures, as detailed in the TEMMP, shall be revised to specify group size and distance thresholds that will trigger automatic shutdowns of Project activities, including Tote Road traffic, during the period May 15 to July 15, regardless of whether caribou are exhibiting signs of disturbance. Which Project activities each protection measure applies to shall be specified. Group size and distance thresholds shall be based on advice provided by the Terrestrial Environment Working Group (TEWG) and relevant literature on barren-ground caribou responses to human activities. The Proponent shall submit the revised protection measures to NIRB.	<p>As noted in the QIA TE-2 (c) response, Baffinland’s TEMMP already identifies the triggers (one caribou) and response (including stopping traffic) for Tote Road traffic. Group size and distance thresholds have not been subject to a specific discussion with the TEWG outside of comments provided on the TEMMP, and as reflected in revisions to the TEMMP.</p> <p>Baffinland cannot agree to revise caribou protection measures within six months of issuance of an amended Project Certificate as suggested by the GN because i) there are outstanding party responsibilities that have not been addressed on related commitments (e.g., PIPR commitment no. 64), and 2) the suggestions made by the GN should be addressed by and discussed within the TEWG to ensure complete understanding and that they meet practical objectives.</p> <p>In the background discussion, the GN refers to Terrestrial Ecosystem Management Plans from mainland Nunavut projects that interact with migratory caribou herds. They also list several publications detailing the behavioral responses of other migratory caribou herds to various human disturbances, including some form of road traffic or other disturbances. Unfortunately, the GN does not discuss the distinct difference in ecology and substantial difference in density of Baffin Island caribou to mainland migratory caribou herds. Those ecological differences necessitate a different approach to mitigation than is used at other Nunavut mines sites. The GN-suggested revisions to the TEMMP suggest that what has been considered at other sites should be implemented on north Baffin Island. That approach ignores the differences in mine operations and caribou ecology.</p> <p>Baffin Island caribou are not migratory and are not found in abundance as those on the mainland. Protection measures used for migratory herds are unlikely to prove effective on north Baffin Island caribou herd because they do not account for the more sedentary ecology of Baffin Island caribou. Regardless, Baffinland welcomes more productive and robust discussions on caribou mitigation in the TEWG when the TEWG is ready to prioritize those discussions with informed conversations. Baffinland will submit revised protection measures to NIRB when those measures are developed.</p>
GN-FWS-02	<p>The GN recommends that if the Project proceeds, the following conditions shall apply:</p> <ol style="list-style-type: none">1. Within 6 months of Project certification, interim revisions to the Project’s caribou protection measures, as laid out in the TEMMP, shall be made and implemented.2. The interim measures shall include specific thresholds for caribou group size and distance from project that would trigger an automatic cessation of activity. These trigger thresholds should consider sensitive seasons for caribou.3. Group size and distance thresholds shall be based on advice provided by the Terrestrial Environment Working Group (TEWG) and relevant literature on barren- ground caribou responses to human activities.4. Specific thresholds for automatic stoppage of activities, in response to caribou presence, should be implemented for each category of Project activities including road traffic, helicopters, blasting, as well as the movement and loading of ore.	<p>See generally the response to GN-FWS-01. Baffinland will address all conditions provided by the GN through discussions with the TEWG. Baffinland reiterates, however, that these recommendations may not give proper consideration of and weight to the differences between Baffin Island caribou and other caribou in Nunavut.</p> <p>Per Commitment No. 064a appended to Appendix B of Project Certificate No. 005 (emphasis added):</p> <p><i>Baffinland will support and fund a study of North Baffin caribou based on Inuit Qaujimagatuqangit, to be led by the QIA in conjunction with HTOs. This work will be used to identify areas within the vicinity of the Project that are highly sensitive to caribou and to gather data to support the re-estimation of the Zone of Influence around the Project. Once complete, Baffinland and the QIA will re-estimate the Zone of Influence for caribou with input from the TEWG, and determine appropriate mitigation measures to apply in designated Project Protection Zones, including requirements for the suspension of blasting, helicopter overflights, road traffic, and measures to reduce dustfall. Baffinland agrees to implement the revised Caribou Protection Measures upon agreement of the location of Project Protection Zones and the mitigation measures that will apply in these zones. Baffinland also agrees to additional interim measures which shall be developed and will apply until replaced by revised measures as informed by the IQ collection referenced above.</i></p> <p><i>Until Project Protection Zones are confirmed through the process identified above, Baffinland agrees to implement additional mitigation measures within interim Project Protection Zones, to be delineated and agreed by Baffinland and QIA (with input from the TEWG) based on</i></p>

ID#	Recommendations/Requests	Response
	<div><div>5.</div><div>Distance thresholds for stoppage of project activities should be comparable to those of other mine Projects in Nunavut and consistent with published literature on barren- ground caribou sensitivity to disturbance and Zones-of-Influence around industrial activities.</div></div> <div><div>6.</div><div>Mitigation to avoid or reduce disturbance of caribou should begin at distances beyond those at which caribou are likely to be disturbed, as informed by published literature and IQ.</div></div> <div><div>7.</div><div>With respect to blasting restrictions, the Proponent should clarify what “essential mining activities” are and whether they would be allowed to continue regardless of caribou groups size, distance from the Project and/or season of occurrence.</div></div> <div><div>8.</div><div>The Proponent shall submit the revised protection measures to NIRB</div></div>	<p><i>existing IQ, western science, historical data, and project monitoring to date. The parties agree development of interim Project Zones shall occur by April 30th, 2023 or a date otherwise agreed upon by the TEWG.</i></p> <div><div>a.</div><div><u>Blasting restrictions within a specified distance to caribou calving and post-calving habitat during the caribou calving period and immediately post-calving, when caribou are present. This restriction should not apply in a manner that prevents essential mining activities at Deposit No. 1 from occurring within the Mary River Mine Site Project Development Area;</u></div></div> <div><div>b.</div><div><i>Helicopter operation restrictions within a specified horizontal and/or vertical distance to calving and post-calving habitat during the caribou calving period and immediately post-calving, together with heightened measures that will apply when caribou are present. This restriction should not apply in a manner that fetters environmental monitoring and research, unless caribou are present and associated mitigation measures dictate otherwise;</i></div></div> <div><div>c.</div><div><i>Revisions to the Caribou Decision Tree, which is used to manage traffic along the Tote Road in the presence of caribou based on their proximity to the road and behaviour (i.e. stationary feeding, moving towards/away from the road). These revisions will include application of a modified Caribou Decision Tree to include decision trees to inform blasting and helicopter operations.</i></div></div>
GN-FWS-03	The GN recommends that for the duration of the SOP, snow track surveys along the Tote Road be conducted twice weekly during snow cover seasons.	Increasing snow track surveys to twice a week would not increase the number of caribou track encounters. North Baffin Island caribou occur at very low densities (compared to other projects that the GN cross-references), they are non-migratory (i.e. their annual movements are minimal), and there are very few caribou encounters with the Tote Road throughout the year. Caribou track encounters will increase only when caribou densities increase, and those caribou interact with the Project. Baffinland intends to continue the monthly snow-tracking surveys until sufficient caribou tracks are encountered to provide robust data collection.

CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA

ID#	Recommendations/Requests	Response
CIRNAC-TRC-01	<p>If the Project is approved, CIRNAC requests that Baffinland commits to providing the following:</p> <ol style="list-style-type: none">Baffinland shall develop reliable criteria for the identification of PAG rock that clearly accounts for uncertainty in the 0.2% total sulphur threshold and the presence of acidic soluble sulphates upon the projected life of mine tonnages of PAG and NAG rock.Baffinland shall incorporate these criteria, clearly stating ranges in projected life of mine PAG and NAG rock tonnages, and the resultant necessary contingencies and methods of validation that need to be incorporated into engineering design, environmental monitoring, and management strategies for the Waste Rock Management Plan and Interim Closure and Reclamation Plan.Baffinland shall review the performance of these plans and provide evidence of the effectiveness of these plans by demonstrating compliance with the management measures and that the desired outcomes of mitigation are achieved on an annual basis.	<ol style="list-style-type: none">2. Baffinland is currently working with a third party mine engineering consultant to update its Phase 1 Waste Rock Management Plan, which will address these types of uncertainties, but for waste volumes confined to the current dump footprint. Baffinland considers this approach acceptable as the SOP is up until the end of 2024. In general, this update consists of reviewing thermistor, water balance, water chemistry and waste rock geochemistry data collected during the last three years and incorporation of the data into an updated Phase 1 Waste Rock Management Plan. If required, existing practices will be updated to ensure the overall objective of the waste rock facility is achieved.3. As committed in Appendix E.14 of the 2022 NWB QIA Annual Report for Operations, Baffinland will ensure all relevant evidentiary monitoring data is presented in the 2023 and future Annual Reports, along with a summary analysis of the effectiveness of the plan strategies and the outcome of any mitigations employed to meet the intended management measures.
CIRNAC-TRC-02	<p>CIRNAC recommends that Baffinland makes a commitment to complete thermal modeling of the Waste Rock Facility and include the results in the Waste Rock Management Plan.</p>	<p>Baffinland just completed a full review of all thermal data from the Waste Rock Facility, and will be including an updated thermal model in the next update to the Phase 1 Waste Rock Management Plan, which will be finalized in 2023.</p>
CIRNAC-TRC-03	<p>CIRNAC supports implementation of all feasible measures for dust reduction. CIRNAC recommends that Baffinland:</p> <ol style="list-style-type: none">Confirms that the dust mitigation measures provided in the SOP are either implemented or are planned to be implemented in the near future.Installs continuous particulate monitoring stations along the Tote Road, up to 1 km away from the centerline, and includes co-located soil sampling stations. Include annual soil sampling to assess metal accumulation and test for leachability.Describes how it can ensure that the road surface does not contain materials contributing to the spread of metal contamination into the soils found within the various mine areas.Tracks potential trends in increased dustfall generation with soil contamination in the various mine site areas.	<ol style="list-style-type: none">Please see response to QIA AE-2.Baffinland already has a program that pairs soil samples with continuous particulate monitoring stations (i.e., passive dustfall collectors) at variable distances along the Tote Road. The data has been consistent, reliable and robust (see part 4 of this answer). To date, soil metals different from baseline conditions have been at or below laboratory detection levels. A study for leachability might come when we repeatedly detect measurable concentrations of metals in the soil above baseline conditions. Given the existing programs and results, Baffinland is unclear why CIRNAC is requesting the addition of a program that already exists.All construction grade waste rock material is sampled for metal content, such as aluminum, calcium, iron, and manganese, and elements such as carbon, sulphur and silica. These parameters are used to categorize rock as ore or waste. Only waste with low metal content that is non-acid generating is used for road construction.Baffinland already monitors and investigates potential trends in increased dustfall generation with soil contamination in the various mine site areas. A long-term vegetation and soil base metals monitoring program was initiated in 2012, as described in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) (Baffinland Iron Mines Corporation 2016). The objectives of the vegetation and soil base metals monitoring program are to monitor metal concentrations in vegetation and soil, particularly caribou forage (i.e., lichen), and verify that metal concentrations are within the acceptable range for established soil quality guidelines and relevant vegetation indicator values.

ID#	Recommendations/Requests	Response
		<p>The most recent soil-metal concentration data, collected in 2022 at the Project, predominantly indicated no significant change, or concentrations were significantly lower relative to baseline values. Concentrations were below or within an acceptable range for soil-metal concentrations. Further, it was noted that there was a significant negative relationship between metal concentrations in dustfall and metal concentrations in soil for all CoPCs except cadmium; for all CoPCs, this appeared to be mediated by a significant positive relationship with soil pH. No unifying trend has been drawn from the analysis (EDI Environmental Dynamics Inc. 2023).</p> <p>Literature Cited:</p> <p>Baffinland Iron Mines Corporation. 2016. Terrestrial environment mitigation and monitoring plan, BAF-PH-830-P16-0027, Rev. 1. 128 pp.</p> <p>EDI Environmental Dynamics Inc. 2023. Mary River Project: 2022 Terrestrial Environment Annual Monitoring Report. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario, Canada. 426 pp.</p>
CIRNAC-TRC-04	CIRNAC requests that Baffinland: Clarifies its long-term plans for the Mary River Project as it relates to project viability and next steps or an indication of their intent to seek an additional extension for the status quo beyond 2024.	As parties may be aware, Baffinland is actively continuing its pursuit of funding for the Steensby component of the Approved Project. Any future decisions to seek an approval to continue at status quo rates beyond 2024 will be communicated following additional consultation with the QIA and further advancement in the funding decisions for Steensby.
CIRNAC-TRC-05	<p>For Section 4.2, CIRNAC requests that Baffinland provide a list describing the management plans that need to be updated and a timeline describing when the updated management plans will be finalized and submitted.</p> <p>For Section 4.6 CIRNAC requests that Baffinland provide information as follows.</p> <ul style="list-style-type: none">• Baffinland to provide a timeline and plan for development of monitoring and AMP plans.• Baffinland to provide data on which indicators within the draft adaptive management plans have been triggered within the low, medium, and high response levels.	<p>Section 4.2:</p> <p>Draft versions of the following management plans were uploaded on the NIRB record for the Production Increase Proposal Renewal on May 15, 2023:</p> <ul style="list-style-type: none">• Air Quality and Noise Abatement Management Plan (NIRB Registry # TBD – administrative error)• Roads Management Plan (NIRB Registry No. 34490)• Shipping and Marine Wildlife Management Plan (NIRB Registry No. 344991)• Terrestrial Environment Mitigation and Monitoring Plan (NIRB Registry No. 344993)• Marine Monitoring Plan (replaces previous Marine Environmental Effects Monitoring Program) (NIRB Registry No. 344992)• Socio-Economic Monitoring Plan (NIRB Registry No. 344994)• Adaptive Management Plan (NIRB Registry No. 344995)• Inuit Qaujimajatuqangit (IQ) Framework (NIRB Registry No. 344996) <p><u>Section 4.6:</u></p> <p>As indicated in Section 4.6 and Appendix B of Project Certificate No. 005, Baffinland and QIA are targeting April 2024 to come to agreement on the adaptive management components of management plans related narwhal, seal, caribou, Arctic char, dust and CRLU. Baffinland and the QIA, working under the bilateral Adaptive Management Plan Working Group are actively developing a work plan to meet the April 2024 target. All parties currently have access to the Projects 2022 monitoring data and can compare them to the trigger, action response plan (TARP) tables from the draft revised management plans to evaluate Baffinland’s environmental performance.</p> <p>Should additional commitments be made during the SOP NIRB Reconsideration that trigger additional updates to the enclosed management plans, Baffinland will provide revised draft plans to the NIRB. Such revised drafts would be developed in consultation with QIA, relevant regulatory authorities and other participants in the NIRB process.</p> <p>We will consolidate inputs through both the SOP review process and annual monitoring cycle to inform the final version of the plans for release in 2024.</p>

ID#	Recommendations/Requests	Response
CIRNAC-TRC-06	<p>CIRNAC recommends that:</p> <ol style="list-style-type: none">Baffinland’s Engineer of Record (EOR) who is responsible for infrastructure examines changes in the NBCC 2020 and validates the design of these structures in the light of the revised seismic design criteria for the project. The infrastructure design criteria to be reviewed should include earthworks slopes; foundations, dams/dikes, and earth retention structures.Baffinland confirms that NBCC 2020 has been reviewed by the EOR and that the Mary River Project infrastructure are validated with the revised seismic design criteria in the latest NBCC standards.	<p>Thank you for the recommendation. The SOP does not include the construction of additional infrastructure and this comment therefore falls outside the scope of this application. Baffinland can confirm, however, that it has reviewed NBCC 2020 and future construction planning will adhere to NBCC 2020, where applicable.</p>
CIRNAC-TRC-07	<p>CIRNAC requests that Baffinland:</p> <ol style="list-style-type: none">Confirms if and how unforeseen dust deposition impacts on surface water quality trigger updates to the SWAEMP, the AQNAMP, their respective TARPs, as well as the linkages between these plans.Confirm whether impacts from dust deposition on sediment quality are present, and clarify whether sediment quality is being altered, but not enough to be considered an effect.	<p>The TARP developed for the AEMP includes sediment quality thresholds that would trigger responses either outlined in the TARP or in the action response toolkit. The plans are designed to identify and respond to unanticipated effects, should they be observed, implementation of the plans, not revisions would be the logical response. Revisions of plans themselves, including their TARP’s could occur but only if warranted.</p> <p>The sediment quality of lakes in close vicinity of the mine site was characterized prior to mine construction (i.e., baseline) and has been monitored annually since commercial mine production commenced in 2015. The annual monitoring conducted following commencement of mine operation has consistently indicated no changes in sediment quality relative to baseline conditions, as well as no indication of increasing trends in parameter concentrations in sediment over time at any of these lakes. The sediment quality monitoring conducted to date has thus indicated no alteration of sediment quality from all potential Project-related sources, including dust deposition, at lakes close to the mine site (refer to CREMP reports produced from 2016 to 2023).</p> <p>In addition to the monitoring of sediment quality, Baffinland has implemented studies to determine annual sediment accumulation at Sheardown Lake NW (i.e., the AEMP Lake Sedimentation program), which is the lake expected to receive greatest amounts of dust deposition from the Project according to predictions generated for the Final Environmental Impact Statement (FEIS). To date, these studies have indicated a maximum annual deposition of 0.017 cm of sediment (including organic and inorganic material). Based on this accumulation rate, sediment quality within the lake is unlikely to be substantially altered in the foreseeable future.</p> <p>Overall, the weight of evidence based on data collected through 2022 indicates no impacts of dust deposition (or other sources) on sediment quality, as well as no alteration of sediment quality (based on comparisons to baseline conditions), at lakes located close to the mine site since commercial mine operations commenced in 2015.</p>

ENVIRONMENT AND CLIMATE CHANGE CANADA

ID#	Recommendations/Requests	Response
ECCC-TRC-01	<p>ECCC requests that:</p> <ul style="list-style-type: none">the Proponent indicate whether Capesize ore carriers will be deployed, and whether they would be used as part of a convoy.the Proponent update CALPUFF air dispersion modelling to incorporate the air emissions of Capesize ore carriers, whether they will be used on their own or as part of a vessel convoy.	<p>A Section 2.3.4 of the SOP describes the Marine shipping activities and components. The use of convoys was added as an additional mitigation measure in the updated 2022 Narwhal Adaptive Management Response Plan filed prior to the commencement of the 2022 shipping season and will also be incorporated as part of the SOP:</p> <p><i>Use of convoys throughout the shipping season to further reduce total sound exposure. Acoustic monitoring data indicates that if ore carriers transit in convoys with inter-vessel separation less than 10 km, there is an overall reduction of the total sound exposure in the RSA compared to the separate vessel movements that Baffinland has implemented in previous years. Slight increases of instantaneous sound levels in the regions between the vessels are compensated for by shorter overall exposure duration, resulting in a net decrease of noise exposure. The use of convoying is similar in effect to reducing the overall number of ships.</i></p> <p>Through the SOP most ore carriers calling on Milne Port will continue to range in size between Supramax (approximately 55,000 t) and post-Panamax (94,000 t). If available, Baffinland also anticipates chartering larger ore carriers which were included and considered in the original assessment of the Project, such as Newcastlemax ore carriers (approximately 205,000 t). For simplicity, all vessels ranging in sizes of Deadweight Tonnage (DWT) range of 200,000 – 220,000, and carrying capacity range of approximately 200,000 to 215,000 metric tonnes will be collectively referred to as Capesize. Mitigation measures related to convoying will be applied to all classes of ore carriers.</p> <p>Baffinland has finalized an Air Quality Assessment Report (AQAR), which includes CALPUFF air dispersion modelling that included diesel combustion particulate matter emissions from ore carrier ships and tugboats at Milne Inlet. The emission rates for the ore carrier ships and tugboats were taken from the air quality assessment (RWDI 2018) for the Phase 2 FEIS Addendum (Baffinland 2018a). It was assumed that the ore carrier ships consisted of Panamax vessels with a capacity of 70,000 dry weight tonnes and Capesize vessels with a capacity of 230,000 dry weight tonnes will ship the 6 Mtpa to market. Hence, the air dispersion model results presented in the March 2023 AQAR includes potential air quality impacts from the use of Capesize ore carriers. This Report has been released as a companion document to support the public review of the revised draft AQNAMP and filed on the PIP Renewal Public Registry for annual reporting purposes</p>

FISHERIES AND OCEANS CANADA - FISH AND FISH HABITAT PROTECTION PROGRAM

ID#	Recommendations/Requests	Response
DFO-TRC-01	<div><div>a. DFO recommends the proponent clarifies when baseline conditions existed</div><div>b. DFO recommends taking the average of the survey repeats and the Proponent discussing their data analysis practices with the Marine Environment Working Group.</div></div>	<div><div>a. Baffinland started shipping ore in 2015. Prior to 2015 is considered baseline conditions for most purposes. Although some sealifts did occur prior to 2015, the numbers were low along with other non-Baffinland activities, including cruise ship, navy vessels, community sea lifts, etc.</div><div>b. By combining surveys flown in optimal and sub-optimal survey conditions Baffinland would be underestimating narwhal abundance estimates. Previous papers have stated that abundance estimation tends to be lower as Beaufort (BF) sea states increases (Gosselin et al. 2007). High sea states have a negative effect on cetacean counts (DeMaster et al. 2001; Gosselin et al. 2007). DeMaster et al. (2001) found the probability of sighting beluga whales in BF sea state 1 is significantly greater than that for sighting beluga whales in BF sea state 2, 3, and 4. Lower abundance estimates are driven by a reduction in encounter rate associated with increasing average daily BF condition (Gosselin et al. 2007). Another effect that might intuitively be expected with increasing BF is a reduction in effective strip half width as whales may not be visible as far away from the plane in bad sea conditions. It is WSP’s position based on the papers stated above that surveys flown in areas of high BF sea states have a high probability of negatively biasing the number of animals present and are excluded from the analysis if a statistically significant difference is found between two abundance estimates.</div><div>The MEWG is an ideal forum to discuss data analysis practices and welcomes DFO’s active and positive contributions to the group.</div></div>
DFO-TRC-02	<div><div>• DFO recommends the Proponent update the risk assessment methodology in collaboration with DFO subject matter experts.</div><div>• DFO recommends the development of proactive measures and a response plan for Marenzelleria.</div></div>	<div><div>The set of comments/recommendations included in DFO-TRC-02 has been broken into sub-components in order to respond.</div><div>DFO comment: Risk assessed by DFO does not align with that assessed by WSP/BIM (DFO considers the risk to be higher)</div><div>Response: Potential introductions of non-indigenous species are taken very seriously by Baffinland, which is why a comprehensive approach to the risk assessment, mitigation, and monitoring has been implemented. The approach used in the SOP risk assessment closely follows methods and guidance put forward by Fisheries and Oceans Canada (e.g., Chan et al. 2012; Casas-Monroy et al. 2014) and, accordingly, we stand behind the method and outcomes. It is also important when considering that the ballast water management strategy currently used by Baffinland, i.e., requiring arriving ore carriers to conduct a ballast water exchange followed by a D-2 standard treatment further reduce the risk of AIS arrival. Baffinland ballast water protocols for vessels arriving at Milne Port, exceeds what is required by Canadian or international regulations, which currently require no ballast water exchange for domestic vessels and either ballast water exchange or treatment – but not both – for vessels arriving from international ports of origin.</div><div>It is unclear which DFO risk assessment is being referenced in DFO’s comment, and whether the higher level of risk that DFO referenced was assessed taking into consideration the Baffinland requirement for ore carriers to conduct ballast water exchange followed by a D-2 standard treatment, as opposed to ballast water exchange only which as noted above is currently the requirement under Canadian regulations. Assuming that Drake et al. (2020), a recently-published scientific advisory document with conclusions regarding ballast water risks in the Canadian Arctic, may be the risk assessment to which DFO refers, the results are not directly comparable between Drake et al. (2020) and Appendix 15 (WSP 2023) as different units were used (i.e., Drake et al. expressed their results as the predicted number of species establishments/decade and as the probability that one or more species establishes/trip, whereas WSP expressed the results in terms of relative risk). Biological data input to Drake et al.’s Arctic ballast water model were derived from ballast water sampled in Churchill, MB, in 2010 and 2011. The rates of expected species establishments were calibrated using invasive species data from the Great Lakes-St. Lawrence River, which arguably may overestimate the ability of non-indigenous species to establish populations under Arctic conditions. Drake et al. (2020) acknowledged their dependence on Great Lakes-St. Lawrence River data to inform the predicted rates of species establishment in other regions as a limitation in their model, and also characterized their model results for species establishment from Arctic international ballast water introductions as having higher levels of uncertainty than results reported for other Canadian waters due to limited biological data for the Arctic. It is of interest to note that their predictions of species establishments/decade for ballast water management using ballast water exchange followed by a D-2 standard ballast water treatment were 86% and 88% lower than for ballast water exchange only, for non-indigenous zooplankton and harmful phytoplankton, respectively.</div><div>DFO comment: Detection of several non-indigenous species is evidence of introductions occurring.</div></div>

ID#	Recommendations/Requests	Response
		<p>Response: BIM believes this comment to be misleading. To date, there has been no evidence of a Project-related introduction of non-indigenous species or aquatic invasive species (WSP 2023). Several taxa, such as <i>Pseudofabricia aberrans</i> and <i>Paramphitrite/Amphitrite birulai</i>, have been placed on the Project Watch List due to uncertainties in their identification and/or distribution but are not conclusive evidence of introductions occurring. As stated in WSP (2023), lack of information about the native marine biota of Milne Port in particular, and indeed the biodiversity of the Eastern Canadian Arctic, is a major constraint on understanding whether species are native or non-indigenous to the area. Further, some taxa on the Watch List, such as <i>Monocorophium/Crassicorophium</i> (identification still pending) were identified as present in Milne Port during the pre-shipping baseline period.</p> <p>DFO comment: Risk and significance of ballast water-mediated introductions are expressed differently in BIM 2023 and WSP 2023 (Appendix 15 in SOP)</p> <p>Response: It is unclear which BIM (2023) publication DFO is citing here. Baffinland will follow up with DFO and report and updates to the NIRB at or prior to the Community Round Tables.</p> <p>DFO comment: The databases used to identify harmful non-indigenous species are outdated and incomplete.</p> <p>Response: WSP has surveyed the available databases of non-indigenous/aquatic invasive species. Is there a database that DFO suggests would be more appropriate? Zenetos et al. (2022), which was mentioned in DFO’s comment, contains tables from which data could be extracted although it is not stated in their paper whether these data are also accessible through a publicly available database.</p> <p>DFO comment: The use of harmful non-indigenous species (i.e., aquatic invasive species) is less precautionary than considering total non-indigenous species.</p> <p>Response: As the risk assessment is a relative risk assessment, the relative risk is likely to be the same regardless of whether all non-indigenous species are included or only harmful non-indigenous species.</p> <p>DFO comment: Since 2014, DFO has moved to a quantitative approach using probabilities (Drake et al. 2020; Brinklow et al. 2022)</p> <p>Response: The suggestion of reanalysing the risk data in a quantitative approach is one that has merit and BIM will commit to re-running the AIS risk assessment for ballast water once data are available from DFO’s ballast water sampling program. As noted above, Drake et al. (2020) expressed limitations in their risk assessment associated with deficiencies in the data available for the Arctic.</p> <p>DFO comment: WSP (2023) did not consider the high rates of non-compliance in treatment systems (Bailey et al. 2022)</p> <p>Response: Bailey et al. (2022) sampled vessels in 2017-2018 to assess rates of compliance at that time in preparation for operationalization of ballast water management systems in 2024. As noted by the authors, “Greater rates of compliance may be achieved as ship crews gain experience with operation and maintenance of BWMS”. Similarly, it seems likely that ship crews would pay greater attention to compliance and correct operation of the ballast water treatment system in situations where ballast water treatment becomes a regulatory requirement, or, as in the case of Baffinland’s port operations, a requirement currently in force for contracted ore carriers. Consequently, the non-compliance rates observed by Bailey et al. (2022) may not be relevant to this risk assessment.</p> <p>Lower rates of effectiveness and compliance followed by subsequent improvement was observed in commercial vessel operations when ballast water exchange was first introduced in Canadian waters. In 1990-1991, vessels entering the St. Lawrence Seaway reported compliance rates of 88-94% with voluntary ballast water exchange but ballast water sampling onboard these vessels found the exchanges to be only 67-86% effective (Locke et al. 1993). The introduction of a regulatory requirement, enforcement, and better technical procedures resulted in substantially improved ballast water exchange in the Great Lakes-St. Lawrence Seaway with compliance of 97% and effectiveness of 99.99% by 2007 (Bailey et al. 2011).</p> <p>DFO comment: Recommendation to update the risk assessment methodology.</p>

ID#	Recommendations/Requests	Response
		<p>Response: As indicated in the response to (f) above, BIM commits to updating the risk assessment once ballast water data are available for Project vessels arriving at Milne Port. As noted above, Drake et al. (2020) expressed limitations in their risk assessment associated with deficiencies in the data available for the Arctic.</p> <p>DFO comment: Recommendation to develop proactive measures and a response plan for <i>Marenzelleria</i>.</p> <p>Response: Proactive measures and containment responses may be destructive to the marine environment in Milne Port; therefore, BIM has taken care to be certain beyond reasonable doubt that the species in question are invasive. And, based on multiple lines of evidence, BIM does not believe a response plan for <i>Marenzelleria</i> is warranted. The tentative identification of <i>Marenzelleria viridis</i> was subsequently found to be incorrect when specimens were sent to a global expert specializing in polychaete worm taxonomy. Rather, to date, only species with a Canadian Arctic distribution have been detected: <i>Marenzelleria wireni</i> which has been confirmed by molecular methods and specimens identified as <i>Marenzelleria arctia</i> by morphological examination. The identification of some <i>Marenzelleria</i> specimens collected in Milne Port has been left at the genus level in cases when the features for identification to species level were absent, such as for juvenile or damaged specimens. For example, the polychaete expert speculated as to the possibility of a third species based on some immature specimens from 2018 sampling; it was not possible to differentiate between <i>M. wireni</i>, and <i>M. neglecta</i> based on incomplete morphological features of these specimens. <i>M. neglecta</i>, however, is another species with a Canadian Arctic distribution. All intact, adult specimens have been classified as one of the two Arctic species, <i>M. wireni</i> or <i>M. arctia</i>. No <i>Marenzelleria</i> species with a distribution outside of the Arctic has been detected at Milne Port; hence proactive measures and a response plan for <i>Marenzelleria</i> is not indicated. Moving forward, <i>Marenzelleria</i> species will remain on the Watch List for Milne Port and will continue to be subject to heightened monitoring efforts as a precautionary measure.</p> <p>References:</p> <p>Bailey S.A., M.G. Deneau, L. Jean, C.J. Wiley, B. Leung and H.J. MacIsaac. 2011. Evaluating efficacy of an environmental policy to prevent biological invasions. Environmental Science and Technology 45: 2554-2561.</p> <p>Bailey, S.A., T. Brydges, O. Casas-Monroy, J. Kydd, R.D. Linley, R.M. Rozon and J.A. Darling. 2022. First evaluation of ballast water management systems on operational ships for minimizing introductions of nonindigenous zooplankton. Marine Pollution Bulletin 182: 113947.</p> <p>Casas-Monroy, O., R.D. Linley, J.K. Adams, F.T. Chan, D.A.R. Drake and S.A. Bailey. 2014. National risk assessment for introduction of aquatic nonindigenous species to Canada by ballast water. DFO. Can. Sci. Advis. Sec. Res. Doc. 2013/128: 73 p.</p> <p>Chan, F.T., J.E. Bronnenhuber, J.N. Bradie, K. Howland, N. Simard and S.A. Bailey. 2012. Risk assessment for ship-mediated introductions of aquatic nonindigenous species to the Canadian Arctic. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/105: 93 p.</p> <p>Drake D.A.R., J.N. Bradie, D. Ogilvie, O. Casas-Monroy and S.A. Bailey. 2020. Effectiveness of ballast water exchange plus treatment as a mechanism to reduce the introduction and establishment of aquatic invasive species in Canadian ports. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/003: 60 p.</p> <p>Locke, A., D.M. Reid, H.C. van Leeuwen, W.G. Sprules and J.T. Carlton. 1993. Ballast water exchange as a means of controlling dispersal of freshwater organisms by ships. Canadian Journal of Fisheries and Aquatic Sciences 50: 2086-2093.</p> <p>WSP. 2023. 2022 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program. Prepared for Baffinland Iron Mines Corporation. 28 April 2023.</p>

HEALTH CANADA

ID#	Recommendations/Requests	Response
HC-TRC-01	HC does not have any recommendations with respect to the SOP.	Baffinland appreciates Health Canada’s support in relation to Baffinland’s mechanism to build community capacity related to human health risk assessment. Baffinland looks forward to further engagement with Health Canada and impacted communities to best support the implementation of SOP mechanisms.

NATURAL RESOURCES CANADA

ID#	Recommendations/Requests	Response
		Baffinland appreciates Natural Resources Canada's participation in the review of this SOP application.

PARKS CANADA

ID#	Recommendations/Requests	Response
PCA-TRC-01	<p>Parks Canada would like to note that Term and Condition 179(a) and 179(b) were originally added to Project Certificate No. 005 prior to the signature of the TI IIBA.</p> <p>As a result, the context of the TI IIBA would not have been taken into consideration in the original analysis of the Production Increase Proposal (PIP) and it wasn’t added in the SOP analysis. Therefore, Parks Canada recommends that the NIRB applies the precautionary principle and considers the decline in narwhal abundance in Eclipse Sound in the protected area context when making recommendations related to the Sustaining Operations Proposal.</p>	<p>Parks Canada has confirmed to NIRB on previous occasions that it has no independent subject matter expertise on marine mammals.</p> <p>It is not clear what relevance the TINMCA IIBA (which relates to the not yet established TINMCA) between Canada and QIA has to Parks Canada's comment, but it is noted that Parks Canada also referenced the TINMCA IIBA in its comments on the PIP Renewal in 2022.</p> <p>The Precautionary Principle is defined by NIRB, by federal legislation and by the United Nations as, "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". The SOP is proceeding in accordance with the Precautionary Principle: as detailed in the application, Baffinland has applied extensive mitigations to its shipping activities through Eclipse Sound including voluntarily applying the lowest speed limits to shipping activities in Canada, as set out in detail in its management plans.</p>
PCA-TRC-02	<p>Parks Canada recommends clarification on the total vessel traffic movements and marine operation for all vessels in order to support the conclusions regarding the potential impacts of larger ore carriers on the environment.</p>	<p>Please refer to response provided in TC-TRC-01.</p>

TRANSPORT CANADA

ID#	Recommendations/Requests	Response
TC-TRC-01	<p>Transport Canada requests that the proponent provide clarification/details on the use of larger vessels, especially Capesize vessels, associated with the Sustaining Operations Proposal, as follows:</p> <ol style="list-style-type: none">Confirmation of whether Post Panamax or Capesize vessels will be used for the SOPDetails of depth at and near the dock and areas of approach to accommodate the larger vesselsDetails regarding precautions to be taken during heavy weather and emergenciesDescription of the safe route of the vessel and any limitations on turning circlesDetails for anchoring such a type of vesselMooring adequacy at the berth to accommodate such size of vessels, including loading of ore by the conveyorsDetails regarding experience of the crew/personnel occupied in mooring the vessel. For example, tug crew/docking master for vessels of such sizeAny limitation on vessel’s draft and load capacity, given the depth at the berth and approachesSuitability of the tugs and ice breakers for this size of vessel and confirmation if any additional tugs will be required to support vessels of such size	<ol style="list-style-type: none">The use of both post-panamax and capsized vessels are included in the SOP.An updated bathymetric survey is scheduled in July 2023. Following data processing the surveyors will provide an updated bathymetric chart for the dock area. The base case is for the Capesize vessels to be loaded to the same draft as the other vessels (15.2m BW). Loading to deeper draft will only be considered if the results of the bathymetric survey allow. In any case we will maintain very conservative UKC at all times, which will be several times more than the standard UKC at other ports.Our Marine Engineers have confirmed that the current mooring arrangement is sufficient to withstand extreme weather conditions in Milne when Capesize vessels are at berth. Regardless installation of additional bollards as an extra safety measure will be completed. Baffinland accurately estimates the arrival time of vessels, minimizing waiting time at anchorage when feasible, reducing exposure to unfavourable weather conditions while in the marine RSA. Baffinland also aims to berth vessels under favorable wind, current, and swell conditions. In extreme cases, if the vessel is already berthed, we will temporarily shift the vessel to anchorage or (worst case) sail the vessels to the staging area to wait before returning to load the remaining cargo, ensuring trim and stability conditions allow for it.Capesize vessels will follow the same shipping route to Milne Inlet as other vessels. The difference in turning circle between a Capesize vessel and a Panamax vessel is proven marginal.Capesize vessels will not anchor at Ragged Island and will sail directly to Milne. The risk of approaching icebergs in Milne is relatively uncommon, and we have immediate access to tugboat support should there be cases of anchor slipping or necessity for iceberg management.The current mooring system has been confirmed as adequate. However, we are installing two additional bollards to enhance mooring arrangements in every position and further ensure safety. The bollards are engineered to withstand 125 tons of pull, whereas the Capesize bollards can withstand 70 tons of pull power. This will provide us with the necessary safety. The loading of iron ore will continue as usual, but we anticipate a higher degree of warping or shifting of the Capesize vessel to access the furthest holds.The Docking Master provided by Fednav remains the same as in previous seasons and possesses extensive experience in docking Capesize vessels in the St. Lawrence. Two tugs, supplied by Group Ocean, will be available, boasting excess pull power beyond what is required for Capesize vessels, thus accommodating Babycapex, Post-Panamax, and Panamax vessels as well. Group Ocean brings significant expertise from docking Capesize vessels with two tugs in Sept. Iles. The mooring crew, also provided by Group Ocean, remains unchanged and is well acquainted with the docking procedures in Milne.As previously mentioned, a new bathymetric survey is scheduled for July, which will provide updated information on the depth around the berth / terminal. We have collaborated extensively with the owners of Capesize vessels to develop multiple load plans tailored to various vessel drafts. The base case is for the Capesize vessels to be loaded to the same draft as the other vessels (15.2m BW).As previously emphasized, Group Ocean has a wealth of expertise in safely docking Capesize vessels in Sept. Iles with the assistance of two tugs. Consequently, no additional tugs are considered necessary. It is important to note that Capesize vessels are classified by the class society as ice class 1C. In adherence to the Zone Date System's guidelines, these vessels will exclusively engage in loading operations in Milne within this designated timeframe. According to historical data, the prevailing conditions during this period typically eliminate the requirement for icebreaker support. Nonetheless, a continual assessment of conditions will be conducted on a daily basis.

ID#	Recommendations/Requests	Response
TC-TRC-02	Transport Canada requests that the proponent reference the new Ballast Water Regulations and associated guidance within any future documentation, including risk assessments.	Thank you for the recommendation. Baffinland will reference the new <i>Ballast Water Regulations SOR/2021-120</i> , which came into force on June 3rd, 2021 within future documentation including risk assessments.

NUNAVUT TUNNGAVIK INCORPORATED

ID#	Recommendations/Requests	Response
NTI-01	<p>However, it should be noted that there was an observed increase of the estimated numbers of narwhal for the Admiralty Inlet stock in 2021 which may suggest displacement or some movement. Since 2018, when the volume of iron ore to be shipped annually was raised to 6 Mt, yearly exports have required an average of 72 ore carrier voyages (i.e., round-trips) through the Northern Shipping Route. Inuit have expressed that Project-related shipping⁶ represents one of the largest changes in the area and a major disturbance to marine mammals in the area. While Inuit Qaujimagatuqangit and scientific investigations have highlighted the occurrence of some mixing between the Eclipse Sound and Admiralty Inlet narwhal summering stocks, a large-scale redistribution of narwhal (i.e., accounting for the entirety of the Eclipse Sound decline if that has occurred) from one area to another would remain a major concern.</p> <p>Due to the complexity of the Arctic marine environment, it is challenging to determine causal relationships between vessel traffic and impacts on marine mammals. However, vessel traffic through the Northern Shipping Route should not be excluded as a potential contributor to the depleted status of Eclipse Sound narwhal stock, especially based upon Inuit Qaujimagatuqangit. For example, Inuit have repeatedly stated that narwhal are extremely acoustically sensitive. NTI notes that while Baffinland acknowledges Inuit Qaujimagatuqangit related to the sensitivity of narwhal to noise, its validity is questioned by Baffinland within the FEIS Addendum in their assertion that Inuit knowledge is “contrary to the range and duration of narwhal reaction recorded during Baffinland’s monitoring programs”.⁷ Longer term monitoring and investigation is required that respectfully includes and considers Inuit Qaujimagatuqangit on the issue of acoustic sensitivity of narwhal.</p> <p>The request for longer term monitoring and investigation of the impacts of acoustic disturbance is supported from Baffinland’s only assessment as expressed in the FEIS Addendum:</p> <p>Impact predictions were associated with a high level of confidence with the exception of acoustic disturbance and masking effects for narwhal, beluga and bowhead, which were each associated with a low confidence level due to uncertainties in the anticipated degree of behavioural responses by these species to repeated Project vessel transits in the narrow waterways of Milne Inlet. Given the low confidence rating, follow-up monitoring was recommended for narwhal throughout the operational phase to evaluate the potential effects of shipping on narwhal abundance, distribution and behaviour in the RSA. Follow- up acoustic monitoring programs were also recommended to verify impact predictions for all marine mammal species in the RSA, with respect to potential behavioural disturbance and auditory masking effects from shipping.</p>	<p>The 2022 abundance estimate for the Eclipse Sound narwhal stock was 4,592 narwhal (CV = 0.10, 95% CI of 3,754–5,617) which is statistically higher than the 2021 estimate of 2,595 (CV = 0.33, 95% CI of 1,369–4,919; Golder 2022a) (t-test = 2.017, p = 0.049), indicating that narwhal numbers in Eclipse Sound appear to be increasing from the low numbers observed in 2021. However, the 2022 estimate remains statistically lower than the 2016 estimate of 12,039 (CV = 0.23, 95% CI of 7,768–18,660; Marcoux et al. 2019) (t-test = 2.651, p = 0.038) and the 2019 abundance estimate of 9,931 (CV = 0.05, 95% CI of 9,009–10,946; Golder 2020a) (t-test = 7.808, p < 0.001), indicating that narwhal numbers in Eclipse Sound have not yet rebounded to 2016 and 2019 levels.</p> <p>It is important to note that a decreasing trend in the estimated abundance of narwhal in Eclipse Sound (corresponding with an inverse increasing trend of narwhal in Admiralty Inlet) has been observed since 2004. These trends were in place well before Baffinland shipping commenced in the RSA.</p> <p>Natural exchange of narwhal between Eclipse Sound and Admiralty Inlet areas during the open-water season is strongly supported by available Inuit Qaujimagatuqangit (IQ) (NWMB 2016a, 2016b; QWB 2022). DFO has acknowledged there is evidence of narwhal movement between stock areas and that there is a single narwhal population, consistent with IQ (see DFO TRC 01 comment #2 above). The statement referring to an “Admiralty Inlet stock” of narwhal ignore IQ shared (via QWB 2022 – see NIRB Registry No. 339608) that states that there is not a separate Admiralty Inlet or Eclipse Sound narwhal stock but instead a single combined North Baffin narwhal stock.</p> <p>QWB 2022 is appended to Baffinland’s response to MHTO regarding Adaptive Management (See NIRB Registry No. 339608). QWB 2022 states:</p> <p>“According to IQ, the three summer stocks of narwhal do not actually exist in reality within the waters of NEBI.”</p> <p>Below are some conclusions about the narwhal in NEBI waters based on generations-old, up-to-date, peer-reviewed Inuit Qaujimagatunqangit:</p> <ul style="list-style-type: none">• Narwhal move freely throughout the NEBI area (see Appendix A). 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.• Narwhal also move freely and widely from day to day, from week to week and from month to month in 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.• 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.• 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 concentrations, killer whales, and ships. Narwhal also probably move in response to factors largely unknown to humans. 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. <p>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.”</p>

ID#	Recommendations/Requests	Response
NTI-02	<p>Baffinland’s cumulative impact predictions require reassessment as the original Mary River Project was not assessed taking into account the infrastructure and operations of the Early Revenue Phase or Production Increase Proposals. NTI does not agree with Baffinland’s assumption that unpredicted cumulative impacts can be easily mitigated relying on adaptive management strategies. NTI stresses that a comprehensive CEA is required to reconsider project impact predictions in the context of documented impacts, current investigations, research and monitoring, with an emphasis on Inuit Qaujimagatuqangit, for the whole Mary River Project.</p>	<p>Baffinland has re-assessed cumulative effects in the SOP, taking into account the conclusions of the 2012 FEIS, the ERP, and applying lessons learned from each of the previous Production Increase Proposals in 2018, 2020 and 2022 (see Section 6.9 of the FEIS Addendum). As documented throughout the SOP, Baffinland explicitly considered information on Inuit experience shared by Inuit through the Phase 2 Proposal process, through monitoring carried out under the Project Certificate and with QIA via the Tusaqtuvut Studies. The conclusion that the SOP will have no significant impacts was made after taking all this information into account together with all mitigations that will be applied to the SOP (see Section 9 of the FEIS Addendum), as part of the residual effects analysis. This approach is consistent with standard environmental assessment practice that has been accepted by NIRB on previous occasions in relation to applications by Baffinland and other Proponents in Nunavut.</p>

THE QIKIQTANI INUIT ASSOCIATION

ID#	Recommendations/Requests	Response
QIA G-1	<div><div>a. Baffinland to clarify whether and, if so, how and where foreseeable future construction and operation of the Approved Project have contributed to the SOP cumulative effects assessment, particularly activities related to linear developments (road, rail), transportation (air, ground, marine), and mining (blasting, crushing, loading).</div><div>b. If the southern portion of the Approved Project was not integrated into the SOP cumulative effects assessment, Baffinland should re-conduct this exercise.</div></div>	<p>The cumulative effects assessment (CEA) for the SOP was built on the previous CEA undertaken for the Phase 2 Proposal and modified as necessary. The Phase 2 Proposal CEA considered the Approved Project (including the southern rail and Steensby shipping). Other Projects/Activities whose potential residual effects could overlap with residual effects of the Approved Project (including the southern components) were included in the assessment. Residual effects of the Approved Project (including but not limited to those associated with southern components, Tote Road and Milne Port shipping) were considered in combination with predicted residual effects of the SOP to evaluate potential cumulative effects. However, given the limited spatial and temporal extent of predicted residual effects from the SOP, there is little to no predicted overlap of potential residual effects from the southern components of the Approved Project.</p>
QIA G-2	<p>Baffinland to clarify:</p> <div><div>a. What additional trucking is required under this proposal.</div><div>b. What additional trucking may occur at Milne Port, along the Tote Road and at the Mine Site related to construction of the southern route or other activities (e.g., exploration) during the next 5 years.</div><div>c. What cumulative effects are predicted from the combined traffic in terms of disturbance, dustfall and contaminants, animal mortalities, and accident risk.</div></div>	<div><div>a. Trucking activities related to the SOP are described in Section 2.3.2 of the SOP, and will continue at the same nominal rates as previously approved between 2018 and 2022. Namely, the additional tonnage in ore transported compared to the ERP (i.e., an increase from 4.2 Mtpa to 6 Mtpa) will continue to require an additional 42 round trips by truck above what was assessed during the ERP.</div><div>b. Any overlap between additional trucking in support of Steensby construction through the Northern Transportation Corridor at the same time the SOP is operational is contingent on securing financing and issuing a positive construction decision. In this case fuel and freight delivered to Milne Port would be transferred to the Mine Site for staging of the construction activities. Baffinland's assessments related to the Production Increase Proposals and the Sustaining Operations Proposal consider up to 40 non-ore haul vehicle transits per day along the Tote Road, however, in the last 3 years (2020-2022) Baffinland has only reported an average of 28. Baffinland does not anticipate surpassing the non-ore haul vehicle transits per day forecast in the PIP and SOP FEIS Addendums in either 2023 or 2024, regardless of the development of the Steensby component of the Project.</div><div>c. Transporting fuel and freight through Milne Port to support Steensby construction is reflected in both the original FEIS and ERP FEIS Addendum key facts tables and were assessed accordingly. The development of the Steensby component of the Project is also considered in the SOP cumulative effects assessment. See response to QIA-G1 for additional details.</div></div>
QIA IQ-1	<p>The Project Certificate be amended with a new term, “The Proponent shall sign a legally binding Data Sovereignty Agreement with QIA to ensure the protection, oversight, and Inuit ownership and control of Inuit Qaujimajatuqangit (IQ) used for the Mary River Project. The Data Sovereignty Agreement shall include, but not be limited to, provisions regarding ownership and control, informed consent, data protection and security, governance and oversight, and dispute resolution. This agreement will include considerations for how IQ is used with respect to the Inuit Stewardship Plan and Adaptive Management Framework.”</p>	<p>We appreciate and support QIA's emphasis on the need to incorporate IQ in the Project. However, the request is redundant to what is already included within the signed Mary River Inuit Impact Benefit Agreement (the IIBA) between Baffinland and QIA. Article 16 of the IIBA addresses the collection, use, ownership, and oversight of Inuit Qaujimajatuqangit (IQ) as it relates to the Mary River Project. A stand alone agreement would be duplicative of the existing strong obligations relating to IQ in the IIBA and further revisions if deemed required would take place under the review processes accounted for in the IIBA. For reference, several relevant conditions from Article 16 have been copied below:</p> <div><div>Article 16.3.8 provides for further development of methodological approaches for IQ Collection and use as well as the review and verification of information sourced through IQ.</div><div>Article 16.5 also provides for fulsome oversight of IQ through the Joint Executive Committee.</div><div>Article 16.4.1 of the IIBA specifies that IQ shall be the sole and exclusive property of the contributor of such IQ and that those contributors continue to be the exclusive owners of any copyright, intellectual property, and all other legal rights in such IQ.</div></div> <p>Per the Appendix B Commitments attached to the Project Certificate, the Inuit Stewardship Plan and Adaptive Management Plan are being incorporated into the IIBA. Baffinland looks forward to working with QIA and the Inuit Committee (once established) to help us apply any IQ shared through the Inuit Stewardship Plan to our operations.</p>

ID#	Recommendations/Requests	Response
		<p>Baffinland independently works with knowledge holders and Elders on staff, as well as individuals and groups that choose to share their own IQ, to help verify our understanding and application of IQ that is shared with us.</p> <p>We are grateful to receive any IQ that Inuit wish to share, through any mechanism. Baffinland respects that Inuit knowledge is vast and deep and owned by Inuit (as already acknowledged in the IIBA), and we look forward to continuing to learn. We hope to continue to receive IQ from Inuit that wish to share their knowledge with us, whether directly through our community outreach and regulatory processes such as NIRB, or through other formal mechanisms such as the Inuit Stewardship Plan. Baffinland and QIA can continue to work together to further refine existing protocols and procedures regarding Inuit Qaujimajatuqangit through the IIBA framework.</p>
QIA IQ-2	<p>Baffinland to:</p> <ul style="list-style-type: none">a. Provide evidence of how it integrated Inuit perspectives and IQ into actual effects characterization and significance determination for the SOP Application materials, including verification exercises with Inuit on effects characterization and significance determination.b. Provide a supplemental submission with effects characterization tables for each VC and VSEC, and significance thresholds/definitions for each.	<ul style="list-style-type: none">a. IQ and Inuit perspectives were incorporated into the SOP application in the assessment for each Valued Component. Section 6.1.2 of the SOP application explains how the Inuit perspective on "significance" may differ from the approach taken in the SOP (and prior FEIS addendums) which aligns with guidance from NIRB and NuPPAA. <p>Baffinland understands that for some Inuit, any change to the environment in which they live and carry out harvesting and other cultural practices is significant. Regardless of whether the change is attributable to the Mary River Project, Baffinland respects the importance of recognizing and adapting to those changes. Baffinland also respects there are some aspects of Inuit views on significance that may be challenging to put into words, and that non-Inuit may never fully understand. Based on this holistic understanding of “significance”, Baffinland has worked with Inuit and regulatory authorities to develop mitigation measures and monitoring programs to address Inuit concerns. Where individuals and/or groups have indicated that they are concerned that a significant effect has occurred or may occur because of the Project, Baffinland has honored that advice and taken action.</p> <ul style="list-style-type: none">b. Within each Valued Component chapter of the SOP application, Baffinland provides context to the effects assessment in terms of project monitoring and feedback. Community statements drawn from the Tusaqtuvut reports have been verified by the QIA. In addition, Baffinland has made several commitments related to the establishment of Inuit-led monitoring programs and Inuit Objectives Indicators Thresholds and Responses (OITRs) for trigger action response plans which form the basis for adaptive management for the project. <p>The characterization of residual effects for each Valued Component is presented to be consistent with the approach taken in the FEIS and subsequent FEIS addendums to facilitate a comparison of the change predicted from the SOP activities.</p> <p>Effects characterization and significance thresholds have been included in each of the conclusions for each VC and VSEC. The Plain Language Summary of Conclusions that follows within each Valued Component chapter was added at the recommendation of QIA in their review of the Draft FEIS and presents the predicted change in the context of significance as perceived by community members</p>
QIA IQ-3	<ul style="list-style-type: none">a. The NIRB take into careful consideration gaps between Baffinland’s scientific analyses predictions and Inuit observations when determining the significance of residual effects from the SOP.b. Baffinland commit to engaging Inuit more directly in the conduct of actual effects characterization and significance determination in relation to the SOP and any future assessments or reconsiderations related to the Mary River Project.	<ul style="list-style-type: none">a. Please see response to QIA IQ-2. Baffinland has incorporated IQ and Inuit perspectives into the SOP Addendum. Incorporation of Inuit perspectives has been included in the development and application of many of the mitigation measures applied to the current project and proposed to apply to the SOP. Development of these measures, which in many cases has been drawn from the QIAs work, QIAs guidance and reaching joint agreement with the QIA on a number of commitments carried into the SOP has helped to address gaps.b. Baffinland notes that four of the five (5) Hamlet councils of the most impacted communities have expressed their support for the SOP in letters to the NIRB (NIRB Registry # 344120, 344122,344126 and 344184), and three (3) of the five (5) Hunters and Trappers Organizations/Associations for the most affected communities have also expressed written support for the SOP ((NIRB Registry # 344129 and 344137). This is a result of direct engagement with the impacted communities and Inuit including the QIA. Baffinland looks forward to working with the QIA and incorporating the outcomes of the Baffinland funded, QIA led Culture, Resources and Land use assessment (CRLU) which will be used to help inform additional operational changes required and inform future assessments.

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QIA IQ-4	Baffinland commit to fund the Inuit parties, including QIA to develop an IQ Framework for the Mary River Project, rather than this being a Baffinland-led enterprise.	<p>Baffinland confirms this commitment is already in place (SOP, Appendix 7,P2 Commitments Table, Row 88). Baffinland confirms it has agreed to fund the QIA led Inuit Stewardship Plan. Further, Baffinland confirms it has already committed to finalize the IQ Framework with Inuit, including the QIA. Baffinland acknowledges and confirms that some of the work may be facilitated through the systems currently under development by QIA under the ISP (see commitment below). In addition to external Inuit support to finalize the IQ Framework, Baffinland also has extensive internal IQ resources that will guide the development process (including Inuit Knowledge Holders in each community). Baffinland looks forward to further dialogue with the QIA on the completion of the IQ Framework and if/how this can be facilitated by the ISP. In the interim, the revised draft IQ Framework has been released for public review via the 2022 Annual Report to NIRB.</p> <p><i>Baffinland will work with QIA and the impacted communities to develop a final IQ Framework, subject to co-approval of QIA and the impacted communities. If the communities agree, their approval could be facilitated through the Inuit Committee for the Mary River Project (SOP, Appendix 7, P2 Commitments Table, Row 88).</i></p>
QIA AM-1	The Project Certificate be amended to include the following term and condition: “QIA and Baffinland to jointly develop and approve the adaptive management elements for monitoring programs, including both Inuit and non-Inuit Objectives, Indicators, Thresholds and Responses for the Adaptive Management Plan.”	<p>Baffinland confirms this commitment is already in place as commitment 018 in Appendix B to Project Certificate No. 005 at QIAs request. The amended PC005 issued November 3, 2022, Appendix B, Commitment 018 indicates "QIA and Baffinland jointly develop and approve, by April 2024, the adaptive management elements for monitoring programs and Inuit Objectives, Indicators, Thresholds and Responses for the Adaptive Management Plan related to narwhal, seal, Arctic char, caribou, dust and culture, resource and land use."</p> <p>Baffinland believes the commitment above accurately captures what was agreed between QIA and Baffinland in 2022, and what has been re-iterated by QIA here. Baffinland has reflected this understanding in the revised draft Adaptive Management Plan, which has been released for public review via the 2022 Annual Report to NIRB.</p> <p>Baffinland does not believe an additional term and condition or modified commitment is required at this time. We also note the language is not appropriate for a TC as it includes items that are not within the ability of Baffinland to control (i.e. QIA actions). Baffinland is confident that QIA will advance this initiative on the timeline proposed and fulfil the commitment. Baffinland is looking forward to the enhanced opportunity for Inuit involvement in the Project that the ISP will offer.</p>
QIA AE-1	Term and Condition 3 be modified to include the following language: “The Proponent shall establish GHG emissions reduction targets for 2030 by May 2024 and will implement clean energy technology – given proper permits are acquired – and purchase Nunavut-based carbon offsets, where applicable, to achieve targets. The Proponent progress to achieving the established GHG emission reduction targets will be monitored and enforced through the Adaptive Management Framework.” Term and Condition 4 be modified to include the following language: “The Proponent shall consult with QIA and HTOs to incorporate Inuit Qaujimajatuqangit into any design plans ensuring proper siting, installation and operation of renewable energy sources in order to prevent and minimize impacts on Inuit harvesting.	<p>Baffinland continues to comply with all federal and territorial legislation related to GHG emission reduction targets and will do so moving forward. Baffinland also continues to refine and implement its Climate Change Strategy which addresses efforts related to climate change and GHG emission effects. Therefore, the proposed amendment to Term and Condition 3 Project Certificate on this topic is not appropriate, both in terms of its scope and Baffinland’s ongoing compliance with legislative established targets and does not support the proposed modification.</p> <p>Baffinland is supportive of the intent behind QIA’s proposed modification to Term and Condition 4. Baffinland agrees that design plans linked to renewable energy sources may benefit from consultation with QIA and HTOs and incorporation of IQ in order to prevent and minimize potential Project-related impacts on Inuit harvesting. Baffinland notes though that other factors will be required to ensure proper siting and installation of energy sources are possible. Baffinland does not believe the Term and Condition requires an update to ensure that Inuit will be consulted as part of any planning, studies or research into renewable energy sources.</p>
QIA AE-2	Baffinland to confirm each of the following commitments on dustfall on the NIRB record, made in dialogue with QIA in February 2023, and provide revised timelines for each of the commitments that are behind schedule.	<p>Baffinland confirms it has provided updates on each of the commitments listed and made in dialogue with QIA in February 2023, on the NIRB record. Pursuant to the reporting requirements under the new TC189, Baffinland and QIA provided a joint implementation report to NIRB on March 31, 2023 documenting the progress on all Appendix B commitments (including those related to dustfall and referenced in QIAs comment). On April 30, 2023 Baffinland submitted its 2022 NIRB Annual Report, which includes compliance updates on additional terms and conditions related to dust in 2022 (TC187 & TC188) TC189). The two submissions above include updates on all items related to dust discussed between Baffinland and QIA in the February 2023 meeting.</p> <p>Baffinland remains committed to implementing all terms and conditions and commitments added or amended in Project Certificate 005, Amendment No 004, including those related to dust. The next TC189 implementation report will be submitted on or before September 30, 2023 and will include updates regarding all Appendix B commitments, including those specifically related to dust (028 to 063).</p>

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QIA AE-3	BIMC to provide a formal response to the Dust Audit Committee including activities that are committed to be undertaken to implement the Dust Audit Committee’s recommendations and associated timelines for completion of implementation. This formal response needs to be provided no later than July 15, 2023, in order to inform the NIRB SOP process.	Baffinland will provide formal response to the Dust Audit Committee’s recommendation report on the NIRB record prior to July 21, 2023.
QIA AE-4	<p>a. NIRB revise Project Certificate Condition 187 to require annual dust auditing and reporting for the Mary River Project, tied to specific adaptive management objectives, indicators, thresholds and responses.</p> <p>b. Baffinland revise the terms of reference for the Dust Audit Committee, so there is a requirement for the results of the annual dustfall audit to be presented to both Baffinland and QIA, with a bilateral decision-making process to identify what measures will be taken to mitigate dustfall impacts, subject to approval by the TEWG. This would allow results from the Inuit Stewardship Plan and results from Baffinland’s monitoring to be considered in bilateral decisions about what measures should be taken re: dustfall.</p>	<p>a. Baffinland provided its initial responses to the Dust Audit Report directly to the Dust Audit Committee in February 2023. Baffinland will issue a formal response to the NIRB once it has defined the scope of work and schedule for each recommendation. The annual dust audit is designed to be a global review of Baffinland's efforts to reduce dust dispersion, and includes the consideration of annual monitoring results, along with direct observations through Site Visits by the Inuit Dust Audit Committee and technical specialists to recommend improvements, where possible. The additional detail suggested to be added to term and condition 187 is not necessary, nor practical to be included in a Term and Condition of the Project Certificate. Objectives, Indicators, Thresholds and Responses will be included in the adaptive management components of the Air Quality and Noise Abatement Management Plan, which Baffinland and QIA must jointly agree to under Appendix B of the Project Certificate. Further, the AQNAMP may be subject to additional review and recommendations received through the Terrestrial Environment Working Group and therefore may be subject to change as the operation continues to evolve, management plans must remain flexible to adaptation, which is not possible if core elements are hard coded in Project approvals. .</p> <p>b. The purpose of the Dust Audit Committee is to be arms length from Baffinland and operates under a Project Charter, which was developed without Baffinland involvement. The Dust Audit Committee and Project Charter was coordinated by Nunami Stantec, acting in their position as a third party auditor. QIA is an active participant in the Dust Audit Committee and may wish to share suggested changes to the Project Charter through that venue, which would allow all other Inuit parties of the Dust Audit Committee to comment on.</p> <p>Results from the Inuit Stewardship Plan and Baffinland monitoring will be used to inform changes to the adaptive management elements of the Air Quality and Noise Abatement Management Plan, which QIA and Baffinland must agree to and will guide the monitoring, reporting and mitigations required as related to dustfall.</p>
QIA AE-5	<p>a. BIMC to recommit to refined atmospheric dispersion modelling, as agreed to in February 2023. Specifically, QIA expects that BIMC will:</p> <ul style="list-style-type: none">• Complete both seasonal and annual atmospheric dispersion modelling to assess dustfall impacts• Compare atmospheric dispersion modelling with data from the dustfall monitoring stations both seasonally and annually <p>b. BIMC to file an update on model predictions compared to measured dustfall on the NIRB registry to include seasonal predictions that fall within the period of time that monitoring occurs at all monitoring stations. This will allow for the model- predicted total annual dustfall (g/m2/year) to be fully compared with measured annual dustfall at all dustfall monitoring stations, not just the ones where monitoring is conducted year-round. This updated submission will include updates to SOP tables 6.4 and 6.5 showing the maximum predicted dustfall and annual dustfall compared to the measured dustfall from monitoring stations. The updated data presented from tables 6.4 and 6.5 should be separated by season as well. Based on the results, if model predictions reveal higher levels of dustfall than FEIS predictions, BIMC is requested to commit to reconsidering the potential effects of these dustfall levels on soil-metal concentrations, lichen-metal</p>	<p>a. As requested by QIA in February 2023, refined air dispersion modelling was completed in March 2023 for the scenario involving the continuation of hauling iron ore along the Tote Road with the intent to deliver 6 Mtpa of iron ore to Milne Port each year, and to ship ore between July and October on up to 84 ore carriers. The Air Quality Assessment Report (AQAR), including the dispersion modelling results for annual dustfall and ambient particulate matter concentrations has been submitted to the NIRB registry as an appendix to the updated Air Quality and Noise Abatement Management Plan (AQNAMP). The AQAR includes the predictions for total annual and 30-day dustfall, 24-hour and annual average total suspended particulate (TSP), 24-hour average particulate matter less than 10 microns in diameter (PM10) and 24-hour average particulate matter less than 2.5 microns in diameter (PM2.5). The AQAR includes a comparison of the results of the modelling to measured dustfall values at several monitoring stations.</p> <p>b. The AQAR contains comparisons between model predictions and values measured at dustfall monitoring stations that collect data year round. Comparison of model results with data from the year round dustfall stations (that are within the two study areas described in the AQAR) provides better information for making decisions about trends. Providing seasonal comparisons is not as meaningful as the annual comparisons because the seasonal comparisons are based on fewer data points.</p> <p>c. Based on the model results and comparisons made in the AQAR, the latest dust mitigation measures will be summarized in the next update for the AQNAMP. The dust mitigation measures will include dust suppressants, application rates, truck speeds and refined blasting methods.</p>

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	<p>concentrations, freshwater and aquatic life, caribou health, and human health.</p> <p>c. If deemed relevant by QIA and BIMC based on the results of this updated seasonal dustfall modelling predictions (calibrated with actual results), BIMC to commit to developing seasonally relevant mitigation measures to reduce dustfall to acceptable levels to Inuit, noting that seasonally-relevant mitigation measures may include seasonal guidance on dust suppressants application rates, seasonal reductions on trucking speeds, or more conservative limitations on blasting based on environmental conditions within certain seasons.</p>	
QIA AE-6	<p>BIMC provide a supplemental submission to the NIRB public record that fully characterizes the potential impacts of higher than predicted levels of dustfall on vegetation and the aquatic environment, particularly in terms of impacts to vegetation health, caribou health, human health risks, and aquatic life. This supplemental submission must clearly identify that dustfall deposition has exceeded FEIS predictions. It must note that while lichen- metal concentrations at most monitoring sites are below lichen indicator values, a lichen indicator value has been exceeded in one site, and a number of sites have significantly higher metal concentrations relative to baseline conditions. It must explain the uncertainty with respect to lichen-metal concentration thresholds in the Arctic environment, and how that uncertainty has been accounted for in the analysis. It should note that lichen-lead concentrations at near monitoring sites by the Tote Road have been above lichen indicator values since 2019, and at near monitoring sites by the Mine Site and Milne Port concentrations have been significantly higher than baseline conditions since 2019. As well, lichen-arsenic concentrations at near monitoring sites by the Mine Site have been significantly higher than baseline conditions since 2019, and no lichen indicator value has been established. As well, lichen-metal concentrations have shown statistically significant increases from baseline conditions during 2022 monitoring where there were none during previous monitoring years at the:</p> <ul style="list-style-type: none">• near sites for the Milne Port for lichen-arsenic concentrations• far sites for the Mine Site for lichen-arsenic concentrations• far sites for the Mine Site for lichen-cadmium concentrations• near sites for the Milne Port and the Mine Site for lichen-copper concentrations• near sites and far sites for the Mine Site for lichen-selenium concentrations• reference sites for the Tote Road for lichen-selenium concentrations. <p>In light of these findings, Baffinland to reconsider their blanket statement regarding the absence of effects greater than predicted. Given the early warning signals that are encompassed within these findings, Baffinland is requested to immediately</p>	<p>Baffinland confirms the information requested by QIA is publicly available. This information is already provided annually in reports to the TEWG and the NIRB, and summarized as part of the SOP assessments on the atmospheric, terrestrial and freshwater environments in sections 4.3, 6.2.3, 6.3.3 and 6.4.3. Therefore a supplemental submission is not required. The ongoing annual reporting on the dustfall monitoring program provides the extent and magnitude of Project related dustfall and identifies all sites where the FEIS predictions are exceeded. Impacts on the receiving environment are also captured through monitoring programs to capture the potential effects of any exceedances on vegetation and aquatic health.</p> <p>Dustfall deposition is assumed to be the primary anthropogenic source of metals at the Mary River Project, and potential impacts on the receiving environment (vegetation, soils and the aquatic environment) are monitored and reported on via the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) (Baffinland Iron Mines Corporation 2016). The annual reporting of the ongoing dustfall monitoring program provides the extent and magnitude of Project related dustfall and identifies sites where the FEIS predictions are exceeded. The ongoing Vegetation and Soil Base Metals Monitoring and the Aquatic Effects Monitoring programs at Mary River have been designed to align and facilitate comparisons with the dustfall monitoring program to assess this pathway concerning Project activities and potential impacts on vegetation health, caribou health, human health risks and aquatic life as a result of dustfall.</p> <p>It is unclear what QIA assertions regarding trend data are based on. Regarding the Vegetation and Soil Base-Metals monitoring trends, key findings (Section 9.2, pg. 210) from the 2022 Terrestrial Environment Annual Monitoring Report (EDI 2023) are that:</p> <ul style="list-style-type: none">• “Soil-metal Concentrations — Soil-metal concentrations at the Project predominantly indicated no significant change or were significantly lower in relation to baseline values. Values were below or within an acceptable range for soil-metal concentrations.• Lichen-metal Concentrations — Many mean lichen-metals concentrations across Project areas and sample distances showed no significant changes in relation to baseline values. However, some discrete increases in CoPCs in soil (i.e., copper, zinc) and lichen (i.e., arsenic, cadmium, copper, lead, selenium) were recorded at the Mine Site, Milne Port and along the Tote Road, with some individual values at or above indicator values. Whereas some increases and exceedances were attributed to occasional ‘spikes’ in metal concentration and sample variability, other increases in CoPCs appear to be due to proximity to Project operations. Should these values continue to increase or result in continued (year-over-year) exceedances of threshold values, it may be necessary to re-evaluate and refine potential triggers and corrective actions.• Dust-deposited Metals on Lichen — Concentrations of dust-deposited metals on lichen did not differ for any Project area-sampling distance combinations for any CoPCs, except for As near the Mine Site. No unifying trend has been drawn from the analysis. Relationship Between Metals in Dustfall versus Soil-metals and Lichen-metals — Generally, there was a significant negative relationship between metal concentrations in dustfall and metal concentrations in soil for all CoPCs except Cd. For all CoPCs, this appeared to be mediated by a significant positive relationship with soil pH. No unifying trend has been drawn from the analysis.” <p>The monitoring program data has detected that lichen-metal increases relative to baseline have been detected in some sites, particularly near (i.e., within 0–100 m) the Mine Site and Milne Port. That said, lichen-metal concentrations are demonstrably low — often at or below laboratory detection limits — and mean values are within an acceptable range of variation. Specific sampling locations have been flagged and studied to understand better the root causes of this variability relative to other monitoring endpoints. No unifying trends have been drawn concerning soil metals (recorded in situ at lichen-metal sampling locations) or dustfall (recorded at</p>

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	enact additional studies to investigate how metal deposition can be mitigated and reduced. Baffinland is requested to explain the lichen-metal monitoring results to the dustfall committee and seek their guidance on additional mitigations measures. Baffinland must recommit to identifying additional mitigations to reduce dust (i.e., precautionary approaches to blasting based on risks associated with wind and rainfall; reducing traffic speed; etc.).	<p>nearby monitoring stations). Monitoring this data and trends will continue. Data results and analysis will be presented to the Terrestrial Environment Working Group in the NIRB annual reports and provided to the Dust Audit Committee (with a willingness to present results if and when requested).</p> <p>Baffinland has and will continue to enact additional studies and take action to mitigate and reduce dustfall. Baffinland’s commitments remain in place, and many of those related to dustfall are contained in Appendix B of the Amended Project Certificate</p>
QIA AE-7	<p>a. Baffinland to recommit to undertaking annual monitoring of the spatial extent of dustfall using the satellite monitoring program, in particular to track potential reductions associated with the implementation dustfall mitigation measures.</p> <p>b. Baffinland to commit to integrating a more dedicated Inuit sensory monitoring of dustfall into the monitoring system.</p>	<p>Section 6.2.2.2 of the SOP presents a summary of baseline conditions related to air quality. A summary of project monitoring and feedback is provided in Section 6.2.3 and Baffinland draws specific attention to Sub-Sections 6.2.3.2 (Community Statements Shared with Baffinland), 6.2.3.3 (NIRB Phase 2 Recommendation Report Findings), 6.2.3.4 (NIRB PIP Renewal Recommendation Report), and 6.2.3.5 (Independent Inuit-led Monitoring Programs Established by QIA per PIP Renewal Commitment) to provide additional perspectives and land users concerns related to dustfall.</p> <p>a. Baffinland fulfilled its commitment to expand the spatial extent of satellite monitoring by adding community areas of interest for dustfall as identified in related QIA reports on dust. These expanded areas are discussed in the 2022 Terrestrial Environment Mitigation and Monitoring Report. Baffinland will continue with its existing satellite monitoring program and any future modifications would be subject to commentary through the Terrestrial Environment Working Group, NIRB annual reporting, or other direct mechanisms with Inuit.</p> <p>b. Baffinland confirms it is committed to adding more Inuit sensory monitoring of dustfall into the monitoring system. This will be achieved through existing commitments, as outlined in the PIPR Commitment 028 (Appendix B of the Project Certificate) on the establishment of an Inuit-led monitoring program on dustfall as Baffinland funded, QIA led Inuit Stewardship Pilot program; and PIPR Commitment 047 on the development of a snow quality metric, which integrates traditional knowledge. QIA is responsible for the implementation of both of these commitments. Baffinland looks forward to receiving the outcomes for discussion with QIA and incorporation into monitoring programs as required.</p>
QIA AE-8	<p>a. Baffinland to undertake revised atmospheric dispersion modelling for both seasonal and annual dustfall to fully understand the potential impacts, and compare atmospheric dispersion modelling with data from the dustfall monitoring stations both seasonally and annually.</p> <p>b. Thereafter, based on the results of this revised atmospheric dispersion modelling and comparison with monitoring data, BIMC to reassess the extent, frequency, reversibility, probability, and duration of effects of dustfall on Terrestrial Environment VECs and their corresponding effect levels and provide an update to the NIRB during the SOP assessment period.</p>	<p>a. See response to QIA AE-5.</p> <p>b. See response to QIA AE-6. Annual reports on Dustfall monitoring and potential impacts to the receiving environment are included in annual reports to the TEWG and the NIRB. The ongoing dustfall monitoring program provides the extent and magnitude of Project related dustfall and identifies sites where the FEIS predictions are exceeded. Dustfall deposition is assumed to be the primary anthropogenic source of metals at the Mary River Project, and potential impacts on the receiving environment are monitored and reported on via the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) (Baffinland Iron Mines Corporation 2016).</p>
QIA AE-9	Baffinland to provide supporting evidence for its statement, "Scaling production and transportation between 4.2 Mt and 6 Mt operating limits does not result in a perceptible change to noise and vibration." (SOP s. 6.2.5, p. 149 of 922), provide clarification of how the frequency of occurrence and duration of noise and vibrations have been factored into this statement, and provide a quantitative assessment of how much the frequency of occurrence and duration of noise and vibrations increases in the 42% production increase scenario identified.	<p>The ERP assessed noise and vibration associated with transportation of iron ore along Tote Road and shipping through Milne Port at a production level of 4.2 Mtpa (Volume 5, Section 3.0). The ERP recognized increased noise levels associated with operations at Milne Inlet and Tote Road, with effects predicted to be level II magnitude, occurring frequently over a medium term duration (life of the project), reversible, and confined to the Local Study Area. Residual effects on noise were predicted to be not significant (ERP Volume 5, Section 3.3). These residual effects predictions were consistent with those predicted in the FEIS (FEIS Volume 5, Section 3.5).</p> <p>The ERP predicted no change in residual effects on vibration due to project operations (Section 3.3.4) from that which was assessed in the FEIS (Section 3.4.3).</p> <p>In 2020, Baffinland implemented a pilot Noise Monitoring Study to characterize the Project's noise environment outside of the Project PDA and compare this to baseline predictions and thresholds. The noise environment recorded during the study was consistent with baseline predictions: Ambient noise was typically below</p>

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		<p>the operational threshold of 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. Although the Project does generate noise loud enough to elicit wildlife response close to the Project Development Area, over 90% of the noise recordings at 1.5 km from the Project were below this threshold and would not elicit a wildlife response. (EDI 2021). These monitoring results reflect operational noise levels at a 6 MTPA activity level which is proposed to continue for the SOP. Since the SOP is proposing an extension, not an increase above the 6 MTPA activity level between the Mine Site and Milne Port, and current results (which already reflect 6 MTPA) are consistent with baseline predictions, Baffinland maintains that the SOP will not result in a perceptible change in noise and vibration.</p> <p>Occupational noise and vibration monitoring at the Mine Site and Milne Port accommodations is also scheduled annually by Baffinland Health and Safety staff. Monitoring uses a sound meter with microphone and a vibration pad with meter set-up in different rooms and wings of accommodation buildings at both sites. Monitoring is conducted in the summer and winter seasons.</p> <p>In April and August 2022, accommodations at the MSC, Sailiivik Camp, PSC and 380-Person Camp were tested for noise and vibration. Sleeping accommodation sound level measurements demonstrate levels that are well below the 75 dBA level for off-work hours that is associated with the 8-hour exposure criterion. Summary statistics of average noise measurements collected within sleeping accommodations are presented here:</p> <table><tr><th>Sampling Period</th><th>Average Noise Level (dBA)</th></tr><tr><td colspan="2">April Monitoring</td></tr><tr><td>Sailiivik Camp</td><td>44.3</td></tr><tr><td>MSC</td><td>50.9</td></tr><tr><td>PSC</td><td>44.6</td></tr><tr><td>380-Person Camp</td><td>41.0</td></tr><tr><td colspan="2">August Monitoring</td></tr><tr><td>Sailiivik Camp</td><td>45.4, 46.5</td></tr><tr><td>MSC</td><td>46.8</td></tr><tr><td>PSC</td><td>39.1</td></tr><tr><td>380-Person Camp</td><td>49.5</td></tr></table> <p>Vibration measurements were below the applicable criteria, as presented here:</p> <table><tr><th>Sampling Period</th><th>Peak¹ Vibration Exposure (m/s²)</th></tr><tr><td colspan="2">April Monitoring</td></tr><tr><td>Sailiivik Camp</td><td>0.066</td></tr><tr><td>MSC</td><td>0.027</td></tr><tr><td>PSC</td><td>0.910</td></tr><tr><td>380-Person Camp</td><td>0.211</td></tr><tr><td colspan="2">August Monitoring</td></tr><tr><td>Sailiivik Camp</td><td>0.1, 1.6</td></tr><tr><td>MSC</td><td>0.4</td></tr><tr><td>PSC</td><td>0.6</td></tr><tr><td>380-Person Camp</td><td>0.2</td></tr></table> <p>Monitoring in 2022 covered the 5th year of the Project operating at 6 mt and the results of those programs support the conclusions in the SOP FEIS Addendum.</p> <p>Reference:</p>	Sampling Period	Average Noise Level (dBA)	April Monitoring		Sailiivik Camp	44.3	MSC	50.9	PSC	44.6	380-Person Camp	41.0	August Monitoring		Sailiivik Camp	45.4, 46.5	MSC	46.8	PSC	39.1	380-Person Camp	49.5	Sampling Period	Peak ¹ Vibration Exposure (m/s ²)	April Monitoring		Sailiivik Camp	0.066	MSC	0.027	PSC	0.910	380-Person Camp	0.211	August Monitoring		Sailiivik Camp	0.1, 1.6	MSC	0.4	PSC	0.6	380-Person Camp	0.2
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		<p>Baffinland Iron Mines Corporation (Baffinland). 2023. Appendix G.2.3 2022 Noise and Vibration Surveys – Accommodation Facilities in the 2022 Annual Report to the Nunavut Impact Review Board (NIRB Registry # 344624 -344625).</p> <p>EDI. 2021. Mary River Project Terrestrial Environment 2020 Annual Monitoring Report. Prepared for Baffinland Iron Mines Corporation.</p>
QIA TE-1	<p>Baffinland commit to work in collaboration with Inuit Guardians to monitor the impacts of low level flights on snow geese use of the moulting area, through a ground-based survey of impacts based on behavioural responses, and commit to discussing these results at a TEWG meeting to identify appropriate mitigation measures if necessary.</p> <p>The QIA recognizes that monitoring activities have the potential to cause more impacts to snow geese population. Therefore, ground-based surveys need to be designed to minimize impacts during sensitive timing windows, such as through employing equipment/methods like camera traps that can allow for observations of flights during sensitive timing windows and for cameras to be deployed before snow geese arrive in the spring, and collected after snow geese depart in the fall.</p>	<p>Baffinland acknowledges that flights below those altitudes and within horizontal distances, as recommended in PC 71, occur along the eastern edge of Environment Canada’s identified area of interest for geese (EDI Environmental Dynamics Inc. 2023, Maps 5-3 and 5-4). To the extent possible, Baffinland avoids the area and does not interact with moulting geese.</p> <p>Baffinland confirms its commitment towards the QIA led Inuit Stewardship Plan (ISP) which is intended to contribute to or lead specific monitoring conducted by or in collaboration with Inuit. Baffinland is interested in continued discussions with the QIA to determine if the Inuit Guardians referenced in this comment would be associated with or funded under the ISP. Baffinland expects that programs run under the ISP would be presented to and discussed within the Terrestrial Environment Working Group through QIAs membership and participation. The QIA suggests some study considerations, and should the ISP choose to conduct ground-based surveys, Baffinland offers some consideration of trade-offs for discussion including: 1) the need for additional helicopter overflights necessary for monitoring, 2) additional disturbances in the identified area of interest for geese, and 3) the utility of a camera program for this type of monitoring.</p> <p>Literature Cited:</p> <p>EDI Environmental Dynamics Inc. 2023. Mary River Project: 2022 Terrestrial Environment Annual Monitoring Report. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario, Canada. 426 pp.</p>
QIA TE-2	<p>a. Baffinland commit to redefining deflections with the TEWG to include repeated balking.</p> <p>b. Baffinland explore the use of pellet surveys as a method of marked-recapture to estimate caribou abundance and distribution across the regional study area, including determining whether this method would be acceptable to Inuit.</p> <p>c. Baffinland commit to adhering to mitigation measures identified by the TEWG, including requirements to stop traffic to allow caribou to pass during migration based on group sizes identified by the TEWG. Baffinland to commit to these measures being in place immediately upon observing migrating caribou attempting to cross the road, particularly if deflections (including both balking or failing to cross the road) are observed.</p>	<p>a. Baffinland welcomes a TEWG discussion to define deflection better and has previously engaged in such discussions. A discussion to define deflections was suggested by the Government of Nunavut and subsequently reflected in revision notes on TEMMP ver. 4.1. Opportunity is provided when draft agendas are circulated before TEWG meetings for members to suggest revisions or additional agenda items. Despite recent opportunities, neither the GN nor the QIA has requested that such a discussion be added to the agenda. Before the next TEWG meeting, Baffinland recommends that if the topic remains of interest to the QIA, they request the addition following the circulation of a draft agenda.</p> <p>b. Baffinland welcomes alternatives to caribou abundance and distribution surveys that provide robust data acceptable to Inuit. The QIA is encouraged to engage in a discussion, including the presentation of evidence or a study design supporting the utility of a pellet survey as a mark-recapture method and how it would be suitably implemented in the Regional Study Area to estimate caribou abundance and distribution. QIA provided no evidence in their technical comment for Baffinland to evaluate at this time. Still, this type of presentation and idea exploration is welcomed through TEWG engagement. Currently, Baffinland is employing techniques that are well-known and present standardized methodologies. Aerial surveys have been used and are expected to continue in the future. Collar programs have also been investigated and considered for future programs. Both present a standardized approach to abundance and distribution in an RSA. Baffinland welcomes QIA advice or commentary on acceptability to Inuit that the QIA may have recorded through its engagement. Impacted community acceptability of programs can be discussed through HTO participation at the TEWG and through direct meetings by Baffinland or other parties.</p> <p>c. Baffinland confirms it is committed to the mitigation measures included in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) (BAF-PH1-830-P16-0027). The caribou protection measures decision tree jointly agreed to with the QIA consists of the measures requested by the QIA in this technical comment. Baffinland confirms those measures remain in place and are adhered to. This mitigation for caribou encountered near the road is included in the TEMMP, Sections 3.3.2.2, and illustrated in Figure 3.2. Those responses already include stopping traffic, and a single caribou observation triggers those responses.</p>
QIA TE-3	<p>a. Baffinland to provide a supplemental submission to the NIRB registry, identifying IQ concerns related to the potential for a much larger zone of influence around the mine, explaining how the zone of influence may change with the caribou population cycle, identifying how Baffinland will</p>	<p>a. Baffinland confirms that feedback from Inuit in the impacted communities and IQ shared with Baffinland has been included in the SOP. Section 6.3.3.2 of the SOP Application acknowledged ongoing community concerns related to dust and sensory disturbance on caribou resulting from the Project. In particular, it was noted that caribou are particularly sensitive to disturbance at their current low abundance state within their natural population cycle. Effects to terrestrial wildlife, and in particular key issues such as the current low numbers of caribou in the area, potential impacts to calving areas, movement and</p>

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	<p>implement appropriate mitigation measures in response to the cycle, and identifying and recommitting to existing PIPR commitments regarding re-estimating the zone of influence based on IQ, dustfall levels and noise.</p> <p>b. The Project Certificate be amended to include a term and condition requiring Baffinland to recalibrate the energy-protein model following the committed-to IQ study and re-estimation of the zone of influence (both committed to as part of the PIPR), as one method of determining if there is in fact a significant loss of habitat effectiveness associated with the mining activities.</p>	<p>migration, as well as potential effects of caribou eating vegetation with dust and/or avoiding areas affected by noise and/or dust, continued to be expressed in 2021 and 2022 consultation activities including through the Tusaqtavut Studies shared with Baffinland. Community members from Pond Inlet indicated that sounds from the mine can carry long distances and may be causing caribou to avoid certain areas, thus altering their use of preferred routes and potentially impacting their movements (QIA 2019).</p> <p>The concern raised by QIA is addressed within agreements and discussion between Baffinland and QIA and is reflected throughout the SOP, such as in Table 6.11 (pg. 149), “Baffinland will support and fund a study of North Baffin caribou based on IQ, to be led by the QIA... to gather data to support the re-estimation of the Zone of Influence around the Project.” The commitment to fund the QIA-led ZOI study is re-iterated in Section 6.3.3.5 (pg. 151). It is also further discussed in Section 6.3.6.2 (pg. 155), “Once that study is complete, Baffinland and the QIA will re-estimate the Zone of Influence for caribou with input from the TEWG, and determine appropriate mitigation measures to apply...”. Commitment 64a of Appendix B of the Project Certificate states explicitly that “Baffinland will support and fund a study of North Baffin caribou based on Inuit Qaujimagatuqangit, to be led by the QIA in conjunction with HTOs. This work will be used to identify areas within the vicinity of the Project that are highly sensitive to caribou and to gather data to support the re-estimation of the Zone of Influence around the Project.” The inclusion of commitments from the PIPR reconsideration process in Appendix B to Project Certificate 005 negates any need to recommit to them and there is no rationale for a supplemental submission.</p> <p>b. Baffinland has made several mitigation and monitoring commitments regarding caribou, including, but not limited to the following measures geared toward understanding and reducing the zone of influence of the Project on caribou:</p> <ul style="list-style-type: none">▪ Baffinland will support and has provided funding for a study of North Baffin caribou based on IQ, to be led by the QIA in conjunction with HTOs. This work will be used to identify areas within the vicinity of the Project that are highly sensitive to caribou and to gather data to support the re-estimation of the Zone of Influence around the Project▪ Baffinland agrees to implement additional mitigation measures within interim Project Protection Zones, to be delineated and agreed by Baffinland and the QIA (with input from the TEWG) based on existing IQ, western science, historical data, and project monitoring to date.▪ The additional interim protections include blasting restrictions within specified distances when caribou are present, helicopter operation restrictions within specific distances when caribou are present, and review of the Caribou Decision Tree to manage traffic along the Tote Road when caribou are present.▪ Inuit led monitoring under the Inuit Stewardship Plan to adaptive management strategies related to caribou will also work to increase confidence in monitoring and mitigations. <p>The TEMMP includes several specific measures to be undertaken to reduce or avoid sensory disturbance including cessation of specific activities during sensitive periods (e.g., migration, mating, calving).</p> <p>As described in Section 6.2.6.3 of the SOP Application, in 2022, Baffinland committed to implementing additional mitigation for the protection of caribou, to be informed by the Inuit-led study of North Baffin caribou. Once that study is complete, Baffinland and the QIA will re-estimate the Zone of Influence for caribou with input from the TEWG, and determine appropriate mitigation measures to apply in designated Project Protection Zones, including requirements for the suspension of blasting, helicopter overflights, road traffic, and measures to reduce dustfall. Baffinland agrees to implement the revised Caribou Protection Measures upon agreement of the location of Project Protection Zones and the mitigation measures that will apply in these zones. Until Project Protection Zones are confirmed through the process identified above, Baffinland agrees to implement additional mitigation measures within interim Project Protection Zones, to be delineated and agreed by Baffinland and QIA (with input from the TEWG) based on existing IQ, western science, historical data, and project monitoring to date.</p> <p>Any need to “recalibrate” the energy-protein model is contingent on evidence that the ZOI differs from that used in the FEIS. Baffinland’s commitment to those studies is noted in part (a) of this response. If the North Baffin Caribou Study, once complete and agreed to, provides evidence that a significantly larger ZOI exists than previously used in the FEIS, Baffinland recommends the need for a revised energy protein model be brought forward for discussion with the TEWG at that time.</p>
QIA TE-4	<p>Baffinland to commit to revise the voluntary harvester sample program through the following process:</p> <p>1. meeting with the MHTO within three months post-approval to identify why samples have not been provided within the current voluntary harvester sample</p>	<p>The requested commitment cannot be made by Baffinland, as we are not responsible for this activity. The voluntary caribou tissue sample program is developed and implemented by the Government of Nunavut. Baffinland is willing to support the GN's implementation of this program, however, it is not our program to bring to the TEWG for evaluation and recommendations. The number of caribou allowed to be harvested in the North Baffin remains at a level where two separately run programs are not advisable. Baffinland supports adding the tissue sample program to a future TEWG meeting, but the GN must continue to lead those discussions.</p>

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	program, and identify specific improvements for how to improve the program. 2. Discussing improvements to the program with the TEWG 3. Finalizing the revised program 4. Implementing the revised program in 2024 and tracking how well the revised program increases uptake, by making comparisons between the number of samples received and overall harvesting levels based on GN data	Prior to the next meeting of the TEWG Baffinland recommends that QIA request the addition once the draft agenda is circulated, should they wish to advance this recommendation further.
QIA TE-5	Baffinland provide data showing how their noise monitoring stations overlap with helicopter flight paths, to determine whether there is potential for this source of noise to have been missed in the noise monitoring.	<p>Helicopter noise was included as a source of noise in the 2020 monitoring. The question about noise monitoring and its relationship to helicopter flight paths was asked during the QIA’s draft 2020 Terrestrial Environmental Annual Monitoring Report (TEAMR) review (QIA comment 17, pg. B-13). A detailed response was provided in the final TEAMR. Specifically, the noise monitoring stations used in 2020 were mapped relative to the helicopter overflights on page B-31 (TE Map 2). Helicopter noise was included as a source of noise in the 2020 monitoring. The QIA is encouraged to refer to their comments on the 2020 TEAMR and Baffinland’s responses for further details on this topic.</p> <p>Literature Cited:</p> <p>EDI Environmental Dynamics Inc. 2021. Mary River Project: 2020 Terrestrial Environment Annual Monitoring Report. NIRB Registry No. 336729. Prepared for Baffinland Iron Mines Corporation, Oakville, Ontario. 588 pp.</p>
QIA TE-6	<p>a. The supplemental submission requested above on caribou avoidance of the Project area include the consideration that the lack of caribou detections may be reflective of avoidance at a broader scale, in alignment with concerns raised by IQ-holders.</p> <p>b. Baffinland commit to implementing a proactive approach to mitigations within the calving and post-calving period: i.e., specifically committing to avoiding blasting and helicopter usage within 3 km of critical calving / post-calving habitat during the appropriate timing window (to be confirmed by HTO members, but tentatively from June 1 - July 15). This commitment must be in place now.</p> <p>c. The Project Certification be amended to include a term and condition requiring Baffinland to convene with Inuit parties and the Government of Nunavut after the IQ study has been completed, to collaboratively revise and finalize the caribou protection measures for the Project.</p>	<p>a. There is no supplemental information to provide until QIA provides the results of its North Baffin Caribou Study. Baffinland assumes QIA will give consideration to the types of discussions it is looking to include when designing and undertaking the North Baffin Caribou study and that all IQ shared through the study will be equally reflected in the outcomes. We look forward to continuing these important discussions with QIA when the study outputs are available for sharing.</p> <p>b. Baffinland’s commitment to area-specific mitigation is made clear in commitment no. 64. of Appendix B of the Project Certificate. Baffinland cannot commit to more detailed mitigations until QIA and Baffinland are able to agree on areas and seasons of use.</p> <p>c. Commitment 64 of Appendix B already includes a requirement to discuss the outcomes of the study and any associated mitigation measures with the TEWG, which would then be subject to the governing terms of reference. Neither an additional term and condition or modification to the original commitment are required as the topic has already been addressed within Appendix B of the Project Certificate.</p>
QIA FE-1	<p>Baffinland to develop site specific thresholds for conditions that may increase dust dispersion, and corresponding mitigations that include at minimum operational staged decreases in dust generating site activities, within 30 days of receiving the amended project certificate. These thresholds and mitigations should be presented in an update to the Air Quality and Noise Abatement Management Plan and submitted to the NIRB for intervenor review.</p> <p>While we understand Baffinland’s commitment to QIA suggests these thresholds and mitigations will be developed in collaboration with the TEWG (as per Comment ID# QIA ID-18 A and B), we suggest that relying on the TEWG for the initial development of those thresholds and mitigations will introduce unnecessary delays.</p>	<p>Baffinland is and will continue to collect comprehensive data during 2023 in support of establishing site specific thresholds to meet the Dust mitigation objectives across the material handling chain. In order to fully understand and quantify all variables relating to dust dispersion, Baffinland will be expending much of it’s data focus on collecting a variety of samples during a number of environmental conditions, as well as with and without various mitigations in place. This is critical to be able to establish meaningful thresholds to govern activities in the future.</p> <p>We will of course continue to utilize to the maximum extent reasonably practicable, any and all existing dust mitigations to ensure dust dispersion mechanisms, as we currently understand them, are minimized.</p> <p>Baffinland agrees that there could be value in consolidating the review of the AQNAMP and the proposed site specific mitigation program, if timing allows. In any event Baffinland and QIA agree that the TEWG must be involved in the final review of the program.</p>

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	<p>Our recommended approach allows Baffinland to efficiently develop and implement mitigations as appropriate (i.e., in relation to high risk dust dispersion days) while allowing those thresholds and mitigations to be further refined in collaboration with the TEWG.</p> <p>We note this condition may be applied as an update to Term and Condition 188 from the PIPR as it includes a timeline in which it must be implemented.</p>	
QIA FE-2	<p>a. Baffinland re-evaluate their current reference locations for both lentic and lotic programs and determine if they are influenced from the impacts of mine-related fugitive dust.</p> <p>b. Baffinland provide evidence the life history of Arctic charr at the reference lake mirrors that of the project area waterbodies and watercourses.</p> <p>c. If a) the reference lakes are indeed under the influence of project generated dust, and/or b) the life history of Arctic charr in the reference lake does not reflect that of the project area lakes, Baffinland to establish a new reference lake that is outside the project’s zone of influence and contains Arctic charr with similar life histories.</p>	<p>a. Baffinland contends that there is no evidence of project-related dust affecting Reference Lake 3. Annual characterization of environmental conditions at Reference Lake 3 has not indicated any changes in water quality or sediment quality over the seven years since commercial mine production commenced in 2015. In addition, no changes in phytoplankton abundance (i.e., chlorophyll-a concentrations), benthic invertebrate community characteristics, or fish health have been indicated at Reference Lake 3 from 2015 to 2022 that would suggest an impact of Project-related dust (or other influences) on biota of the lake. As part of the annual CREMP reporting, discussion regarding physical and biological conditions, including evaluation of changes over time, is conducted for all reference areas used under this program to confirm the validity of these areas for determining Project-related influences at mine-exposed waterbodies. Please refer to Appendix B of the annual CREMP reports generated by Minnow e.g., Minnow 2020, 2021, 2022, 2023) for further information regarding validation of reference waterbodies, including Reference Lake 3, used for the CREMP program. With regards to Reference Lake 3, the absence of any changes in environmental conditions from 2015 to 2022 substantiates that no accumulative influences of the Project have occurred at Reference Lake 3 since the mine came into production in 2015.</p> <p>In addition to the above, meteorological information has continually indicated that Reference Lake 3 is geographically located opposite to the dominant prevailing winds for the mine site. Wind direction is predominantly from the southeast over the highest proportion of time at the mine site, and greatest wind velocities most often occur from the southeast as well (see FEIS documents and EDI 2023). Therefore, under prevailing wind conditions, TSP from the mine site is most often deposited north to northwest of the mine site opposite of the direction of Reference Lake 3, which is located approximately 62 kilometres south of the mine. This is supported by recent satellite imagery analysis of dustfall extent which indicated that the maximum southerly extent of Project-related dust is most often within 10 km of the mine site (e.g., as far as Mary Lake) and occasionally within 15 km of the mine (e.g., as far as Angajurjualuk Lake), well north of Reference Lake 3 (EDI 2023).</p> <p>Collectively, empirical aquatic environmental and biological data collected at Reference Lake 3 from 2015 to 2022, meteorological data, and satellite imagery analyses regarding maximum extent of dust deposition from the mine site, all indicate that Reference Lake 3 has not been impacted from the BIM mine site operations. Therefore, the continued use of this lake as a reference for evaluation of potential effects at mine-exposed lakes near the mine site has been, and continues to be valid.</p> <p>b. Arctic charr from all study lakes used for the CREMP, including Reference Lake 3, have been shown to reflect landlocked populations (see FEIS documents for additional information). Physically, Reference Lake 3 is drained by a relatively small channel, comparable to that in size to those of CLT1 and MRY-REF3 that discharge into Camp Lake and Angajurjualuk Lake, respectively (i.e., 3 m to 4 m width, and depth typically less than 20 cm during August). In addition, the channel that discharges from Reference Lake 3 traverses a boulder field that results in a short reach of subterranean flow which likely serves as a barrier to the upstream migration of adult arctic charr during the late summer/early fall spawning migration. The channel that discharges from Reference Lake 3 does not flow into any major river system that is known to serve as a migration route for anadromous charr. The upper size of adult arctic charr captured at Reference Lake 3 have continually been much less than those expected to reflect anadromous individuals. Therefore, Baffinland contends that arctic charr at Reference Lake 3 reflect a landlocked population.</p> <p>In addition, based on the small size of the tributaries that feed and exit Reference Lake 3, similar to the mine-exposed lakes sampled under the CREMP, watercourses that feed and drain Reference Lake 3 likely become desiccated (i.e., dry up and/or freeze entirely) over the late fall, winter, and early spring</p>

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		<p>months. As a result, arctic charr at Reference Lake 3 and at the mine-exposed lakes reflect lentic (lake) spawning populations as opposed to life history strategy that employs lotic (river, stream) spawning.</p> <p>Based on the evidence and rationale provided above, the life history of the Reference Lake 3 arctic charr population reflects the same life history expected for arctic charr populations within the mine-exposed lakes used under the CREMP program reflect a lentic the arctic charr population of Reference Lake 3. The upper size of adult arctic charr captured at Reference Lake 3 are much less than those expected to</p> <p>c. The available evidence indicates that Reference Lake 3 is not affected by Project-related dust, and that the arctic charr population of this lake is similar to that of the CREMP mine-exposed lakes (i.e., lake/shoal spawning population of landlocked individuals). Accordingly, the establishment of a new reference lake is not currently warranted. Baffinland will continue to monitor for changes in environmental/ biological conditions at Reference Lake 3 that could be indicative of Project-related effects in the future, and if so, will consider establishing a new/different reference lake at that time.</p>
QIA FE-3	<p>NIRB require as a condition of the amended project certificate: Baffinland to submit updated versions of:</p> <ul style="list-style-type: none">• the Fresh Water Supply, Sewage and Wastewater Management Plan,• the Snow Management Plan, and• the Aquatic Effects Monitoring Plan. <p>The updated plans must include trigger action response plan (TARP) components in each.</p> <p>Updated plans to be submitted as part of these proceedings (i.e., in response to comments on the SOP). Intervenors must be provided an opportunity to review each updated plan, and finalized versions of each (i.e., incorporating reviewer input) must be submitted within 30 days of receiving the project certificate.</p>	<p>Baffinland confirms that draft versions of the requested Management Plans are currently available for review and all plans except the IQ framework include TARPs. Draft versions of the following management plans were uploaded on the NIRB record for the Production Increase Proposal Renewal on May 15, 2023:</p> <ul style="list-style-type: none">• Air Quality and Noise Abatement Management Plan• Roads Management Plan• Shipping and Marine Wildlife Management Plan• Terrestrial Environment Mitigation and Monitoring Plan• Marine Monitoring Plan (replaces previous Marine Environmental Effects Monitoring Program)• Socio-Economic Monitoring Plan• Adaptive Management Plan• Inuit Qaujimajatuqangit (IQ) Framework <p>Over the past several years Baffinland has issued multiple draft management plans for consideration by NIRB through the Phase 2 Proposal and Production Increase Proposal (PIP) series of Project Certificate Reconsiderations, and received feedback from participants as part of those processes. As part of the most recent PIP Renewal Reconsideration completed in November 2022, Baffinland proposed and agreed to a number of commitments that required revisions to a number of management plans. Should the SOP be approved at the end of that process, the enclosed plans would also apply to the SOP.</p> <p>Thresholds and triggers related to water and snow are detailed and subject to QIA review in the Roads Management Plan, the Aquatic Effects Monitoring Plan, the Terrestrial Environment Mitigation and Monitoring Plan and in the Marine Monitoring Plan. The AEMP is being updated for the Nunavut Water Board process and will be shared with the QIA and intervenors as a draft for comments when available.</p> <p>Given the frequency and need to update management plans on various triggers it does not seem appropriate to be reflected as a Term and Condition in the Project Certificate.</p> <p>Should additional commitments be made during the SOP NIRB Reconsideration that trigger additional updates to the enclosed management plans, Baffinland will provide revised draft plans to the NIRB. Such revised drafts would be developed in consultation with QIA, relevant regulatory authorities and other participants in the NIRB process. We will consolidate inputs through both the SOP review process and annual monitoring cycle to inform the final version of the plans for release in 2024.</p>
QIA FE-4	<p>Baffinland to evaluate and carry forward commitments and technical resolutions from the Phase 2 NWB process and incorporate those commitments and resolutions</p>	<p>Baffinland provides the following responses to QIA’s recommendation:</p> <ul style="list-style-type: none">• QIA #10.1 – Baffinland will follow up with the QIA on what commitment they are seeking. Based off Baffinland’s response on Feb 2, 2022 this item was considered closed.

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	into the current SOP application. Specifically, commitments identified/sought in QIA #10.1, QIA #40.1, QIA #68.1 and QIA #72.1 need to be brought forward to the SOP.	<ul style="list-style-type: none">QIA #40.1 – Baffinland shared a draft methodology and scope with QIA on June 23, 2023 outlining the proposed aquatic effects monitoring program for the Tote Road. Baffinland will review feedback from QIA regarding this program and work with the QIA to ensure adequate monitoring in the aquatic environment along the Tote Road in 2023 and 2024.QIA #68.1 – Baffinland provided the requested information regarding sediment sampling in Appendix E.9.1 of the 2022 NWB QIA Annual Report for Operations.QIA #72.1 – Baffinland held an Aquatic Effects Monitoring Program (AEMP) workshop on Feb 15, 2022 and followed up with an email to QIA on March 8, 2022 with Baffinland’s analysis to include monitoring of periphyton at effluent discharge locations. Based off the results of this analysis it was recommended that total phosphorus concentrations continue to be the tool for assessing STP effluent-related influences on primary productivity, and that periphyton monitoring is not warranted at this time.
QIA FE-5	<p>a. Baffinland explicitly identify direct deposition of dust as an effects pathway influencing the marine and freshwater aquatic environments.</p> <p>b. Baffinland update relevant management plans to include appropriate mitigations of dust deposited both on the ice and directly to the aquatic environment within the below-noted plans and within forthcoming adaptive management components. These plans should be updated during the SOP regulatory process with finalized versions incorporating intervenor input as a condition of the project certificate. Relevant plans may include:</p> <ul style="list-style-type: none">• Surface Water, Aquatic Ecosystem Management Plan,• Spill Contingency Plan, and• Snow Management Plan.	<p>a. Baffinland did explicitly consider dust as an effect influencing the marine, freshwater, terrestrial and atmospheric environment. Dust in the atmospheric environment (e.g., effects on air quality) was discussed in Section 6.2 of the SOP. Dust deposition on the terrestrial (including snow), freshwater, and marine environment was considered in the SOP application (Sections 6.3, 6.4 and 6.5, respectively). Dust in drinking water (including snow melt water) and potential impacts on country foods was discussed in Section 6.6 Human Environment.</p> <p>b. The Air Quality and Noise Abatement Management Plan (AQNAMP) contains mitigation measures to reduce air emissions (including dust) from the project. These measures include actions to be undertaken at the mine site, Tote Road, and Milne Port which would reduce dustfall on the terrestrial, freshwater and marine environments. The AQNAMP is available for review and the adaptive management components related to dust are subject to review and approval with QIA. The final scope of plans that will include adaptive management components that relate to dust is subject to ongoing discussion with QIA through the bilateral Adaptive Management Plan Working Group. Please also review response to QIA FE-3.</p>
QIA FE-6	<p>a. Baffinland clarify what comprises the “aquatic effects monitoring program for the Tote Road” referred to in SOP Section 6.4.2.1, and provide details on it if they are not already in the SOP application materials.</p> <p>b. Baffinland provide an update on the status of its new commitments to develop methodology and implement new aquatic study programs for the Tote Road streams.</p> <p>c. Baffinland clarify what monitoring of stream crossings will be continued over the long term and commit to providing annual reports similar to the DFO Tote Road reports that provide updates on the status of Tote Road stream crossings, remediation required and completed, and passage of Arctic char.</p> <p>Baffinland seek advice from the appropriate regulatory body on the need for a buffer zone between Project dust suppressant applications and streams to inform summer 2023 suppressant applications, and share the advice and any underlying rationale with QIA and the MHTO when received.</p>	<p>a & b. Baffinland shared a draft methodology and scope with QIA on June 23, 2023 outlining the proposed aquatic effects monitoring program for the Tote Road. Baffinland remains fully committed to implement the program during the 2023 summer season pending input and feedback from QIA.</p> <p>c. Baffinland will include fish passage assessment and water quality monitoring outcomes as per the Tote Road Monitoring Program annually in the QIA NWB Annual Report for Operations. Baffinland has followed up with the supplier who has the responsibility to obtain approval for use of the dust suppression on roadways in the territory and sent a request to the Government of Nunavut Department of Environment seeking clarification if there is a need for a buffer zone around water crossings along roadways. Baffinland will follow up directly with the QIA and MHTO with the outcome of this inquiry.</p>
QIA ME-1	<p>a. Baffinland provide additional information on the IQ observations it has documented on ringed seals, including when and where impacts are occurring, and how that information has been collected to date.</p>	<p>a. Baffinland can confirm no observations or concerns related to seal were shared with Baffinland during the SOP specific engagements that occurred prior to submission of the FEIS Addendum. In relation to the current operation, Baffinland regularly meets with local knowledge holders through multiple venues (See response to MHTO-7). In the past 6 months Baffinland has received minimal input on seals. Several examples are provided below that relate to seal abundance and/or location of potential effects.</p>

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	<p>b. Baffinland identify whether and if so, how it has engaged Inuit on the question of how to properly monitor Project impacts and overall population and condition of ringed seal in the Project-affected area, and if so what Inuit have requested and how this has been acted on by Baffinland or committed to be acted on.</p> <p>c. In light of the response to the above, Baffinland provide an explanation on what confidence NIRB and other parties should put on periodic aerial surveys as adequately monitoring impacts on ringed seals.</p>	<ul style="list-style-type: none">During the February 15, 2023 MEWG meeting in Iqaluit and Ottawa, HTO members from Pond Inlet, Igloolik and Arctic Bay indicated that they were seeing less seals, with the Arctic Bay member tying the change to the presence of acoustic recorders deployed by Parks CanadaDuring the May 24 & 25, 2023 Marine Workshop hosted by the NIRB, concerns regarding seals were raised only once by a representative of the MHTO, which related to underwater recorders affecting their abundance.During the June 28, 2023 Pre-Season Shipping meeting an MHTO representative reconfirmed that seal enter Eclipse Sound and Milne Inlet through Navy Board Inlet and we should continue to not ship through there. <p>b. Baffinland has presented its proposed monitoring programs for 2023 to Inuit for input via the three in-person engagements above. As can be seen above, the only linkage to monitoring programs concerns the passive acoustic monitoring program, which some MHTO representatives have asked us to suspend. Baffinland is willing to suspend its acoustic monitoring program in coordination with any other parties that regularly run similar programs in the area, however, in 2023 Baffinland is planning to bring larger vessels to Milne Port as a means to reduce overall ship transits for the year. These vessels have not previously visited the Project and should be subject to a passive acoustic monitoring program to ensure their underwater noise is consistent with our modelled predictions. Baffinland will revisit the potential suspension of our PAM program in 2024 with the MHTO through the end of season shipping meeting.</p> <p>Based on previous technical comments issued by the QIA, indicating a desire for an Inuit led and IQ enriched monitoring programs, Baffinland agreed to fund an Inuit Stewardship Plan, and to provide QIA with approval over the adaptive management elements of management plans that relate to seal, including the development of Inuit specific objectives, indicators, thresholds and responses. Since those agreements Baffinland has released a revised draft Marine Monitoring Plan, inclusive of adaptive management elements for seal. Baffinland looks forward to working with QIA to satisfy the terms of our agreements with respect to the ISP and adaptive management by April 2024 and reporting back to the NIRB, as required under Appendix B of Project Certificate 005.</p> <p>c. The impact of shipping operations on ringed seals was assessed as a non-significant impact based on a Level I magnitude for the effect of vessel noise with a high level of confidence (see Section 1.3; Baffinland 2013). As a result, monitoring efforts were mainly focused on potential impacts to narwhal (Level I-II magnitude for the effect of vessel noise with a low level of confidence).</p> <p>Concerns regarding the impact of shipping operations on ringed seals, and ringed seal harvesting, were brought up during the Phase 2 review process. As a result, a ringed seal aerial survey monitoring program was conducted in the spring of 2021. The results of the 2021 survey indicated that ringed seal densities have overall remained stable since the onset of shipping operations in 2015, and since Project icebreaking activities began in the shoulder seasons in 2018. These results confirm that mitigation measures are functioning as intended and that Project activities are being managed in a way that has not adversely affected ringed seals.</p> <p>The NIRB and other parties should therefore have confidence that periodic ringed seal aerial surveys are sufficient to adequately monitor impacts on ringed seals.</p>
QIA ME-2	<p>Baffinland provide:</p> <p>a. A more detailed assessment of the changes in environmental conditions that it suggests are driving the large-scale reduction in narwhal abundance in Eclipse Sound, including assessment of long-term changes in sea ice conditions and killer whale abundance and distribution in both Eclipse Sound and Admiralty Inlet.</p> <p>b. An update on what IQ it has gathered on this topic, including discussion of what factors Inuit have attributed changes in narwhal populations in Eclipse Sound to. This update must identify when and how such IQ was gathered and what verification methods were used by Baffinland in relation to it.</p>	<p>The aim of Project effects monitoring is not to study and quantify the effects of external environmental factors, but to ensure that the effects of the Project itself are being identified and quantified as best as possible.</p> <p>We know from multiple years of extensive marine mammal monitoring in Eclipse Sound (involving 33 different response variables) that narwhal reactions to open-water shipping are subtle, localized and temporary, and unlikely to result in a large-scale displacement of narwhal from the RSA in spite of a gradual increase in iron ore shipping since 2015. Behavioural studies indicate that open-water shipping results in, at worst, low to moderate (short-term) severity responses (Finneran et al. 2017; Southall et al. 2007; 2021) at close distances to the ships with animals returning to pre-response behaviour shortly after the initial response. For additional discussion on this point, please also see response to MHTO-23 and MHTO-28.</p> <p>While the focus of Baffinland’s monitoring programs focus on project effects, other environmental factors are identified and discussed in annual reports. Focused investigations have also been carried out with respect to the low narwhal abundance observed in the 2020 and 2021 monitoring years, which were presented in the 2021 and 2022 Narwhal Adaptive Management Response Plans (NAMRP). Given the increase in narwhal observed during the 2022 monitoring programs, Baffinland is</p>

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		<p>not updating the NAMRP with additional information for 2023, however, the monitoring and mitigation plans from 2022 will continue to apply. The 2021 and 2022 NAMRP’s have been available for public review as a component of Baffinland’s annual Marine Shipping and Vessel Management Report since July 2021 and July 2022, respectively.</p> <p>As previously stated, Baffinland would be keen to support DFO and/or community-based regional monitoring programs aimed at studying the effects of external environmental factors on Arctic marine mammal populations, including narwhal. Baffinland will continue to engage with the local communities and the responsible agencies (i.e., DFO) regarding these types of regional-based collaborative opportunities.</p> <p>Most recently Baffinland has looked to the Qikiqtaaluk Wildlife Management Board submission to the Nunavut Wildlife Management Board, which provides an extensive summary of IQ in relation to the nature of the Eastern Baffin Island narwhal stock. The MHTO’s participation in the 2016 NWMB Public Hearing on Eclipse Sound narwhal, as well as Baffinland’s Phase 2 Contemporary Land Use Studies (2015-2016) and QIA’s Tusaqtavut Studies (2019-2021) have also informed Baffinland’s understanding of IQ derived factors influencing the Eclipse Sound summer narwhal stock. Aside from facilitating HTO participation in the Marine Environment Working Group, holding pre- and post-shipping season meetings, participating in the NIRB administered marine workshop and generally engaging with communities as well as through our community based staff (Inuit Knowledge Holders, Community Resource Guides), Baffinland is also leaving space for the QIA to develop the Inuit Stewardship Plan and complete the Pond Inlet Country Food Baseline Study and the Culture, Resource and Land Use Assessment. These three QIA led initiatives are meant to play a significant role in gaining and applying added Inuit perspectives on Project topics, like narwhal.</p> <p>References:</p> <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.</p> <p>Southall B.L., A.E. Bowles, W.T. Ellison, J. J. Finneran, R. L. Gentry, C.R Greene Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E., Nachtigall, W.J. Richardson, J. A. Thomas, and P.L Tyack. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. Aquatic Mammals 33(4): 521 p.</p> <p>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 Behavioural Responses to Human Noise. Aquatic Mammals. 47(5): 421-464.</p>
QIA ME-3	<p>Baffinland provide intervenors with updates on:</p> <p>a. the timeline for establish of the cortisol and body condition monitoring program and what parties Baffinland proposes should review the draft program.</p> <p>b. The timeline for analysis of and reporting on the behavioural response data it has been collecting (for all marine mammals including ringed seal).</p>	<p>a. Baffinland presented a draft cortisol monitoring program proposal to the Hamlet of Pond Inlet and the MHTO during a series of pre-season shipping meetings (week of June 26). The draft program, which was also shared with QIA on June 23, 2023, would be developed and implemented over the next 18 months, pending MHTO participation. The basic program components and timelines are presented here:</p> <ul style="list-style-type: none">• development of recommended study plan by Q3 2023• sampling methods confirmed by Q4 2023• field program planning in Q1 2024• field program 1 implementation (floe-edge) in Q2 2024• field program 2 implementation (open-water) in Q3 2024• reporting in Q4 2024 <p>b. Behavioural response data is analyzed and reported on following the completion of each years monitoring programs, and included in the subsequent annual report. This applies to all marine mammal monitoring programs with behavioural response elements to them. This information is also provided annually as part of the NIRB annual report.</p>
QIA ME-4	<p>a. Baffinland provide clarification on the maximum amount of ore that it is seeking permission to ship in 2024 should the 2023 season again be shortened due to environmental conditions.</p>	<p>a. Baffinland is seeking the ability to ship 6 Mtpa a year in both 2023 and 2024, plus any additional ore that can be recaptured from previous years shipping shortfalls (i.e. ore left on pad as a result of shipping less than 6 Mt) on up to 84 ore carriers. The maximum upper limit would be approximately 7.3 Mt as a result of having left 1.3 Mt on the Milne Port ore pads in 2022. Baffinland cannot forecast at this point in time what the upper limits could be in 2024 as it is contingent on the success of the 2023 shipping season and the ability to secure vessels, but the maximum amount could only be up to 7.3 Mt if Baffinland</p>

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	<p>b. Baffinland provide additional information on the logistics of convoy scheduling including how tonnage to be shipped could affect the number of vessels that could be convoyed (also see technical comment ME-5 regarding convoy scheduling).</p> <p>c. Baffinland provide more information on how much increased dust deposition would be expected along the transportation route and at Milne Port (and surroundings) under different operational flexibility scenarios.</p> <p>d. Baffinland provide clarity on whether the impacts assessed in the SOP are based on an average 6.0 mtpa throughput, storage and shipping year, or are they based on the “busiest year” scenario, with the largest amount of activity? The proper way to assess this would be to use the busiest year, not the average, scenario, to have a properly precautionary/conservative assessment.</p>	<p>and would be less if Baffinland is able to successfully ship 6+ Mt in 2023. The constraint on the maximum ability to ship includes the restrictions of ore movement on the road at 6 Mt in any given year. Given that Baffinland has also committed to ship according to Term and Condition 183 as well as restricted to a maximum of 84 ore carriers it is not anticipated that Baffinland would be able to make up the entire shortfall in one year and therefore the additional 1.3 Mt would be split between the two years to the greatest extent possible.</p> <p>b. Convoys are arranged in real time based on the availability of vessels waiting to enter the marine RSA, and the availability of anchorages at their intended destinations (Ragged Island and/or Milne Port). Tonnage does not directly relate to the ability to convoy vessels. Baffinland is restricted to using up to 84 ore carriers in any given year should the SOP proceed, and the use of convoys impacts the total number of transits through Eclipse Sound in a shipping season (by effectively reducing total transits) not the total tonnage amount. The number of convoys cannot be forecast at this time but they will be reported in the 2023 Annual Report to NIRB.</p> <p>c. See SOP FEIS Addendum, Appendix 3, Table 2 (Summary of Changes in Project Interactions). Changes in dust deposition as a result of exercising operational flexibility are confined to Milne Port as no change in the ore haulage limit by truck along the Tote Road are being requested as part of the SOP. Emissions of dust will fluctuate at Milne Port consistent with the years throughput. However, any increases associated with years where additional ore must be stored, loaded and shipped are offset by the year that the deficit occurred. As a result, there is no change in life of mine emissions.</p> <p>d. See SOP FEIS Addendum, Section 2.3, Table 2.2 (Summary of Previous Project Modifications related to Northern Transportation Corridor). The assessments in the SOP FEIS Addendum are based on the activities and upper limits described in Section 2.3. This includes 118 average round trips per day by ore truck along the Tote Road, and 84 ore carrier voyages per shipping season. As mentioned above, Baffinland is only requesting the flexibility to ship ore in excess of 6 Mt following a year where less than 6 Mt was shipped. This means all activities up to shiploading and shipping will remain at a 6 Mt throughput in 2023 and 2024, and remain within assessed limits. It is also worth noting the SOP requires no additional infrastructure or modifications to the established Project Development Areas.</p>
QIA ME-5	<p>Baffinland provide:</p> <p>a. Additional clarification on how scheduling and port logistics impact the potential for using inbound convoys through Milne Inlet and outbound convoys through the RSA.</p> <p>b. Additional information on the proportion of total transits (ore carriers and Project-related support vessels such as tankers and sealifts) that can convoy, both inbound (from the RSA border to Ragged Island, from the RSA border to Milne port, and from Ragged Island to Milne port) and outbound.</p> <p>c. Additional information on how the use of larger (Capesize) vessels will affect shipping schedule logistics and the potential use of vessel convoys. Baffinland.</p> <p>d. commit to maintaining inter-vessel distances of not more than 3 km in any convoy scenario where conditions allow (depending on sea ice presence, etc.).</p> <p>e. Commit to identifying the loudest vessels in the fleet and scheduling convoys such that these vessels are in the centre in any scenario where three or more vessels are in convoy (also see next commitment request.</p>	<p>In 2022, we implemented the practice of convoying vessels as a mitigation measure to reduce the activity and noise footprint in the RSA (Regional Shipping Area). During the trial season, we observed that convoying was successful. The more numerous the ore carriers that accumulated in the staging area, the more scope there was to convoy. In this sense, the ability to convoy is driven by the arrival pattern of vessels calling at Milne Inlet. If vessels arrive at the staging area shortly one after the other, then this is significantly more helpful in initiating a convoy than if vessels arrive separately over a few days. In terms of safety, it is crucial to maintain a convoy size of a maximum of three ore carriers, with the preferred number being two ore carriers inbound. This allows for a safe distance between vessels and enables the vessels’ masters to react quickly in case of an emergency. Whether convoys occur at all will always be dependent on whether it is safe to do so. If conditions on the day allow for a convoy of two or even three vessels to occur, then these will be attempted based on the conditions. It may sometimes be that a convoy of three vessels is deemed too risky based on prevailing conditions (e.g. wind speed, presence of icebergs, other hazards along the route, etc) but a convoy of two vessels is acceptable. Of note is that a convoy of two vessels still provides benefits compared to no convoying. For this reason, we believe it is more beneficial and practical to aim for a reduction in the overall distance travelled by vessels individually rather than to specify the number of vessels that need to be in a convoy when such convoy occurs.</p> <p>a. Baffinland has made a commitment to convoy vessels whenever feasible. As long as we have two or more vessels available at the staging area, along with sufficient safe anchorages, we will proceed with convoying the vessels. This includes ore carriers, tankers, tugs, and re-supply vessels. However, it should be noted that we cannot convoy two ore carriers if only one anchorage is available. Furthermore, due to the limited number of safe anchorages at Milne Inlet (only two), aligning one vessel to depart just when another arrives requires more than just precision in planning. Typically vessels are instructed to leave either the staging area or Ragged Island (or both) to start heading to Milne Inlet prior to the vessels in Milne Inlet or at Milne Terminal having finished their respective manoeuvres (such as loading, shifting, de-ballasting etc). Any delay caused by the vessels in Milne Inlet/terminal will mean that the inbound vessels cannot occupy the spaces that they are meant to when they arrive at Milne themselves. For this reason, the instruction to vessels to start heading to Milne from the staging area or Ragged Island is given at the very last moment possible. The key constraints when planning for a convoy include but are not limited to: the availability of at least two vessels to combine into a convoy at the same time, the long sailing time from the staging area to Milne Inlet (1 full</p>

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	<p>f. Commit to scheduling convoys of three or more vessels except in pre-defined circumstances to be described by Baffinland.</p> <p>Baffinland to identify how often logistic constraints will affect the ability to schedule vessel convoys on average and define what the constraints would be.</p>	<p>day’s sailing), the availability of anchorage space at either Ragged Island or Milne Inlet to allow these vessels to anchor upon arrival, the requirement for vessels not to drift in the RSA, the narrow passage between Bruce Head / Poirier Island requiring vessels heading in opposite directions not to pass each other before, at and after that immediate area, the operational readiness of the port (e.g. if a mechanical breakdown occurs), etc) Therefore, we have chosen Ragged Island as the usual end point for the majority of inbound convoys, as it offers the necessary flexibility for our port logistics and allows vessels to de-ballast prior to berthing (at Milne Port, not ragged Island). A minority of convoys may be able to travel from the staging area straight to Milne Inlet but this would require all the above constraints to be resolved for those particular convoys. Most of the conveying will be on inbound vessels due to our and our customers’ scheduling requirements. Waiting 1-2 days to convoy outbound would prevent these vessels from returning on time for the rest of the shipping season as well as resulting in additional demurrage costs. Tankers and re-supply vessels will be convoyed outbound whenever possible, although their schedules are determined by contracts that include supplying communities in the high Arctic, unlike the ore carriers who do not have such a constraint.</p> <p>b. Baffinland aims to convoy vessels whenever feasible. The number of convoys will be assessed and reported at the end of the season. The majority of convoys will still occur between 73 W (the staging area) and Ragged Island, primarily due to the safety of the vessel and crew, as well as operational constraints described above. Baffinland cannot provide more additional detail at this time due to the nature of arranging convoys.</p> <p>c. The utilization of larger vessels will help BIM reduce the number of shipments required for the same tonnage of iron ore. The larger vessels are just as able to participate in a convoy as other vessel sizes.</p> <p>d. Baffinland confirms it will maintain no more than 3km distance between vessels in convoy when safe to do so.</p> <p>e. Baffinland will continue to learn from its passive acoustic monitoring program and determine if there are additional mitigations that can be added to the shipping season, including specific arrangements and ordering of convoys.</p> <p>f. Please refer to the key constraints referred to in response item (a). In terms of inbound conveying, being able to convoy three vessels from the staging area to Ragged Island (with one continuing onwards to Milne Inlet) would require that (i) Ragged Island has two anchorages available and expected to remain safe by the time the vessels arrive (e.g. no expectation of drifting ice etc), (ii) Milne Inlet has at least one anchorage space available or the terminal is available, (iii) no vessels are expected to be passed along the narrowest part of the route and (iv) en-route conditions being safe/favorable as determined by the vessel’s master. Risk assessment / navigational safety is always per the master’s final say and one master’s assessment may differ from another. Being able to convoy three vessels from the staging area to Milne Inlet would require both that the spot at Milne terminal as well as both anchorages at Milne to be available. As such, the majority of convoys will consist of two vessels with the occasional opportunity for a three vessel convoy. Outbound conveying would require accumulating vessels in the Milne Inlet area which would mean several days of no loading as new vessels are awaited to come in, which is not practical given the already short shipping window available to Baffinland.</p>
QIA ME-6	<p>Baffinland:</p> <p>a. Commit to identifying the subset of chartered vessels that produce a disproportionate amount of noise in 2023</p> <p>b. Commit to conducting acoustic modeling to identify what proportion of the loudest vessels should be removed to make the greatest gains in underwater noise reduction; and,</p> <p>c. Provide a plan in a supplemental filing on when and how it will begin phasing out the loudest ore carriers and support vessels (sealift, tankers)</p>	<p>a. Baffinland reports on the recorded underwater noise of all vessels captured in its passive acoustic monitoring program through its annual reports to the MEWG and NIRB.</p> <p>b. Baffinland collaborates with some of the largest ship owners worldwide who possess and operate cutting-edge fleets. The selection of these owners is driven by the specific characteristics of their fleets. By virtue of the location out of which Baffinland ships, we require that the majority of the vessels we contract be ice-classed. The availability of ice-classed vessels of this size is extremely limited, comprising less than 0.2% of the global panamax fleet. In cases where non-ice-classed vessels could potentially be utilized, the International Maritime Organization (IMO) still necessitates compliance with the Polar Code, which entails installing additional vessel equipment and engaging suitably qualified crew. These requirements pose significant challenges and are often impractical for many ship owners to undertake – in other words, the pool of non-ice classed vessels that are polar code compliant is also very limited. Furthermore, assessing vessel noise levels for contractual purposes proves to be a complex task, as underwater noise testing is rarely conducted, it is not generally available to consider as part of the chartering process. In general, however, newer ships are more efficient and less noise emitting than older</p>

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		<p>vessels. The average age of the vessels we use is 7.2 years in 2023. In comparison to other operations globally, which permit vessel ages of up to 20 years, our fleet maintains an exceptional age profile, helping ensure the vessels we use are as up to date and low noise as possible.</p> <p>c. As mentioned earlier, our present circumstances do not allow us to select vessels based on noise levels. However, our fleet's age profile is advantageous from a noise emitting point of view and we try to use newer ships wherever possible. Over time, a natural fleet renewal process occurs, whereby older vessels will be phased out, making way for newer and improved replacements. Of note is that any plan to phase out the use of these vessels can only be done in conjunction with an exercise to see what replacement vessels will be available.</p>
QIA ME-7	<p>Baffinland provide:</p> <p>a. A risk assessment of using the existing ore dock to moor and load vessels much larger than it was designed to handle, and identification of additional commitments and physical works and activities necessary to accommodate these larger vessels in a safe and feasible fashion.</p> <p>b. An assessment of all the potential marine environmental impact trade-offs of using these larger vessels instead of those the dock was designed to handle.</p> <p>Transport Canada is requested to identify if it has any issues with the safety of using the existing dock to moor and load Capesize vessels.</p>	Please refer to response provided in TC-TRC-01.
QIA ME-8	<p>Baffinland:</p> <p>a. Confirm its proposed commitment to carrying forward into the SOP the Phase 2 commitments listed above related to AIS monitoring</p> <p>b. Commit to phase out use of Project vessels that are shown by risk-based biological studies of ballast water or hull fouling to pose the highest risk of introducing potentially invasive species into Project ports</p> <p>c. c. Update the Appendix 15 risk assessment when results are available from the DFO risk-based biological study of Project vessel ballast water.</p>	<p>a. Baffinland has confirmed these commitments in Appendix 7 of the SOP.</p> <p>b. When results are shared by DFO, Baffinland will update the risk assessment as appropriate. See response to QIA ME-6. It is extremely difficult for Baffinland to reduce the pool of vessels available to serve Milne Port and still fulfill the intent of our sustained operating approvals. Should the biological ballast water monitoring program indicate any objectively high risk of introducing AIS, Baffinland’s first priority will be to work with vessel owners to mitigate that risk. By hosting this pilot program and working with DFO it is Baffinland’s intention to proactively understand the efficacy of modern ballast water treatment systems and to continue to be an industry leader in ballast water management.</p> <p>c. As stated in Appendix 15, “The magnitude of risk was based on numbers of AIS described in broad ecoregions, which may overestimate the AIS present in each port of origin. Identifying and quantifying the actual proportions of harmful AIS present in the ballast water per each vessel would provide a more accurate estimate [of risk]” (p. 22 of 26). By necessity, non-Project-specific data had to be used as input to the risk assessment as no data currently exist that identify or quantify organisms carried in the ballast water of Project vessels to Milne Port. It is expected that the DFO study to sample the ballast water of Project vessels arriving at Milne Port would afford an improved understanding of the taxonomic composition and abundance of organisms that may be present in the ballast water of Project vessels. An updated risk assessment evaluating ballast water introductions using Project-specific ballast water data would be expected to reduce the uncertainty of the results, if they are significantly different than what was used as an assumption in the initial modelling. The availability of quantitative Project-specific ballast water data may also allow for modification of the modelling approach and, for example, facilitate a shift from the more qualitative relative risk assessment methodology to a quantitative assessment, as suggested in DFO-TRC-02 Baffinland recommends that upon the release of findings from DFO’s biological ballast water monitoring program the MEWG consider the need to revise the ballast water model.</p>
QIA ME-9	<p>Baffinland to:</p>	<p>a. Ships may use the following fuels in transit to Milne Port: Very Low Sulphur Fuel Oil (VLSFO), Low Sulphur Fuel Oil (LSFO) and Marine Gas Oil (MGO). This information is already reflected in the SSRP and no amendments to the Phase 2 commitment 01 in Appendix 7 of the SOP is required.</p> <p>b. Ships being used by Baffinland will comply with all applicable shipping regulations, including those established to reduce emissions. As of January 1, 2020 the International Maritime Organizations (IMO) Global Sulphur Cap 2020, vessels will no longer be able to use fuels with greater than .5% Sulphur without</p>

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	<p>a. Provide updated information on fuels used for tanker and ore carrier propulsion and update Phase 2 commitment #1 cited in Appendix 7 of the SOP, as well as related information in the SSRP.</p> <p>b. b. Commit to requiring ships serving the Mary River Mine to use safer distillate fuels beginning with the 2023 shipping season, if this is not already intended. If this change is being made, then it must be documented as a commitment going forward in the updated language requested in (a) above.</p>	<p>scrubbers (which Baffinland has been requested to ban in the marine RSA, and which we have agreed to). Additionally, the Government of Canada announced in February 2020 support for a global ban on Heavy Fuel Oil (HFO) in the Arctic. In June 2021, the IMO formally announced it will enter into force on July 1, 2024. Baffinland has been an early adopter of these bans, ships contracted to Baffinland generally use Very Low Sulphur Fuel Oil (LVSFO).</p>
QIA ME-10	<p>Baffinland to provide information about equipment for affixing emergency tow lines, availability of such tow lines, capability of available tugs to secure and sustain a connection to the ship, and procedures for prompt notification and emergency tow deployment. This should include consideration of the size and type of both ore carriers and tankers proposed to be used as well as the specifications of the available tugs.</p>	<p>Baffinland maintains a robust fleet, consisting of two tugs that are fully certified and equipped to handle towing operations, both in cases of distressed vessels within the Regional Shipping Area (RSA) and for long-haul towing needs. These tugs are strategically positioned to promptly respond to emergencies and provide vital assistance. Throughout the entire operational season, essential towing equipment is kept on board these tugs, ensuring its immediate availability whenever the need arises.</p> <p>Moreover, Baffinland's fleet includes an icebreaker vessel (available mid to end of September onwards) equipped with the necessary tools and capabilities to aid in emergency towing if the situation demands it. This additional asset further enhances our capacity to address unforeseen circumstances and extends the range of support we can offer in critical situations.</p> <p>By maintaining a dedicated fleet with specialized towing capabilities, Baffinland demonstrates a proactive approach to ensuring the safety and security of vessels operating within the RSA. These comprehensive measures not only reflect our commitment to protecting the welfare of the maritime community but also contribute to maintaining the smooth and efficient flow of operations in the region.</p>
QIA SE-1	<p>The Project Certificate be amended with a new term, “The Proponent will develop an Inuit renewable energy training program for any future proposals for clean energy installation for the Project in alignment with its Climate Change Strategy and reflecting its commitment to build community capacity.”</p>	<p>Baffinland looks forward to continuing to work with QIA closely on these matters. In the context of the existing IIBA provisions it is not clear at this time what would be added by a Project Certificate term and condition on this topic. Rather than the approach suggested, QIA and Baffinland could address this topic through the existing robust training program requirements under the IIBA, which require regular collaboration between both parties to identify specific needed training programs. Any required management plan updates could be implemented following IIBA training discussions.</p>
QIA SE-2	<p>The Project Certificate be amended to include a new term and condition: “The Proponent will develop a new regional Inuit training plan that will deliver training to Inuit across the Qikiqtani Region to improve Inuit employment at the Project.”</p>	<p>Baffinland looks forward to continuing to work collaboratively with QIA to continue to increase Inuit employment at the Project, through the robust mechanisms established under the IIBA. The suggested term and condition would be redundant given that this is already an IIBA requirement.</p>
QIA CRLU-1	<p>Baffinland to:</p> <p>a. Provide its confirmation that it understands that many of the impacts identified in the Tusaqtavut studies reflect actual observed impacts by Inuit, and that these observed impacts were residual impacts (i.e., remaining impacts after Project mitigation was applied).</p> <p>b. Recognize that its FEIS and subsequent FEIS Addenda did not accurately predict the magnitude and spatial distribution of impacts observed by Inuit to date, related to the Mary River Project.</p>	<p>a. Baffinland recognizes and appreciates the valuable information contained in the Tusaqtavut Studies and diligently considered them in the SOP FEIS Addendum. The full context of those studies are an important factor in understanding the conclusions presented. Baffinland is supportive of the Tusaqtavut Studies, which were funded by Baffinland under provisions in the IIBA and the Inuit Certainty Agreement. The Studies themselves state that they were conducted specific to Phase 2. While the focus of the Studies was on Phase 2, Baffinland applied information contained with the Tusaqtavut Studies to supplement its own understanding of key issues and inform its overall approach to the SOP.</p> <p>b. Section 3.1.2.2 provides contextualization of the Tusaqtavut Studies in relation to the SOP. The Studies also refer to limitations respecting mitigation and monitoring: see as an example “This Report does not include recommendations on mitigation, monitoring, or compensation measures. Conclusions on monitoring, mitigation, and compensation measures are outside the scope of this Report.” As acknowledged in the studies, they did not consider the numerous mitigations proposed at the time the studies were carried out, nor the new mitigations proposed and/or implemented since that time. Therefore,</p>

ID#	Recommendations/Requests	Response
		<p>study participants were not provided with information on critical mitigations, monitoring programs, and compensation measures proposed and/or agreed to by Baffinland.</p> <p>c. The Tusaqtavut Studies do not present the predictions from the FEIS and FEIS Addendum for comparison against the Tusaqtavut Study findings. Baffinland appreciates that some Inuit observations of the development and operation of the Project do not align with what they anticipated through the NIRB’s review and reconsideration processes, and we recognize and respect those observations. However, it is important for Baffinland to clarify that this does not automatically correspond to inaccuracies across our residual impact predictions. Baffinland acknowledges there have been instances where we have exceeded a prediction, however, those instances have been met with the rigorous application of adaptive management and have or are en route to a positive outcome. Baffinland accepts the validity of Inuit concerns and the value in the Tusaqtavut Studies. The development of new mitigations, such as the Dust Audit Committee and updated approach to icebreaking are steps Baffinland has taken, in collaboration with Inuit, to directly respond to observations shared by Inuit. The clarification provided above is only to give an accurate understanding of the Project context and support informed decision making.</p>
QIA CRLU-2	The NIRB is requested to take into careful consideration gaps between Baffinland’s scientific analyses predictions and Inuit observations, as well as the NIRB’s previous findings related to existing impacts on Inuit CRLU as described in the Phase 2 Reconsideration Report, when determining the significance of residual effects from the SOP on Inuit culture, resources and land use.	<p>The SOP FEIS Addendum leverages multiple years of environmental and social monitoring as well as direct input from Inuit and Inuit led organizations on a nominal 6 Mtpa operation to strike a balance between scientific analysis and Inuit observations before confirming relevant mitigations and residual effects. In the SOP FEIS Addendum this is evidenced by 1) dedicated sections within each VC assessment to consider and resolve Phase 2 and PIPR Recommendation Report findings, including those that relate to culture, resource and land use, and 2) the use of Tusaqtavut Study impact pathways to further frame and inform each assessment, and 3) an extensive commitment list that responds to concerns registered by Inuit over a 5 year period in relation to a much more intensive version of the Project (Phase 2).</p> <p>Baffinland appreciates that QIA is planning to work with Baffinland to complete the CRLU Assessment and the Pond Inlet Country Food Baseline Study and once complete, consistent with the commitments in Appendix B of the Project Certificate, Baffinland will, provide copies of those reports to the NIRB and, where necessary, consider revisions to its monitoring and mitigation plans, including the Adaptive Management Plan.</p>
QIA CRLU-3	<p>a. Baffinland to clarify its timeline for developing a Risk Communication Program (RCP) and how is it proposing to engage QIA and Inuit parties, for whom the Risk Communication Programs is designed.</p> <p>b. Baffinland to commit to put primary control over the Risk Communication Program process in the hands of Inuit, to maximize it likely effectiveness among Inuit recipients.</p>	<p>a. Appendix 11 of the SOP includes a draft scope of work to develop a Risk Communication Program, including a proposed timeline. Overall, the program is intended to evolve based on community interests following engagement. Baffinland intends to develop a more detailed schedule for a Risk Communication Program following additional feedback from impacted communities and QIA. Following the opportunities to provide comment on the program through the SOP review, Baffinland will engage directly with the impacted communities starting in the Fall/Winter of 2023/2024 to discuss amendments to the draft plans and the communities’ interest and priority for the program to initiate.</p> <p>b. Baffinland respects QIA’s comments to ensure the effectiveness of the program is maximized. Baffinland will work directly with the impacted communities as well as seek direct advice in the development and implementation of the program from its Inuit employees. Baffinland also respects that QIA is continuing the development of the ISP. As QIA is in a position to share information on the ISP and whether or not the Risk Communication Program may be incorporated into the work of the ISP, Baffinland suggests this topic could be re-visited. Until such time, Baffinland will continue to lead the development of the program.</p>
QIA CRLU-4	<p>Baffinland to:</p> <p>a. Provide an update on the status of resourcing provided to QIA to date to support development of this Inuit led dust monitoring program.</p> <p>b. Clarify what key role in the Inuit-led dust monitoring program Baffinland envisions for itself.</p>	<p>a. As outlined under Commitment 019 (Appendix B), Baffinland is supporting the establishment of the Inuit Stewardship Plan. Under this commitment, QIA is responsible for delivering a reconciliation of Inuit Certainty Agreement (ICA) deposits made by Baffinland between 2020 and 2021, with any surplus to be applied against the current "ISP Workplan". Our understanding is that QIA is continuing to work on the ICA deposit payment reconciliation and the ISP Work Plan as it has not yet been shared with us. Under Commitment 028 (Appendix B) QIA has agreed the Inuit-led dust monitoring program will fall under the ISP.</p> <p>b. Baffinland will comment on our role within the Inuit-led dust monitoring program when a draft is made available for review.</p>
QIA CRLU-5	QIA requests Baffinland:	Baffinland appreciates this comment and the opportunity to clarify. We respect QIA's expertise on the topic of Inuit rights and welcome the opportunity to learn from them on this important topic.

ID#	Recommendations/Requests	Response
	<p>a. Indicate whether they understand that the Project has already had, and will likely into the future, have measurable adverse effects on Inuit rights, in addition to the purported positive effects noted by Baffinland in the SOP Application, and if so, to provide a list of the Project interactions that already have or will in the Project Case have potential adverse effects on Inuit rights, from Baffinland’s perspective.</p> <p>b. Commit to work with Inuit parties to determine how Inuit interpret Project impacts on rights, in the present and Project Cases, before making future assertions re: Project impacts on Inuit rights.</p>	<p>The specific topics referenced in the comment all were given specific consideration in the FEIS, and included consideration of IQ and Inuit views. For reference, see the following select examples:</p> <ul style="list-style-type: none">• Harvesting - see Section 6.5.3.1 at pp. 179-183• Culture - see Section 6.6.3.6• Food Security - see Section 6.6.3.4• Transportation - see Section 6.10 <p>All views shared by Inuit (positive and negative) must be given full respect and consideration in the process, and the SOP FEIS Addendum was intentionally designed to focus on topics that Inuit have identified through previous NIRB processes as those that matter most to them. Baffinland acknowledges that there is not a single universal Inuit experience in relation to the Project.</p> <p>In the FEIS Addendum, Baffinland included a number of direct quotes from Inuit workers at the Project (shared with Baffinland through IUOE Local 793) that explained their perspective, in their own words, on the positive effects of wage employment on their own personal ability to hunt and exercise their Inuit rights. IUOE Local 793 worked directly with Inuit parties in supporting their participation in the NIRB process and sharing their views about the Project with NIRB, whether positive or negative. Baffinland did not collect this information directly. The FEIS Addendum also incorporates information shared by other community members about their perspective about the negative impact of the Project on their ability to exercise Inuit rights to hunt (see, for example Section 6.5.3.2 at p. 185).</p> <p>Baffinland carried out consultation with communities to share the approach and conclusions in the FEIS Addendum in December 2022 and January 2023 (see Section 3.2). We also worked with Inuit employees, including Elders and other Knowledge Holders, to verify interpretations included in the FEIS Addendum. The NIRB process is also designed intentionally to encourage and support direct participation of Inuit to share their personal perspective on topics relating to Inuit rights.</p> <p>Following receipt of this response, should QIA wish to discuss further, Baffinland recommends a dedicated conversation on the topic to ensure no overlap between obligations included in the Inuit Impact Benefit Agreement signed by Baffinland and the QIA and the responsibilities of each party outlined in such.</p>

OCEAN NORTH

ID#	Recommendations/Requests	Response
ON Executive Summary	Oceans North is submitting our comments in light of the significant narwhal decline, broadly observed and reported in the North Atlantic Marine Mammal Commission (NAMMCO) report, This report details the impacts of vessels and the resulting high probability of extirpation of narwhal from Eclipse Sound should not change occur to current disturbance levels.”	Please see detailed response in Appendix 2.
ON-1	The assessment should only be looking at Eclipse Sound narwhal population estimates to correspond with the stated VEC impacts.	<p>Natural exchange of narwhal between Eclipse Sound and Admiralty Inlet areas during the open-water season is strongly supported by available Inuit Qaujimajatuqangit (IQ) (NWMB 2016a, 2016b; QWB 2022). DFO has acknowledged there is evidence of narwhal movement between stock areas and that there is a single narwhal population, consistent with IQ (see DFO TRC 01 comment #2 above).</p> <p>Oceans North statements referring to an “Eclipse Sound narwhal population” ignore IQ shared (via QWB 2022 – see NIRB Registry No. 339608) that there is not a separate Eclipse Sound narwhal stock but instead a single combined North Baffin narwhal stock.</p> <p>QWB 2022 is appended to Baffinland’s response to MHTO regarding Adaptive Management (See NIRB Registry No. 339608). QWB 2022 states:</p> <p><i>“According to IQ, the three summer stocks of narwhal do not actually exist in reality within the waters of NEBI.</i></p> <p><i>Below are some conclusions about the narwhal in NEBI waters based on generations-old, up-to-date, peer-reviewed Inuit Qaujimajatunqangit:</i></p> <ul style="list-style-type: none"><i>Narwhal move freely throughout the NEBI area (see Appendix A). 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.</i><i>Narwhal also move freely and widely from day to day, from week to week and from month to month in 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.</i><i>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.</i><i>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 concentrations, killer whales, and ships. Narwhal also probably move in response to factors largely unknown to humans. 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.</i><i>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.”</i>
ON-2	Temporally extend the cumulative effects assessment to include multiple seasons of shipping, considering the possibility of large- scale displacement over time.	The effect of multiple seasons of shipping and icebreaking on narwhal is considered a Project effect not a cumulative effect. As such, this impact pathway was assessed in the SOP application package using the defined temporal scope of the SO and using the outlined effects assessment protocol (i.e., the assessment contained in Section 6.5 of the SOP FEIS Addendum considers the effect of Project shipping and icebreaking on narwhal over multiple years). Baffinland also notes that icebreaking only occurs for a limited period at the end of the shipping season when the majority of narwhals would have already departed the RSA for their wintering grounds in Baffin Bay, minimizing any interactions between narwhal and icebreaking activities during that period.
ON-3	Assess the multi-year impacts of ice-breaking on narwhal presence in Eclipse Sound.	Please see response to ON-2.

ID#	Recommendations/Requests	Response
ON-4	<div><div>a.</div><div>ON recommends that EWI’s are in place before further production is approved, and that appropriate adaptive management be developed for each EWI.</div></div> <div><div>b.</div><div>Were all years of observational data compared to the regional 1,000 ft survey? Are equals compared? Was this comparison planned in advance with DFO involvement?</div></div>	<div><div>a.</div><div>Baffinland takes this opportunity to remind ON (and provide confirmation to the Board) that a total of 32 different response variables for narwhal have been in place for the Project for now for 5+ years, as summarized in Baffinland’s response to MHTO-28. Each of these response variables serves as a unique Project indicator for detecting shipping effects on narwhal. Many of these indicators include specific adaptive management triggers and tiered responses for when thresholds are triggered; these are identified in the 2022 Narwhal Adaptive Management Response Plan (Baffinland 2023a) and the draft revised Marine Monitoring Plan (Baffinland 2023b). These indicators were developed for rapid identification of adverse impacts on narwhal along the Northern Shipping Route and are monitored across multiple monitoring programs. Of these, one indicator has been formally identified as a primary EWI for narwhal, based on consolidated input from members of the Marine Environmental Working Group (MEWG) since 2018. This EWI is defined as ‘a decrease in the proportion of immature narwhal (defined as calves and yearlings) relative to the observed population’. Appropriate adaptive management is developed, and continuously reviewed, as required through the Project.</div></div> <div><div>b.</div><div>Yes, all years for which both Bruce Head EWI data and the dedicated EWI 1,000 ft aerial survey data was available were compared, as described further below (noting that only three years had both datasets available). The comparison between datasets was not planned in advance with DFO involvement as DFO does not undertake marine mammal aerial surveys for the purpose of collecting EWI data. However, the EWI survey results (Bruce Head and aerial survey program) were shared with DFO and other MEWG members during the 15 Feb 2023 MEWG in-person meeting. As per the marine mammal TARP (Baffinland 2023; MMP), a pre-defined response exists for when a Moderate Risk threshold is exceeded in at least two consecutive filed seasons, which includes ‘investigating the trend over time and consideration of uncertainties’ in a formal response plan. The response plan was developed in 2022 as part of the Narwhal Adaptive Management Response Plan (NAMRP) (Baffinland 2022), which prescribed additional EWI analysis of the 2020-2022 aerial survey data using the dedicated 1000-foot survey data (same protocol initiated in 2022 based on 2021 Bruce Head EWI results). This protocol was similarly followed in 2022. The results of the comparison between EWI datasets are summarized as follows: <i>As per PC005, Appendix B, Commitment 026, WSP examined the relationship between EWI data (proportion of immature narwhal relative to the observed population) collected at Bruce Head as part of the Bruce Head Shore-based Monitoring Program, and EWI data collected in Milne Inlet and Tremblay Sound during dedicated aerial surveys conducted as part of the Marine Mammal Aerial Survey Program (MMASP). The relationship between the two sources of EWI data was examined to determine if the EWI results at Bruce Head could be used to inform adaptive management decisions related to shipping operations in that same year (i.e., late summer/fall), before aerial survey results would be available (note: aerial survey results are generally not available until the following calendar year). Results: There are only three comparable years between the two datasets (2020–2022). As shown in the attached plot, while the two datasets had similar results in 2020, there was a divergence in EWI values between Bruce Head and the aerial surveys in 2022. Given this disparity in results between the two datasets, the fact that EWI data are only available for comparison in three survey years, and the processing time required to analyze and report the data even at a preliminary level, we conclude that the Bruce Head EWI results do not presently serve as a reliable indicator for informing adaptive management decisions in that same year.</i></div></div>

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b.

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ID#	Recommendations/Requests	Response
		<div><div><div><div><div></div><div>Annual mean</div></div><div><div></div><div>Bruce Head surveys</div></div><div><div></div><div>Milne Inlet aerial surveys</div></div><div><div></div><div>Tremblay Sound aerial surveys</div></div></div><div><div><div></div><div>EWI (%)</div></div><div><div><div></div><div>70</div></div><div><div></div><div>60</div></div><div><div></div><div>50</div></div><div><div></div><div>40</div></div><div><div></div><div>30</div></div><div><div></div><div>20</div></div><div><div></div><div>10</div></div><div><div></div><div>0</div></div></div><div><div>2014</div><div>2016</div><div>2018</div><div>2020</div><div>2022</div></div><div>Survey year</div></div></div><p>This figure shows the comparison of EWI (proportion of immature narwhal relative to the observed population) collected by visual observers at Bruce Head and via dedicated aerial-based photographic surveys in Regional Study Area (RSA).</p><p>References:</p><p>Baffinland. 2022. 2022 Narwhal Adaptive Management Response Plan (NAMRP). Document # BAF-PH1-830-P16-0024. Rev1. 19 July 2022</p><p>Baffinland. 2023. Marine Monitoring Plan (MMP).</p></div>
ON-5	Reassess shipping impacts to narwhal using the current known thresholds for narwhal specifically.	<p>Baffinland’s marine mammal effects assessment currently uses the most up-to-date thresholds for assessing acoustic injury and/or behavioural disturbance (i.e., harassment) in narwhal; these thresholds are based on best available science (NMFS 2018; NOAA 2014), as summarized below.</p> <p>The U.S. National Marine Fisheries Service (NMFS) has developed guidance that provides specific thresholds for acoustic injury in marine mammals when exposed to industrial noise sources, using different sound exposure levels for different marine mammal hearing groups and different sound types (e.g., continuous vs. impulsive noise sources). This guidance is referred to as NMFS’s Marine Mammal Acoustic Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing’ (NMFS 2018). This criteria is intended to be used by NOAA analysts and managers, other federal agencies, industry and other relevant user groups and stakeholders to better predict how a marine mammal’s hearing will respond to sound exposure. To develop these thresholds, NMFS compiled, interpreted, and synthesized best available scientific information on the effects of anthropogenic sound on marine mammals' hearing, as well as developed a method for updating these levels through a systematic, transparent process. These are the injury thresholds that are currently applied by Baffinland in their environmental assessments and monitoring programs. Acoustic monitoring data collected throughout the RSA to date confirm that none of the injury thresholds have been exceeded as a result of Project shipping noise.</p> <p>The thresholds used for assessing disturbance (i.e., harassment) in Baffinland’s environmental assessments and monitoring programs are based on established threshold criteria for harassment as adopted by the NMFS (NOAA 2014), such to comply with marine mammal protection provisions under the federal Marine Mammal Protection Act (MMPA), which prohibits the killing, injury and harassment (i.e., disturbance) of marine mammals. Based on what has been demonstrated through best available science combined with the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral disturbance. NMFS disturbance criteria predicts that marine</p>

ID#	Recommendations/Requests	Response
		<p>mammals are likely to be behaviorally disturbed (categorized as Level B harassment) when exposed to underwater anthropogenic noise above received levels of 120 decibels (dB) re 1 microPascal (µPa) (root mean square (rms)) for continuous sound sources (e.g., ship noise, dredging), and above 160 dB re 1 µPa (rms) for impulsive or intermittent sound sources (e.g., impact pile driving). The 120 and 160 dB disturbance thresholds were developed by a global panel of experts in the field of marine mammal bioacoustics following several decades of research and are considered best available science on this topic. New guidance on methods for assessing behavioural disturbance to marine mammals from underwater noise have been published (Southall et al. 2021) however no new thresholds or species-specific thresholds for acoustic disturbance have been defined.</p> <p>These NMFS 120 dB and 160 dB disturbance thresholds are the values that are currently applied by Baffinland in their environmental assessments and monitoring programs. In the context of narwhal, the 120 dB threshold is considered precautionary given that it is based on the minimum sound levels required to cause disturbance responses in baleen whales (i.e., deflection of migratory movements in bowhead and grey whales following exposure to industrial noise in the Arctic); which have a greater hearing sensitivity in the frequency range of vessel noise than do narwhal (who belong to the toothed whale family). As the majority of underwater sound generated by vessel traffic is concentrated below 200 Hz (Veirs et al. 2016), which is well below the assumed sensitive hearing range of narwhal (>1 kHz) and all MFC, the 120 dB threshold is considered to be conservative for MFC such as narwhal in the context of predicting vessel noise disturbance impacts. The 120 dB threshold is also consistent with that used in the original FEIS for the approved Mary River Project and has been carried through for that reason. SPACE While the United States has established thresholds for acoustic injury and disturbance in marine mammals, it is important to note to the Board that the Government of Canada has not yet established any numeric thresholds for hearing injury, disturbance or any other noise-related impacts in marine mammals (Wright and Moors-Murphy 2022). In the absence of any defined or legislated underwater noise exposure criteria in Canada, the Government of Canada commonly defers to the aforementioned NMFS thresholds in their respective project reviews, noise assessments and permit approvals (e.g., FAA authorizations).</p> <p>Currently, there is no regulatory guidance defining an alternate threshold that would be more appropriate than the 120 dB SPL threshold that has been used for narwhal in this assessment. Similarly, acoustic monitoring and behavioural response data collected to date as part of Baffinland’s annual monitoring programs has not provided any reason to establish a more appropriate threshold for narwhal than the one currently in place.</p>
ON-6	<p>a. Complete a thorough cumulative effects assessment of changes to shipping as described above (see Detailed Review comment).</p> <p>b. Model the vessel profiles to the known disturbance levels for narwhal (see ON-04).</p> <p>c. It is unclear if shipping mitigations have been assessed with both inbound (empty) or outbound (full) ore carriers.</p> <p>d. The analyses of Appendix 14 and Appendix 12 are thorough however it is unclear how they were included in the assessment.</p> <p>e. In addition, the assessment does not analyze the use of convoys as much as say their impact will be less than previous years of 6mtpa. As there have been clear impacts over the years at this production level, the conclusions re convoys and a limit of 84 vessels per season need to be assessed on their own merits.</p>	<p>a. See response to ON-04 with respect to narwhal disturbance threshold. The acoustic modelling that supported the assessment of the proposed SOP activities computed the sound field to distances that encompassed 110 dB re 1 uPa SPL (unweighted), which is below measured background levels in Milne Inlet that have been measured to be approximately 112 dB re 1 uPa (mean broadband SPL, Austin et al. 2021) and is therefore below the level where behavioural disturbance could be reasonably expected.</p> <p>b. This has been undertaken already as outlined in response to (a)</p> <p>c. In the vessel convoy analysis, measurements were attained of both inbound and outbound convoys. Convoys were demonstrated to be equally effective a reducing the net acoustic exposure duration for narwhal (for both inbound and outbound transits). The proposed mitigation assumes that the majority of the convoys would consist of inbound transits due to logistical/operational constraints; however Baffinland will endeavor to implement outbound convoys when the opportunity presents itself (for example, at the end of the shipping season).</p> <p>d. See response to (c)</p> <p>e. We disagree with ON’s statement in that there have been clear impacts at this production level with respect to Project shipping. Please see response to MHTO-23 and MHTO-28 for a comprehensive discussion on this.</p>

APPENDIX 1

MHTO ATTACHMENTS

MHTO-01 ATTACHMENT 1

March 31, 2023

Nunavut Impact Review Board
Bos 1360
Cambridge Bay, NU
X0B 0C0

Attention: Karen Costello, Executive Director, via email

Dear Ms. Costello,

RE: MARY RIVER PROJECT CERTIFICATE 005 APPENDIX B COMMITMENTS, INTERIM STATUS UPDATE

Baffinland Iron Mines Corporation (**Baffinland**) and the Qikiqtani Inuit Organization (**QIA**) are writing to report on performance of the commitments listed in Appendix B of the Nunavut Impact Review Board (**NIRB**) Project Certificate 005 for the Mary River Project, per Term and Condition 189, as well as a status update on the current initiatives underway towards establishment of interim and permanent project monitors.

A. Current Status of Project Certificate No. 005 Appendix B Commitments

Baffinland and QIA have jointly prepared the attached table reporting on the current status of commitments listed in Appendix B to Project Certificate 005. The table is attached to this letter, to provide the NIRB with an update on the status of fulfillment of the commitments in Appendix B.

Significant progress has been made since the amended Project Certificate was issued on Nov. 4, 2022. Currently, 16 of the Appendix B commitments are now “Complete” while 60 are “In Progress” and only 1 remains “On Hold”. This reflects the understanding at the time the commitments were added to the Project Certificate that the majority of them would require development and implementation beyond 2022. We will continue to report regularly to the NIRB as the status of progress advances in order to support transparency and understanding that commitments made during the Production Increase Proposal Renewal (**PIPR**) NIRB process during 2022 are being implemented by Baffinland and QIA. Should the NIRB require supporting documentation in relation to any of the items in the attached table, we would be pleased to provide it.

B. Current Status of Interim Project Monitor (referenced in Project Certificate Term and Condition 189)

Baffinland and QIA are working together to designate an Interim Project Monitor to provide future reports to NIRB on the performance of the Appendix B commitments. It is anticipated that future status reports on the performance of Appendix B commitments will come to NIRB directly from the Interim Project

Monitor, rather than jointly from Baffinland and QIA. It is also anticipated that the Interim Project Monitor may play a dispute resolution role at the environmental working groups established under the Project Certificate, should it be required. To be clear, if established, the permanent Project Monitor would replace the Interim Project Monitor.

Since November 2022, Baffinland, QIA and CIRNAC/Canada have had multiple engagements on the topic of the Interim Project Monitor and are satisfied that significant progress is being made towards an appointment. A further status report on this initiative will be provided to the NIRB in the coming months.

C. Current Status of Project Monitor (referenced in Minister's letter to NIRB of October 4, 2022)

In parallel with the items described above, Baffinland, QIA, and the Government of Canada ("the Parties") have been working together since November 2022 to establish the role, scope, and mandate of an independent Project Monitor. Meetings on this topic have occurred at least bi-weekly and both in person and virtually.

This work is to fulfill the directive in Minister Vandal's October 4, 2022 letter approving the PIPR, and to work together towards our shared goal of improving community confidence that project approvals and commitments are being implemented and that community concerns are being heard and addressed:

*The designated Inuit organizations, Inuit from impacted communities, and regulators have observed that better monitoring of compliance with project commitments would assist in improving the monitoring and adaptive management functions for the Project. To achieve this objective, the Qikiqtani Inuit Association and Baffinland have proposed the appointment of an independent third party (which the Qikiqtani Inuit Association has called "a Project Monitor") to oversee general commitment implementation. The other responsible Ministers and I **support this concept, and have therefore instructed the relevant Government of Canada officials to initiate discussions by November 30, 2022, with Baffinland, the Qikiqtani Inuit Association, and Nunavut Tunngavik Incorporated regarding the relevant role, scope, and mandate of this person or body, with the goal of installing an independent third party monitor for the Mary River Project as soon as reasonably practicable.***

At this time, discussions have been preliminary and conceptual, and no decisions have been made relating to the establishment of a permanent Project Monitor. It is fully recognized by Canada, QIA and Baffinland that further community engagement is required before any formal steps are taken. It is also recognized that the role of the Project Monitor should not overlap or duplicate the important monitoring role of NIRB established by the Nunavut Agreement and the *Nunavut Planning and Project Assessment Act*.

In February 2023, Canada organized an in-person workshop in Iqaluit with the impacted Inuit communities and hunters and trappers organizations to share Canada, QIA and Baffinland's initial thoughts on the potential scope, role and mandate of a permanent Mary River Project Monitor, and to seek advice and recommendations from community members on this concept. The workshop was attended by NIRB staff as well as representatives from Canada, QIA, Baffinland, and the GN and jointly facilitated by consultants (Michelle Gillis and Mark Hopkins). We are grateful to the workshop participants for sharing their knowledge and a report is being currently prepared by Ms. Gillis and Mr. Hopkins to reflect what we heard and report on proposed next steps.

A further status report will be provided on this initiative to NIRB in the coming months.

Please let Baffinland and QIA, know if you require any additional information regarding any of the topics discussed in this letter or the attachments.

Sincerely,



Megan Lord Hoyle
Vice-President, Sustainable Development
Baffinland Iron Mines Corporation



Executive Director
Qikiqtani Inuit Association

cc. Terry Audla, Regional Director General, Crown-Indigenous Relations and Northern Affairs Canada
Lisa Dyer, Director General, Canadian Northern Economic Development Agency

BIM ID	Commitment Description	14-Mar-23	Compliance Status	Qualifyer
001	<p>Baffinland will continue to implement the following mitigation measures to reduce or avoid impacts to marine mammals (Relevant species: Ringed Seal, Beared Seal, Walrus, Beluga, Narwhal, Bowhead Whale, Polar Bear) as a result of shipping:</p> <ul style="list-style-type: none"> • Maintain constant speed and course when possible. • Reduce vessel speed to 9 knots. • Reduce vessel idling. • Additional temporary measures have been introduced for 2021 that shipping will not commence a continuous path of 3/10ths or less ice concentrations between the entrance of Eclipse Sound and Milne Port is present. • No breaking of landfast ice will occur in the spring or fall shoulder season. • When marine mammals appear to be trapped or disturbed by Project vessel movements, the vessel will implement appropriate measures to mitigate disturbance, including stoppage of movement until wildlife move away from the immediate area (as safe navigation allows). • All Project vessels will be provided with standard instructions to operate their vessel in a manner that avoids separating an individual member(s) of a group of marine mammals from other members of the group; • All Project vessels will be provided with standard instructions to not approach within 300 m of a walrus or polar bear observed on sea ice; • Vessels awaiting instructions from the Port Captain to enter the RSA will be instructed to wait in Baffin Bay at least 40 km east of the Nunavut Settlement Area. <p>Baffinland will implement the following additional mitigation measures in 2022 to reduce or avoid impacts to marine mammals (Relevant species: Ringed Seal, Beared Seal, Walrus, Beluga, Narwhal, Bowhead Whale, Polar Bear) as a result of shipping:</p> <ul style="list-style-type: none"> • No icebreaking to commence the 2022 shipping season. Vessels will not begin their transit to Milne Port until 3/10ths or less ice is present along the entire shipping route through the Nunavut Settlement Area (NSA). 	Mitigations continue to be included in the Shipping and Marine Wildlife Management Plan	Compliant	Complete
002	<p>Baffinland will continue to implement the following mitigation measures to reduce or avoid impacts to terrestrial wildlife (Relevant species: Caribou, Wolf) as a result of operations (Mine site, Tote Road, and Milne Port):</p> <ul style="list-style-type: none"> • Mitigation measures that will reduce the likelihood of reduced habitat effectiveness for caribou include: <ul style="list-style-type: none"> o Sensory disturbances will be limited where possible throughout the year. This can include a quarry blasting program that can restrict blasting when migrating caribou and other wildlife may be negatively affected. o Active caribou calving sites (as identified by observations from area hunters, Project biologists or observed by aircraft pilots) will be avoided between May 15 and July 15. Where possible, there will be no increase in construction or operational activity within 3 km of the calving sites during this period. o In the Cockburn Lake Area (identified during baseline studies as having the highest occurrence of caribou calving sites), all non-essential activities will cease between May 15 and July 15 (e.g., construction activities will be planned to avoid this area during the calving season). o If any females (one or more) are observed within 3 km of a planned Project activity such as drilling or road construction from May 15 through July 15, then the activity location will be moved or the activity deferred as appropriate and, if possible, until a later date when caribou are not present. o Should a female caribou or a female with a calf or calves approach within 3 km of Project activities (between May 15 and July 15), the animals will be observed on the ground. If it is obvious that they are being disturbed, the activity will cease until they have moved away by at least 3 km. o If caribou approach a Project activity site before work commences, the animals will be observed on the ground, and if it is obvious that they are being disturbed (e.g., hesitating to cross work site, running in the opposite direction, visibly agitated), work will not 	Mitigations continue to be included in the Terrestrial Environment Mitigation and Monitoring Plan	Compliant	Complete
003	Baffinland will conduct aerial caribou surveys in Fall 2022 or 2023.	Environmental Dynamics Incorporated (EDI), on behalf of Baffinland, will be conducting aerial caribou surveys between March 23 and 29, 2023. The surveys were described to members of the Terrestrial Environment Working Group (TEWG) on February 14 and 16, 2023 at the in-person meeting in Ottawa, Ontario. Based on several recommendations from new HTO members, the planned survey area was increased to include locations identified as having greater potential to see caribou. The outcomes of the survey will be included in the 2023 annual monitoring report, with preliminary results being communicated to TEWG members as they become available.	Compliant	In progress
004	<p>Baffinland will continue to implement the following mitigation measures to reduce or avoid impacts to marine mammals, terrestrial wildlife, fish and fish habitat, water quality, air quality, etc. as a result of operations (Mine Site, Tote Road, Milne Port):</p> <ul style="list-style-type: none"> • Specific actions that have been implemented, or could be further implemented by Baffinland for dust management at Milne Port have included: <ul style="list-style-type: none"> o redesigning the ore pads to position fines in the centre and lump ore around the margins o proper positioning of the conveyors to minimize ore drop distances when stockpiling o installation of rubber bellows at the end of each stacker to minimize dispersion of dust generated during the fall o installation of chutes on the shiploader to prevent windblown dust during loading operations o installation of shrouding at the discharge end of the ore stackers to reduce the effect of windblown dust during stacking activities o installation of downwind fencing o removal of dust impacted snow at strategic locations at the project. o application of a specialized crusting agent (DusTreat®) to the ore stockpile to reduce wind erosion and mobilization of fine iron ore particles. • Specific actions that have been implemented, or could be further implemented by Baffinland for dust management for vehicle traffic include: <ul style="list-style-type: none"> o regulating speed limits o utilizing water and dust suppressants during snow free months. o Application of new dust suppression products with increased durability and longevity for site infrastructure and approved for use in Nunavut on unpaved roads (DustBlok®) • Specific actions that have been implemented, or could be further implemented by Baffinland for dust management at the crushing facility include: <ul style="list-style-type: none"> o Installation of shrouding and other engineered controls on conveyors and the ship 	Mitigations continue to be included in the Air Quality and Noise Abatement Management Plan.	Compliant	Complete
005	Baffinland will work with the Hamlets and HTOs of Igloolik and Sanirajak to carry out additional baseline studies for marine, terrestrial, and avian wildlife related to Steensby. This could begin as early as 2023.	Baffinland is not planning to carry out additional baseline studies for marine, terrestrial, and avian wildlife in the southern transportation corridor or Steensby Port area in 2023. However, Baffinland does plan on engaging Hamlets and HTO's from Sanirajak and Igloolik in 2023 in preparation for baselne studies that could occur in 2024. These engagements are planned to begin the week of March 20, 2023 with an in-person visit by several Baffinland representatives to both Sanirajak and Igloolik.	Compliant	In progress

006	<p>If approval is granted for 6 Mtpa for 2022, Baffinland commits to not lay off any Inuit employees during this production year (excepting employment matters that could give cause for termination on an individual basis, should they arise). We also confirm future applications will give due consideration to the need for adequate time for procedural matters.</p>	<p>Following the Ministers approval of the PIP Renewal on October 4, 2022, Baffinland was able to rescind all termination notices that had previously been issued, including those issued to Inuit employees. No terminations occurred for the remainder of 2022 in relation to the circumstances that the termination notices were originally issued.</p> <p>To ensure future applications give due consideration for the time needed by Inuit and communities to review and participate in procedural matters, Baffinland submitted the draft Sustaining Operation Proposal (SOP) Application to QIA on November 25, 2022 and again on February 27, 2023, each time for a 15 day review period as required under Article 15.10.5 of the Mary River IIBA. At the same time the QIA was in receipt of the draft SOP Application, Baffinland engaged directly with each of the 5 North Baffin Hamlets and HTO's through bilateral meetings in communities and via teleconference. These meetings also included a two-day presentation and question/answer period on January 17 and 18, 2023.</p> <p>Baffinland submitted the first formal application related to the SOP on January 23, 2023 to the Nunavut Planning Commission. On February 2, 2023 the NPC confirmed that the SOP conformed to the North Baffinland Regional Land Use Plan (NBRLUP). Once Baffinland has considered the QIA's comments from their most recent review of the draft SOP Application, the final version will be submitted to the NIRB, no later than April 6, 2023. This is roughly three months earlier in the year compared to the timing of the PIP Renewal Application submission in June 2022.</p>	Compliant	Complete
007	<p>Baffinland confirms that it is committed to full consideration of the dust audit suggestions, and will implement accepted recommendations from the Independent Dust Audit at its earliest opportunity.</p>	<p>Baffinland is in the process of issuing a revised draft Air Quality and Noise Abatement Management Plan (AQNAMP) for public review through the Nunavut Impact Review Board. Baffinland has revised the plan to include several updates related to dust monitoring and dust mitigation, as agreed to through regulatory processes related to the Production Increase Proposal and subsequent Extension and Renewal. As the commitments related to dust in Project Certificate 005, Appendix B and the Dust Audit - Final Recommendations Report are advanced, they will be integrated into the AQNAMP as appropriate.</p> <p>Baffinland notes that the NIRB released the Dust Audit - Final Recommendations Report to their distribution list on February 16, 2023 and Baffinland has advised that it intends to provide a formal response to the Report, outlining Baffinland's next steps with respect to the recommendations. Baffinland has provided its preliminary response to the Dust Audit Committee and will issue a formal response to the NIRB in April 2024.</p>	Compliant	In progress
008	<p>Baffinland will engage with Igloolik to develop community infrastructure commitments – including significant infrastructure projects such as road paving and women and youth centers – with an aim to realize benefits to Igloolik:</p> <ul style="list-style-type: none"> • businesses; • women; • youth; and • hunters. 	<p>Baffinland and Igloolik have not yet engaged on priority community infrastructure projects, however, Baffinland remains committed to exploring these opportunities with Igloolik at their request. Recent announcements related to the Steensby component of the Project present significant potential for Baffinland to extend benefits currently limited to Pond Inlet in other communities, including those adjacent to the Southern Shipping Route. Further, with the stability of a railway operation, Baffinland will be able to make further meaningful investments in communities not possible under a 6 mtpa trucking operation through Milne Port.</p>	Compliant	In progress
012	<p>Baffinland agrees to pay \$1,000,000 (2020 CAD) to MHTO by October 15th, 2022.</p>	<p>One time payment made in October 2022</p>	Compliant	Complete
014	<p>Baffinland agrees to pay \$1,858,500 (2022 CAD) to QIA for engineering and planning costs for Pond Inlet Regional Training Centre by November 15th, 2022.</p>	<p>One time payment made in November 2022</p>	Compliant	Complete
015	<p>Baffinland agrees to pay \$10,000,000 (2018 CAD) for the Pond Inlet Training Centre to be paid as follows prior to inflation adjustment: October 15, 2022 - \$1,500,000; November 15, 2022 - \$1,500,000; December 15, 2022 - \$2,000,000; January 15, 2023 - \$1,500,000; February 15, 2023 - \$1,500,000; and March 15, 2023 - \$2,000,000.</p> <p>All payments shall be adjusted to 2022 CAD.</p>	<p>Final payment made in March 2023</p>	Compliant	Complete
016	<p>Baffinland agrees the NIRB Project Certificate 005 Terms and Condition 49 (Terrestrial Working Groups) and 77 (Marine Working Groups) should be amended according to the wording provided in Appendix B.</p>	<p>On September 22, 2022 Baffinland submitted to QIA a final copy of the joint recommended Terms and Conditions and Commitments that both parties had agreed to in order to secure QIA's support for the approval of the Production Increase Proposal Renewal. This submission included draft revised Terms and Conditions 49 and 77, which were designed to satisfy Baffinland's commitment to QIA ID-5. On November 3, 2022 the NIRB released Project Certificate 005, Amendment No 004, inclusive of the jointly recommended amendments to Terms and Conditions 49 and 77.</p> <p>To satisfy the requirements of Terms and Conditions 49 and 77, Baffinland distributed a revised draft Terms of Reference for review by working group members and observers on August 19, 2022. Since then Baffinland has proposed to circulate a revised draft Terms of Reference based on comments received by working group members and observers between September 2022 and February 2023. The revised draft Terms of Reference will be subject to a final teleconference with working group members and observers prior to being finalized. Baffinland intends to submit the final Terms of Reference to the NIRB with a summary of the development process. A timeline is still to be agreed to by working group members and observers.</p> <p>In parallel with completing the revisions to the working group Terms of Reference, Baffinland proactively hosted the four Hunters and Trappers Organizations from Sanijarak, Igloolik, Clyde River and Arctic Bay at the Marine and Terrestrial Environment Working Group meetings, held in Ottawa and Iqaluit between February 14 and 16, 2022.</p>	Compliant	Complete
017	<p>Baffinland agrees the NIRB Project Certificate 005 Terms and Condition shall be amended to include a new Term and Condition for an independent Project Monitor according to the wording provided in Appendix B.</p>	<p>On September 22, 2022 Baffinland submitted to QIA a final copy of the joint recommended Terms and Conditions and Commitments that both parties had agreed to in order to secure QIA's support for the approval of the Production Increase Proposal Renewal. This submission included a draft new Term and Condition, which was designed to satisfy Baffinland's commitment to QIA ID-6 (Project Monitor). On October 4, 2022 the Minister released a positive determination on the Production Increase Proposal Renewal, inclusive of several modified and new Terms and Conditions to include in Project Certificate 005, Amendment No 004. The Minister, however, did not include the jointly recommended Term and Condition related to QIA ID-6 (Project Monitor). Instead, the Minister directed representatives from the Government of Canada, Qikiqtani Inuit Association and Baffinland to begin engagements prior to November 30, 2022 with the goal of installing an independent third party monitor for the Mary River Project as soon as reasonably practicable. The parties have since taken part in a series of teleconferences, in person meetings and a community workshop as part of a process to develop the project monitor position.</p>	Compliant	In progress

018	<p>QIA and Baffinland jointly develop and approve, by April 2024, the adaptive management elements for monitoring programs and Inuit Objectives, Indicators, Thresholds and Responses for the Adaptive Management Plan related to narwhal, seal, Arctic char, caribou, dust and culture, resource and land use.</p>	<p>Baffinland submitted to QIA a timeline and plan for development of AMP plans relevant to QIA ID-07 on January 15, 2023. In same correspondence a meeting of the Adaptive Management Plan Working Group was also requested. QIA to review submission, provide response, and propose timing of first working group meeting.</p> <p>Baffinland is in the process of issuing a revised draft Adaptive Management Plan and a number of revised draft environmental management plans, inclusive of those that relate to narwhal, seal, Arctic char, caribou, dust and culture, resource and land use. The draft Adaptive Management Plan recognizes QIA's approval authority over the adaptive management elements of plans related to narwhal, seal, Arctic char, caribou, dust and culture, resource and land use. The scope of revised draft environmental management plans released for public review include the integration of the adaptive management framework as mutually agreed to with QIA in the draft revised Adaptive Management Plan.</p>	Compliant	In progress
019	<p>Baffinland will support and fund the establishment of the Inuit Stewardship Plan (ISP). Funding will commence November 1st, 2022 and will continue until the completion of the ISP, estimated to occur together with approval of the AMP in April 2024. Baffinland will fund QIA's work to develop the ISP through Monthly Payments which shall commence on November 1st, 2022.</p> <p>QIA will provide the "ISP Workplan" (including a description of the work completed to date and intended inclusion of assessments/studies from QIA-07, QIA-08, QIA-09, QIA-11, QIA-12, QIA-13, QIA-17, QIA-21B, QIA-21F and QIA-23) by October 15th, 2022.</p> <p>QIA agrees to consider payments received by Baffinland for Inuit Certainty Agreement (ICA) implementation received to date as partial payment towards this commitment according to a payment reconciliation completed by QIA not later than October 15, 2022, to determine the outstanding ICA payment amount currently available (the "ICA Implementation Payment Amount"). Completion of the payment reconciliation will ensure Baffinland is prepared in advance to provide funding over and above the ICA Implementation Payment Amount, should that be required.</p> <p>Baffinland will be entitled to reduce Monthly Payments against the amount of the outstanding ICA Implementation Payment Amount, provided the outstanding ICA Implementation Payments are not required for other agreed upon purposes.</p> <p>QIA will provide Quarterly Reports describing activities undertaken, updates to work plans, and, a summary of actual expenses relative to Monthly Payments received.</p> <p>Baffinland will be entitled to reduce future Monthly Payments according to any unspent Monthly Payments as summarized in QIA Quarterly Reports.</p>	<p>QIA - ICA and financial reconciliation is ongoing with respect to funds provided to QIA for the ISP.</p> <p>Initial ISP workshop with impacted communities was conducted in Pond Inlet between Feb.21 to 24, 2023. Work continues on refining work plan, establishing Inuit Committee, Inuit OITRs and Terms of Reference.</p>	Compliant	In progress
020	Baffinland will resource QIA's development of Culture, Resource Land Use, the Pond Inlet Country Food Baseline, and Inuit Stewardship Plan according to the "ISP Work Plan" and "Monthly Payments".	QIA - This work is directly related to the ISP work and the Feb. 2023 workshop held in Pond Inlet. The next workshop is currently being scheduled.	Compliant	In progress
022	Baffinland to provide, by December 31, 2022, a timeline and plan for development of monitoring and AMP plans.	Baffinland submitted to QIA a timeline and plan for development of AMP plans relevant to QIA ID-07 on January 15, 2023. In the same correspondence a meeting of the Adaptive Management Plan Working Group was also requested. QIA was requested to review the submission, provide response, and propose timing of first working group meeting.	Compliant	Complete
023	Baffinland to provide data on which indicators within the draft adaptive management plans have been triggered within the low, medium, and high response levels.	Baffinland is finalizing for submission to QIA a summary report of 2021 environmental monitoring program results compared against the draft trigger, action, response plan (TARP) tables from the Air Quality and Noise Abatement Management Plan (AQNAMP), the Aquatic Effects Monitoring Plan (AEMP), the Marine Monitoring Plan (MMP), the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) and the Socio-Economic Monitoring Plan (SEMP).	Compliant	Complete
024	<p>With 30 days of completion, Baffinland will provide NIRB with:</p> <p>a. Pond Inlet Country Food Baseline Study, verified by QIA and Pond Inlet;</p> <p>b. Culture, Resource Land Use (CRLU) Assessment verified by QIA and the Project-affected communities;</p> <p>Furthermore, Baffinland agrees that when submitting these reports to NIRB Baffinland will also provide an "Action Plan" detailing the monitoring, mitigation(s) and accommodation(s) of impacts on CRLU.</p>	QIA - PICFB and CRLU Assessment will be provided to Baffinland and other implicated parties once completed as per the commitment.	Compliant	In progress
025	Baffinland agrees the NIRB Project Certificate 005 Terms and Condition shall be amended to include a new Term and Condition for shipping and icebreaking according to the wording provided in Appendix B.	On September 22, 2022 Baffinland submitted to QIA a final copy of the joint recommended Terms and Conditions and Commitments that both parties had agreed to in order to secure QIA's support for the approval of the Production Increase Proposal Renewal. This submission included draft new Term and Condition, which was designed to satisfy Baffinland's commitment to QIA ID-13. On November 3, 2022 the NIRB released Project Certificate 005, Amendment No 004, inclusive of the jointly recommended new Term and Condition 185.	Compliant	Complete
026	Baffinland agrees to provide scenario planning exercises to better quantify the costs/benefits of ship convoys.	On February 1, 2023 Baffinland circulated a copy of the 2022 Vessel Convoy Analysis Preliminary Report with the Marine Environment Working Group (MEWG), based on data collected through the 2022 Underwater Acoustic Monitoring Program. The Report includes several additional transit scenario's not included in the 2021 Vessel Convoy Analysis Report, with a primary focus on recording convoys of ore carriers not in escort with an icebreaker. The 2022 Report continues to support the hypothesis from the 2021 Report, which is that vessel convoys can be an effective means to reduce the overall sound exposure throughout the shipping season. Any additional convoy scenarios conducted and recorded in the 2023 Underwater Acoustic Monitoring Program will be reported as part of the regular reporting cycle.	Compliant	Complete
026	Baffinland agrees to conduct a study to determine if the simple seasonal average observer data from Bruce Head and the Leg 2 surveys correlates with the photo estimates for all the years to assess whether these metrics could provide an EWI for the year's results that would be applied in future to increase or decrease shipping at the end of summer.	Baffinland will provide the results of its investigation into the suggested Early Warning Indicator in the 2022 Marine Mammal Aerial Survey Report.	Compliant	In progress
026	Baffinland agrees to resource Inuit-led monitoring, updated Early Warning Indicator, Inuit Objectives, Thresholds, Responses consistent with Condition No. 8.	QIA - This work is directly related to the ISP work and the Feb. 2023 workshop held in Pond Inlet. The next workshop is currently being scheduled.	Compliant	In progress
026	Baffinland agrees to conduct a sampling program to assess cortisol levels in narwhal and morphometric measurements. This would be a systematic program working with harvesters to gather samples, and observations on what they are experiencing and comparing to previous years.	Baffinland collected morphometric data on narwhal via drone footage taken through the Bruce Head Shore Based Monitoring Program in 2021 and 2022, and plans to again in 2023. Additional effort is required to develop a methodology to analyze this data. Baffinland plans to engage the MHTO on the implementation of this commitment, including the component related to working with harvesters to sample cortisol levels in narwhal. Baffinland is cognizant of the time and attention requested of the MHTO in relation to the Mary River Project, which has required Baffinland to prioritize its requests of the MHTO, including this program.	Compliant	In progress

027	Baffinland agrees to work with QIA to develop, by November 1st, 2022, specific technical plans for 2022 for Early Warning Indicators for narwhal. It is recognized that Inuit Objectives, Thresholds, Responses may be developed at a later point in time through the development of the Inuit Stewardship Plan.	On October 31, 2022 Baffinland proposed to QIA to integrate and prioritize work on the development of additional/modified Early Warning Indicators for narwhal through the review of the revised draft Marine Monitoring Plan. On January 15, 2023 Baffinland submitted a timeline and plan for development of AMP plans relevant to QIA ID-07. Baffinland is in the process of issuing a revised draft Adaptive Management Plan and a number of revised draft environmental management plans, inclusive of the Marine Monitoring Plan (MMP).	Compliant	Complete
028	Baffinland agrees to resource QIA to establish an Inuit-led monitoring program on dustfall as an Inuit Stewardship Pilot program to establish the mechanisms needed to allow Inuit observations to influence mitigation measures and test appropriate Adaptive Management Plan structures, which are demonstrably responsive to Inuit Objectives Indicators Thresholds and Responses, with the budget and work plan agreed upon by Baffinland and QIA consistent with Condition No. 8.	QIA - to be included in design of Inuit Stewardship Plan which is ongoing	Compliant	In progress
030	Baffinland and the TEWG will establish site specific thresholds for conditions that may increase dust dispersion (i.e., wind speed), and corresponding mitigations to implement on days where thresholds are met, which may include, but not limited to, the use of additional dust suppression and operational staged decreased in dust generating site activities.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
031	Baffinland will integrate the identified thresholds and response actions into the Air Quality and Noise Abatement Management Plan.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
033	Baffinland will refine the application rates of DustBlok in accordance with manufacturer's instructions and continue ongoing communications with the manufacturer to verify application procedures align with reliable dust suppression performance. Baffinland will provide the QIA with a summary of modifications to the application of DustBlok in 2022, including any relevant advice from the manufacturer, by October 30, 2022.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
034	Baffinland to seek confirmation from regulators as to whether a buffer is required for safe application of dust suppressants along the Tote Road to avoid contamination of surface waters on either side of water crossings and in ditches along the Tote Road.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
035	Baffinland will report bi-annually (i.e. two times a year) on the effectiveness of the DustBlok product for the summer and winter months. Data is collected monthly and results received within 30-45 days upon shipment off site for analysis so reporting over a two month freshet period is not feasible.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
036	Baffinland will provide additional confirmation regarding chutes on the ship loader extending into vessel cargo holds and consider minimizing drop distances at the Mine Site. Minimizing drop distances for stockpiling activities will be a standing topic of discussion at TEWG and MEWG meetings whereby Baffinland shall be required to continuously explore additional mitigations related to ore handling and drop distances, in addition to minimized drop distances already confirmed at the Milne Port stockpiles. Baffinland is also required to describe mitigation measures which could be made to operations and ore transferring/handling under a possible future expanded project (e.g., what could be accomplished in a 2023+ project).	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
037	Baffinland will minimize drop distances (i.e., using adjustable stackers) for stockpiling and other relevant ore handling activities and provide confirmation of any adjustments in subsequent annual reports.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
038	Baffinland will provide updates on the feasibility and installation of wind fencing at Milne Port at each terrestrial Environment Working Group meeting until the initiative is complete. Baffinland anticipates on circulating the feasibility study no later than December 31, 2022, and (assuming feasibility evaluation is positive) the subsequent installation of the wind fencing to commence as soon as materials are received on the 2023 sealift. Recognizing the installation of wind fencing in the high Arctic is a novel approach to dust management, and the logistical challenges in procuring and delivering all required materials, Baffinland commits to best efforts to achieve the dates provided in this commitment, however, should unforeseen challenges arise that are outside of Baffinland's control, Baffinland will immediately engage the QIA in the development of a contingency plan.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
039	Same as QIA ID-20C	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
040	Baffinland will define what other operational practice improvements will be made to minimize dust from Milne Port once the draft Dust Audit Report is received, and clarify how those measures will be implemented. Changes requiring additional infrastructure or materials should be implemented without delay after receiving the materials on the 2023 sealift, and within and within a reasonable timeframe given the final scope of required work. Baffinland will communicate resulting anticipated construction timelines to QIA once confirmed. Operational changes should be implemented immediately.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
041	Same as QIA ID-20E	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
042	Baffinland will complete updated dustfall isopleth modelling with considerations for local topography on wind patterns.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress

043	<p>Baffinland to resource annual snowpack sampling and monitoring through the Inuit led dust monitoring program (see related commitment in the global list related to Inuit led monitoring).</p> <p>Note – Baffinland accepts a funding role but wants to ensure it does not duplicate efforts already agreed to in relation to the Inuit led dust monitoring program.</p>	QIA - these requirements will be factored into upcoming sampling/monitoring programs led by QIA.	Compliant	In progress
044	<p>Baffinland and QIA agree to meet prior to October 31, 2022, unless otherwise agreed, to hold a dust focused meeting with the objective of establishing a reasonable path forward that satisfies this condition.</p> <p>For clarity, the referenced “condition” in this commitment 044 is as stated by QIA in Appendix A to its letter to the Minister of Sept. 26, 2022 titled Re: Confirmation of the adequacy of consultation and accommodation for Baffinland Iron Mine Corporation’s (“Baffinland”) 2022 Production Increase Renewal Proposal (“2022 PIP Renewal”) for the Mary River Project, NIRB File 08MN053 as follows: “Dustfall and soil/lichen metals monitoring sites should be expanded at a minimum to include locations identified as Areas of Community Concern, and the areas where the highest dustfall was identified in the 2021 assessment (We direct BIMC to Section 5.3 of HESL 2022 for site locations).”</p> <p>Until QIA and Baffinland have confirmed commitments for Baffinland to resource and QIA to execute expanded community monitoring programs for dust the responsibility for sampling all sites of community concern shall remain with Baffinland with the expectation this program will continue in 2023.</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
045	<p>Baffinland and QIA agree to meet prior to October 31, 2022, unless otherwise agreed, to hold a dust focused meeting with the objective of establishing a reasonable path forward that satisfies this condition. For clarity, the referenced “condition” in this commitment 045 is as stated by QIA in Appendix A to its letter to the Minister of Sept. 26, 2022 titled Re: Confirmation of the adequacy of consultation and accommodation for Baffinland Iron Mine Corporation’s (“Baffinland”) 2022 Production Increase Renewal Proposal (“2022 PIP Renewal”) for the Mary River Project, NIRB File 08MN053 as follows: “Seasonally monitored dustfall sites should be compared with FEIS predictions to confirm that they meet their current low isopleth zone ranking, and to determine the spatial extent and magnitude of dust dispersion beyond the project area.”</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
045	<p>Baffinland will circulate an action plan to complete the comparison of seasonally monitored sites against FEIS predictions with the TEWG prior to the next meeting. Baffinland will complete this work by March 1, 2023.</p> <p>Note – the revised timing is to permit time for BIM to receive the full annual data set (which does not occur until the end of January), in order to inform the requested work product.</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
046	<p>Baffinland and QIA agree to meet prior to October 31, 2022, unless otherwise agreed, to hold a dust focused meeting with the objective of establishing a reasonable path forward that satisfies this condition.</p> <p>For clarity, the referenced “condition” in this Commitment 046 is as stated by QIA in Appendix A to its letter to the Minister of Sept. 26, 2022 titled Re: Confirmation of the adequacy of consultation and accommodation for Baffinland Iron Mine Corporation’s (“Baffinland”) 2022 Production Increase Renewal Proposal (“2022 PIP Renewal”) for the Mary River Project, NIRB File 08MN053 as follows: “Additional dustfall monitoring locations will help in comprehensively evaluating long-distance dust dispersion. The locations of additional sites should be determined based on results of the updated and expanded isopleth modelling recommended above (see QIA ID-21A).”</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
047	Baffinland will support the development of a snow quality metric, integrating traditional knowledge, as part of the development of Inuit OITRs related to dust from QIA-ID- 7.	QIA -see other updates	Compliant	In progress
048	<p>Baffinland and QIA agree to meet prior to October 31, 2022, unless otherwise agreed, to hold a dust focused meeting with the objective of establishing a reasonable path forward that satisfies this condition.</p> <p>For clarity, the referenced “condition” in this Commitment 048 is as stated by QIA in Appendix A to its letter to the Minister of Sept. 26, 2022 titled Re: Confirmation of the adequacy of consultation and accommodation for Baffinland Iron Mine Corporation’s (“Baffinland”) 2022 Production Increase Renewal Proposal (“2022 PIP Renewal”) for the Mary River Project, NIRB File 08MN053 as follows: “Dustfall monitoring sites should be added along Milne Inlet to investigate increasing dust extent documented by satellite imagery from 2014 to 2020.”</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
049	Baffinland will expand satellite imagery analysis beyond 20km.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
050	Baffinland will complete updated dustfall isopleth modelling with considerations for local topography on wind patterns.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
051	<p>Baffinland and QIA agree to meet prior to October 31, 2022, unless otherwise agreed, to hold a dust focused meeting with the objective of establishing a reasonable path forward that satisfies this condition.</p> <p>For clarity, the referenced “condition” in this Commitment 051 is as stated by QIA in Appendix A to its letter to the Minister of Sept. 26, 2022 titled Re: Confirmation of the adequacy of consultation and accommodation for Baffinland Iron Mine Corporation’s (“Baffinland”) 2022 Production Increase Renewal Proposal (“2022 PIP Renewal”) for the Mary River Project, NIRB File 08MN053 as follows: “A desktop study on dust duration on the land should be designed to identify locations likely to experience longer-term dustfall effects. The study should describe the relative role of runoff and wind in dispersing dust from the land, and consider site-specific factors, such as wind, precipitation, topography, snowpack conditions, and vegetation. These modelling and monitoring recommendations should be implemented by BIMC as a condition of receiving approval from the NIRB for the PIP Renewal.”</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress

051	<p>Within 30 days of QIA providing additional details on their expectations regarding the requested desktop study, Baffinland will circulate an action plan to complete the study with the TEWG prior to the next meeting. Baffinland will include an anticipated completion date at that time.</p> <p>Note – Baffinland is still unclear on some aspects of this proposal, for example, is the focus on areas where dustfall may accumulate, or areas that are more sensitive to dustfall? We’ve also highlighted additional research may be required, which may not be amenable to the timeframes requested of QIA to complete the work. Once additional details are provided we will be in a better position to provide an action plan and a timeframe to complete the work.</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
052	<p>Baffinland and the TEWG will establish site specific thresholds for conditions that may increase dust dispersion (i.e., wind speed), and corresponding mitigations to implement on days where thresholds are met, which may include, but not limited to, the use of additional dust suppression and operational staged decreased in dust generating site activities.</p> <p>Baffinland will integrate the identified thresholds and response actions into the Air Quality and Noise Abatement Management Plan.</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
053	<p>Baffinland will include dust fall monitoring station locations within the scope of the annual dust audit, required under term and condition 187</p> <p>Note – Baffinland can confirm that our terrestrial, freshwater and atmospheric monitoring programs are robust and capture effects that occur within a 5km radius of the Project. It should also be noted that modifying sampling locations will impact ability to complete year over year comparison or trending and should only be reserved for extenuating circumstances.</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
054	Baffinland will review and confirm alignment of dustfall monitoring with existing vegetation monitoring programs.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
055	<p>Baffinland will work with NRCan on a pilot program to install and test their passive vertical monitors at the Mary River Project.</p> <p>Note – Baffinland and NRCan have already initiated planning for the installation of NRCan owned dust monitors at Mary River. Inuit will be involved in location selection. QIA will be consulted on this program bilaterally and as a member of the Terrestrial Environment Working Group.</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
056	Baffinland will implement continuous monitoring of dustfall at PDA boundaries.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
057	<p>Baffinland and QIA agree to meet prior to October 31, 2022, unless otherwise agreed, to hold a dust focused meeting with the objective of establishing a reasonable path forward that satisfies this condition.</p> <p>For clarity, the referenced “condition” in this Commitment 057 is as stated by QIA in Appendix A to its letter to the Minister of Sept. 26, 2022 titled Re: Confirmation of the adequacy of consultation and accommodation for Baffinland Iron Mine Corporation’s (“Baffinland”) 2022 Production Increase Renewal Proposal (“2022 PIP Renewal”) for the Mary River Project, NIRB File 08MN053 as follows: “Finalize methods for bi-weekly regional dustfall extent monitoring using satellite imagery.”</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
058	Baffinland will implement other recommendations for dust monitoring improvements contained within the final Dust Audit Report.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
059	<p>Baffinland will reflect all necessary adjustments in the Air Quality and Noise Abatement Management Plan.</p> <p>For clarity, the referenced “all necessary adjustments” in this Commitment 059 is as stated by QIA in Appendix A to its letter to the Minister of Sept. 26, 2022 titled Re: Confirmation of the adequacy of consultation and accommodation for Baffinland Iron Mine Corporation’s (“Baffinland”) 2022 Production Increase Renewal Proposal (“2022 PIP Renewal”) for the Mary River Project, NIRB File 08MN053 as follows: “These improved methods [those outlined in QIA Recommendations ID-22A to QIA ID-22F] will be included in a revised version of the Air Quality and Noise Abatement Management Plan.”</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
060	Baffinland will review dust controls at all locations where ore is moving or being handled at the mine and port sites for the purpose of determining if additional controls are required.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
061	<p>Baffinland and the TEWG will establish site specific thresholds for conditions that may increase dust dispersion (i.e., wind speed), and corresponding mitigations to implement on days where thresholds are met, which may include, but not limited to, the use of additional dust suppression and operational staged decreased in dust generating site activities.</p> <p>Baffinland will integrate the identified thresholds and response actions into the Air Quality and Noise Abatement Management Plan.</p>	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
062	Baffinland commits to explore the feasibility/potential effectiveness of a remote sensing monitoring program for the requested purpose and from the requested perspective. Baffinland will provide the outcome of this exploration to the TEWG once available for discussion at the next planned meeting.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress
063	The MEWG and TEWG will retain dust as a standing agenda item going forward.	Baffinland and QIA met in-person in Ottawa, Ontario on February 16 and 17, 2023 to discuss progress towards Commitments 030 to 063. Baffinland provided status updates on each commitment, sought clarification from QIA on several items, and developed a mutual path forward on items still in progress.	Compliant	In progress

064a	<p>Baffinland will support and fund a study of North Baffin caribou based on Inuit Qaujimajatuqangit, to be led by the QIA in conjunction with HTOs. This work will be used to identify areas within the vicinity of the Project that are highly sensitive to caribou and to gather data to support the re-estimation of the Zone of Influence around the Project. Once complete, Baffinland and the QIA will re-estimate the Zone of Influence for caribou with input from the TEWG, and determine appropriate mitigation measures to apply in designated Project Protection Zones, including requirements for the suspension of blasting, helicopter overflights, road traffic, and measures to reduce dustfall. Baffinland agrees to implement the revised Caribou Protection Measures upon agreement of the location of Project Protection Zones and the mitigation measures that will apply in these zones. Baffinland also agrees to additional interim measures which shall be developed and will apply until replaced by revised measures as informed by the IQ collection referenced above.</p> <p>Baffinland will resource QIA work associated with this commitment through its funding of the Inuit Stewardship Plan (see QIA-08).</p>	QIA - this specific task has not been initiated.	On Hold	N/A
064b	<p>Until Project Protection Zones are confirmed through the process identified above, Baffinland agrees to implement additional mitigation measures within interim Project Protection Zones, to be delineated and agreed by Baffinland and QIA (with input from the TEWG) based on existing IQ, western science, historical data, and project monitoring to date. The parties agree development of interim Project Zones shall occur by April 30th, 2023 or a date otherwise agreed upon by the TEWG.</p> <p>a) Blasting restrictions within a specified distance to caribou calving and post-calving habitat during the caribou calving period and immediately post-calving, when caribou are present. This restriction should not apply in a manner that prevents essential mining activities at Deposit No. 1 from occurring within the Mary River Mine Site Project Development Area;</p> <p>b) Helicopter operation restrictions within a specified horizontal and/or vertical distance to calving and post-calving habitat during the caribou calving period and immediately post-calving, together with heightened measures that will apply when caribou are present. This restriction should not apply in a manner that fetters environmental monitoring and research, unless caribou are present and associated mitigation measures dictate otherwise;</p> <p>c) Revisions to the Caribou Decision Tree, which is used to manage traffic along the Tote Road in the presence of caribou based on their proximity to the road and behaviour (i.e. stationary feeding, moving towards/away from the road). These revisions will include application of a modified Caribou Decision Tree to include decision trees to inform blasting and helicopter operations.</p> <p>Given concerns about current avoidance of the Project area by caribou, Baffinland agrees to work with the TEWG to identify the additional details required to implement the mitigations outlined in bullets a, b and c. For greater clarity, activities carried out to</p>	Baffinland is developing draft standards of practice to guide helicopter use and blasting when in the presence of caribou. These draft standars of practice will be circulated with QIA and the TEWG prior to being finalized in advance of the 2023 caribou calving season on North Baffin Island (ie May 15).	Compliant	In progress
065	Baffinland commits to additional monitoring at representative streams that lead into Phillips Creek along the Tote Road. Baffinland will develop a draft methodology for this additional monitoring by December 31, 2022 for review by QIA and subsequent implementation of the agreed upon program during the 2023 open water season.	Baffinland continues to work with their freshwater consultant on the draft methodology for this additional monitoring along the Tote Road. The program will entail a sediment and water quality component at four representative crossings along the Tote Road . Baffinland is still on track to obtain feedback from QIA and is committed to implementing such program during the 2023 open water season.	Compliant	In progress
066	<p>See Response to QIA ID-24A.</p> <p>Additional commitments related to this technical comment include:</p> <p>Baffinland commits to adding additional parameters to its current Tote Road Monitoring Program for two years to understand if [tire residues are] a potential concern at the Project. This will be implemented in consultation with QIA. Baffinland will connect with relevant academics, such as the University of Saskatchewan, to gain further insight into this monitoring.</p>	<p>On March 9, Baffinland provided a draft program outline to QIA via email, confirming the intent to monitor for concentration of 6PPD-Quinone in 2023 in water at the following six crossings along the Tote Road (BG-24, CV-217, CV-040, BG-50, CV-078, CV-128) where Group 4 water quality analytes are currently collected as per the Tote Road Monitoring Program (TRMP). These Fish-Bearing crossings represent various areas along the road, across all three watersheds. As per the TRMP, water samples will be collected 100 metres downstream and 50 metres upstream of each monitored water crossing. The sampling frequency will follow the same schedule as Table D-5 – Monitoring Frequency for Additional Parameters (Group 4) in the TRMP.</p> <p>In the same communication Baffinland confirmd that it had conducted a pilot sampling event in August 2022, and was able to sample for 6PPD-Quinone. Analytical results from the August 2022 sampling event were all non-detect (<0.0020 ug/L).</p> <p>Baffinland anticipates further discussion with QIA before the program is finalized and integrated into the TRMP, prior to the next available sampling period following freshet in 2023.</p>	Compliant	In progress
067	<p>Baffinland will update the next revision of the AEMP to include this commitment:</p> <p>any exceedance of the 0.54 mm moderate risk level will trigger additional study to validate the thresholds relative to impacts on arctic char eggs. A low risk threshold of 0.15 mm will also be applied that will trigger corresponding low risk response actions.</p> <p>This commitment will be implemented immediately under the current operation.</p>	Baffinland is in the process of issuing a revised draft Aquatic Effects Monitoring Plan, which included a moderate risk level trigger of 0.54mm and an associated response to validate the threshold, if triggered, through a study of impacts on Arctic char eggs.	Compliant	Complete
068	Baffinland agrees the NIRB Project Certificate 005 Terms and Condition shall be amended to include a new Term and Condition for Hunters' Access Route(s) according to the wording provided in Appendix B.	On September 22, 2022 Baffinland submitted to QIA a final copy of the joint recommended Terms and Conditions and Commitments that both parties had agreed to in order to secure QIA's support for the approval of the Production Increase Proposal Renewal. This submission included draft new Term and Condition, which was designed to satisfy Baffinlands commitment to QIA ID-25. On November 3, 2022 the NIRB released Project Certificate 005, Amendment No 004, inclusive of the jointly recommended new Term and Condition 186.	Compliant	Complete
069	<p>That Baffinland and QIA undertake to, no later than January 31, 2023:</p> <p>a) Amend the IIBA (2018) to include Inuit Certainty Agreement Schedule "C".</p> <p>b) Amend the WCA (2013) consistent with ID-17 Section 17.1.5(a), (b), (c), (d) and (f) of the Inuit Certainty Agreement.</p> <p>In order to address ongoing concerns regarding difficulties Inuit are experiencing in accessing wildlife compensation funding, Baffinland and QIA will work together to review and address the working and efficacy of the administration of the Wildlife Compensation Fund. The Parties will implement changes to the protocol, including claims procedure and substantive criteria, all intended to improve Inuit access to the Wildlife Compensation Fund.</p>	On December 9, 2022 Baffinland provided a revised draft Mary River Inuit Impat Benefit Agreement (IIBA) to QIA. On March 15, 2023 Baffinland provided a revised draft Water Compensation Agreement. Baffinland and QIA are working to agree to a revised timeline to complete final edits to the IIBA and WCA.	Compliant	In progress

070	<p>That Baffinland agrees to a process to amend the Inuit Impact Benefit Agreement to implement changes to Project Management, Adaptive Management Plan, Benefits and oversight as agreed in all relevant commitments in this document including but not limited to QIA-ID- 4, QIA-ID-7, QIA-ID-8, QIA-ID-9, QIA-ID 26 and QIA-ID-29.</p> <p>This commitment will be complete once incorporated in the amended IIBA and no further reporting under the Project Certificate on this item will be required after that time.</p>	<p>On December 9, 2022 Baffinland provided a revised draft Mary River Inuit Impat Benefit Agreement (IIBA) to QIA. On March 15, 2023 Baffinland provided a revised draft Water Compensation Agreement. Baffinland and QIA are working to agree to a revised timeline to complete final edits to the IIBA and WCA.</p>	Compliant	In progress
072	<p>Baffinland accepts QIA proposal on Measurable Objectives pertaining to the June 2020 ICA commitments which provides objectives for measuring IIBA implementation performance. The 16 Measurable Objectives topics that have been agreed to include: MIEG Reporting; Inuit Career Mobility Strategy Objective; IIBA Orientation Package Objective; New Hire Objective; Vacancies Objective; Career Mobility Objective; Inuit Opportunities Objective; PIF Objective; Contracting Reporting Objective; Workshops and Assistance Objective; Education and Training Spend Objective; Inuit Societal Values Objective; Monthly Reporting Objective; Inuit Content Objective; Inuit Firm Awareness Objective; and Emergency Shelter Objective.</p> <p>This commitment will be complete once incorporated in the amended IIBA and no further reporting under the Project Certificate on this item will be required after that time.</p>	<p>On December 9, 2022 Baffinland provided a revised draft Mary River Inuit Impat Benefit Agreement (IIBA) to QIA.</p>	Compliant	In progress
074	<p>Baffinland commits to incorporating IQ and scientific knowledge in monitoring.</p>	<p>Baffinland is in the process of issuing a number of environmental management plans for public review through the Nunavut Impact Review Board. The environmental management plans in this package each contain sections (as they always have) detailing how IQ is to be collected and used within the context of our environmental monitoring programs. The management plan package also includes a revised IQ Framework, which provides a general understanding of how IQ is to be treated with respect to the Mary River Project, inclusive of its monitoring programs.</p>	Compliant	In progress
075	<p>Baffinland commits to continue to work towards the completion of a caribou research agreement and data sharing agreement in support of regional caribou monitoring initiatives for the current project.</p>	<p>On March 9, 2023 Baffinland provided its final comments on the draft Data and/or Sample Sharing Agreement (DSSA) back to the Government of Nunavut to finalize and sign. Following the completion of the DSSA Baffinland and the GN will develop a companion Research Contribution Agreement (RCA). Baffinland appreciates the sustained efforts of the GN to complete these agreements and looks forward to their full implementation.</p>	Compliant	In progress
075	<p>Baffinland commits to including an agenda item on the next TEWG meeting agenda as a placeholder for the GN to provide their clarifications on items requested in GN-1 and for Baffinland to respond. Baffinland will provide the NIRB a record of meeting minutes and resolution on this agenda item in the 2022 NIRB annual monitoring report.</p>	<p>On January 10, 2023 Baffinland offered, via email, the GN representative to the Terrestrial Environment Working Group (TEWG) an opportunity to present on the subject outlined in Commitment 075 at the February 14, 2023 in person meeting in Ottawa, Ontario. The GN representative did not request time in the agenda to discuss this subject and Baffinland considers this commitment closed.</p>	Compliant	Complete
077	<p>Baffinland confirms its commitment to continue with existing marine mammal monitoring programs and to continue to progress its approach towards adaptive management.</p>	<p>Baffinland presented its 2023 marine monitoring plans to the Marine Environment Working Group (MEWG) on February 15, 2023 at an in-persn meeting in Ottawa, Ontario. These plans include aerial abundance and compisition surveys, shore based (Bruce Head) surveys, underwater acoustic monitoring, marine environmental effects monitoring and the ship-board observer program. These are the same programs that Baffinland has run in the marine environment since 2019. Any changes to the frequency of programs will be discussed with the MEWG prior to the new frequency being implemented.</p>	Compliant	In progress
078	<p>Baffinland proposes to hold a special meeting of the MEWG to identify, evaluate, and select additional adaptive management indicators, thresholds, and responses to integrate into a final MMP to apply should there be a 2023 shipping season and beyond. To prepare for this meeting, Baffinland requests that any Member proposals on adaptive management indicators and thresholds (EWIs) provide detailed written recommendations, including available baseline data, sampling methodology to ensure statistical power in comparing yearly collected data to baseline data, and proposed thresholds for identifying change.</p>	<p>Baffinland is in the process of issuing a revised draft Marine Monitoring Plan for public review through the Nunavut Impact Review Board. The draft revised MMP includes a tiered approach to adaptive management, that sets low, moderate and high risk thresholds for agreed upon indicators that require prescribed response actions when exceeded. The 'low' risk threshold level is equivalent to the concept of the 'Early Warning Indicator', where low risk thresholds are set at levels that do not indicate a significant environmental effec is occurring, but could indicate a trend towards one, and is meant to prevent the moderate or high risk threshold from being exceeded. Through the public review process Baffinland expects members of the Marine Environment Working Group (MEWG) and other interested parties to provide suggestions relating to adaptive management, inclusive of the concept of EWI's as low risk thresholds.</p>	Compliant	In progress
079	<p>Baffinland will continue to work with DFO and other qualified external experts regarding Marenzelleria specimens recorded in the Project area, and specifically on the identification of Marenzelleria wireni and Marenzelleria arctia, to determine source of origin.</p> <p>This commitment applies to future specimens, if found.</p> <p>Baffinland proposes that it continue to conduct genetic barcoding on aquatic samples and DFO conduct population genetic analysis as a complementary monitoring measure to Baffinland's ongoing genetic barcoding on aquatic samples.</p>	<p>Two specimens of Marenzelleria sp. were identified in benthic samples in 2022. Biologicala indicated that the specimens from 2022 closely matched the description for M. wireni, an Arctic species known to occur in Milne Port, however, the features required to make a confident identification of species were damaged or missing. The identification was left at the genus level as a precaution. Due to the missing features, the specimens were not sent for independent review as it was unlikely to be further resolved. This was presented to the Marine Environment Working Group (MEWG), which includes DFO, on February 15, 2023 at an in-person meeting in Ottawa, Ontario. Baffinland will continue to discuss the two specimens of Marenzelleria sp. with DFO and other interested parties through the regular reporting cycle.</p>	Compliant	In progress

MHTO-28 ATTACHMENT 1

Table MHTO-28: Summary of Response Variables Investigated for Narwhal in RSA (All Baffinland Programs)

Response Variable #	Response Variable Description	Monitoring Program	Data collection Method	Reference source
1	Change in relative abundance	Bruce Head; SBO	visual from cliff (SSA); visual from ship; AIS ship tracking data	Golder 2020a, 2022; WSP 2023a
2	Change in density	Bruce Head	visual from cliff (SSA); AIS ship tracking data	Golder 2022; WSP 2023a
3	Change in group size	Bruce Head	visual from cliff (BSA); AIS ship tracking data	Golder 2022; WSP 2023a
4	Change in group composition (presence of immatures)	Bruce Head	visual from cliff; imagery from drone; AIS ship tracking data	Golder 2022; WSP 2023a
5	Change in number of immatures relative to observed population (EWI)	Bruce Head, Aerial Surveys	visual from cliff (SSA); photographic from aircraft	Golder 2022; WSP 2023a; 2023b
6	Change in group spread	Bruce Head	visual from cliff; imagery from drone; AIS ship tracking data	Golder 2022; WSP 2023a
7	Change in group formation	Bruce Head	visual from cliff; imagery from drone; AIS ship tracking data	Golder 2022; WSP 2023a
8	Change in group direction	Bruce Head	visual from cliff (BSA); AIS ship tracking data	Golder 2022; WSP 2023a
9	Change in travel speed	Bruce Head	visual from cliff; imagery from drone; AIS ship tracking data	Golder 2022; WSP 2023a
10	Change in distance from shore	Bruce Head	visual from cliff (BSA); AIS ship tracking data	Golder 2022; WSP 2023a
11	Change in primary behaviours (drone)	Bruce Head	imagery from drone; AIS ship tracking data	Golder 2022; WSP 2023a
12	Change in unique behaviours (drone)	Bruce Head	imagery from drone; AIS ship tracking data	Golder 2022; WSP 2023a
13	Change in nursing behaviour (drone)	Bruce Head	imagery from drone; AIS ship tracking data	Golder 2022; WSP 2023a
14	Change in the relative and distal association of immatures with mother	Bruce Head	imagery from drone; AIS ship tracking data	Golder 2022; WSP 2023a
15	Change in surface time	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
16	Change in dive duration	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
17	Change in bottom dive behaviour (when diving to bottom pre-exposure)	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
18	Change in bottom dive behaviour (when not diving to bottom pre-exposure)	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
19	Change in dive rate	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
20	Change in time spent at depth	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
21	Change in descent speed	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
22	Change in turning angle	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
23	Change in travel speed	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
24	Change in spatial distribution (horizontal displacement)	Narwhal Tagging Study	animal-borne tag data, AIS ship tracking data	Golder 2020b
25	Change in call counts	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Radkte et al. 2023
26	Increase in broadband (unweighted) ambient noise levels	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Sweeney et al. 2022
27	Increase in narwhal acoustically-weighted noise levels	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Sweeney et al. 2022
28	Exceedance of noise injury thresholds	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Austin et al. 2022
29	Exceedance of disturbance thresholds	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Austin et al. 2022
30	Listening Range Reduction (LRR) at 1 kHz	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Austin et al. 2022
31	Listening Range Reduction (LRR) at 1 kHz (burst pulses)	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Austin et al. 2022
32	Listening Range Reduction (LRR) at 5 kHz (whistles, knock trains)	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Austin et al. 2022
33	Listening Range Reduction (LRR) at 25 kHz (clicks, high frequency buzzes)	Acoustic Program	acoustic monitoring data; AIS ship tracking data	Austin et al. 2022

MHTO-38 ATTACHMENT 1

Minister Dan Vandal
Minister of Northern Affairs
Government of Canada
Ottawa, Ontario

Dear Minister Vandal;

RE: Elders of Pond Inlet. Those born between 1945 to 1955 were Knowledge Holders and instrumental in the outlaying the, "Vision", for the community of Pond Inlet. Beneficiaries under the Nunavut Agreement are most affected. When Inuit Qaujimajatuqangit are the used as the base, on environmental issues, they have to be heard for the sake of our future.

Meeting Participants: Elijah Nashook, Jayko Alooooloo, Sheatie Tagak, [REDACTED], Elijah Panipakoocho.

Reasons:

When Mary River Projected started, those born between 1928 and 1945 were very much in support of Mary River Project, for they knew that through the Nunavut Agreement which was negotiated by Inuit, there would be opportunities for employment for Inuit and Inuit Businesses would also benefit, for these were already put in place so our future generations will have opportunities to have employment, and growth benefits to the communities. This would not only benefit Nunavut, but also Canada as a whole.

In the years between 1923 and 1964, there was a seasonal coal mining in the vicinity of the now, community of Pond Inlet. This benefited a lot of families, living in the vicinity of Pond Inlet, Arctic Bay, Igloolik, and Clyde River. When Mary River started, there was expectations from the community that employment and benefits would flow as they did in the past.

Therefore, when Baffinland started in 2000, the Elders were very happy that there would be more employment opportunities for the community. Qikiqtani Inuit Association then started negotiating and concluding the Inuit Impact Benefits Agreements, which identified what benefits would be forthcoming.

Then recently the Nunavut Impact Review Board decision in not supporting Phase 2 of Baffinland Mine, there was sadness of our Elders, who had hoped to see a positive outcome. This came clear that employment opportunities, training opportunities, future business opportunities, and even future wildlife monitors around the project, that were anticipated, were not going to happen.

Decision Statements by NIRB, that were announced in Pond Inlet and Iqaluit, this is what we heard that were misleading:

Those that were not born in Pond Inlet stated that there were no more narwhales and that the hunters were not getting any narwhales. That is not true at all! In the year, 2020-2021, Inuit of Pond Inlet did go over the limit of their narwhale quota. The Fisheries and Oceans did in fact had to give them from previous year's quotas to make the difference. Pond Inlet residence over harvested that year, 2020-2021.

Concerning seals, the numbers have not changed, those hunted have not decreased or have risen in numbers.

Concerning caribou, Inuit have known that they have a cycle of migration, that usually takes about 50 years before they return to where they had left, following their migration routes. They would go far distances to other

lands. We are now hearing that the caribou are now coming back as know in Inuit Qaujimagatuqangit.

Environmental Impact Statements:

There are comments and statements that mining affects wildlife both terrestrial and marine, but we, as Elders know, the truth. We know that both Department of Environment, and Fisheries and Oceans did not in their written submissions, present strong evidence, to believe, and like wise, those who are actual Nunavummiut did not present strong evidence of what we all heard to say that is the truth.

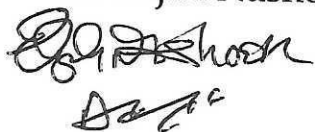
NIRB decision not to approve Phase 2 was based on assumptions of what the impact would be, and the opposers who came out so negative about our future was more prevailing than that of the truth.

Where is the Truth?

We believe that Nunavut Impact Review Board and the Minister know what is needed in Nunavut, Beneficiaries of Nunavut Agreement, and certainly for Canada, for growth.

Elders believe that and looks forward, for Inuit and Mining Developments working hand in hand in our Territory,

Elder Elijah Nashook



cc.

Qikiqtani Inuit Association

Nunavut Tunngavik Incorporated

Government of Nunavut

Mittimatalik Hunters and Trappers Organization

Hamlet of Pond Inlet

Nunavut Impact Review Board

Baffinland Iron Mines

Member of Legislative Assembly, Tununig

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[illegible][illegible]

- Qikirtani Inuit Assoc
- Nunavut Tungavik
- Nunavut Government
- MHTO
- Hamlet of Pond Inlet
- NIRB
- Baffin Land
- MCA

APPENDIX 2

ON ATTACHMENTS

ON – EXECUTIVE SUMMARY ATTACHMENT 1

ON – Executive Summary Attachment 1

Comment:

“Oceans North is submitting our comments in light of the significant narwhal decline, broadly observed and reported in the North Atlantic Marine Mammal Commission (NAMMCO) report (the Report). This report details the impacts of vessels and the resulting high probability of extirpation of narwhal from Eclipse Sound should not change occur to current disturbance levels.”

Response:

NIRB should be aware that Baffinland and its third party advisors have also had an opportunity to review the recently released NAMMCO Workshop Report (NAMMCO 2022) and have identified several serious and fundamental issues with this manuscript, as summarized in more detail below. The use of the 2022 prediction from a flawed model formed the basis for the projected conclusion of the 2023 narwhal numbers referenced by Oceans North. Given that the actual 2022 numbers are 23 times larger than that used for the predicted conclusion, it is clear that the 2023 prediction cannot be considered valid.

What follows provides a summary of some of the serious problems with the NAMMCO Workshop Report:

- The Report is a summary arising from a two day invitation only workshop, which WSP was not included in despite its expertise and relevant experience with this topic, nor Baffinland.
- The Report does not appear to give due consideration of IQ relating to fidelity of narwhal within the North East Baffin Island (NEBI) area.
- A biased study design and methodology were employed, which did not properly consider that narwhal are more likely to exhibit greater disturbance to ship noise if they were immediately pre-exposed to seismic (air gun) noise, compared to if they were exposed to shipping noise alone. Further, the study did not properly take into account background noise, and did not take into account the multiple years of scientific monitoring that has been carried out by WSP that provides data on actual observed behavior by narwhal in Eclipse Sound that encounter ships.
- The Report relies on a flawed metapopulation model with clear data deficiencies as inputs. As a result the abundance predictions based on the predictive model are not reliable. As an example, the model predicted only 203 narwhal in Eclipse Sound in 2022, when in fact, survey data identified a total of 4,592 narwhal (which was an increase over 2021 numbers).
- For some study components, support data was simply unavailable, but for other study components, relevant data was clearly not considered in the NAMMCO Report. Some data selected incorporates bias, as further described below.
- The Report includes the following disclaimer: “The content of this report contains the views of the Working Group and does not necessarily represent the views of the NAMMCO Scientific Committee, the Management Committees or the Council.”
- Given these deficiencies, the report is not material, reliable or relevant evidence for NIRB and should be given no consideration or weight by NIRB in its decision making on the SOP.

Further details are set out below.

The Report is a Meeting Summary without Peer Review or Endorsement by the NAMMCO Scientific Committee, the Management Committees or the Council

- The NAMMCO Report reflects discussions arising out of a workshop held by the NAMMCO-JCNB Joint Working Group on narwhal and beluga from Dec. 12-16, 2022. This workshop purported to “assess” the impacts of shipping and mining of the Mary River and Dundas mining projects on marine mammals with focus on narwhal and walrus populations, respectively, but no assessment was carried out at all.
- The Board should be made aware that the NAMMCO Report is not a peer-reviewed manuscript or journal article, and as such, has not undergone a formal peer-review process that subjects the authors’ scholarly work, research, or ideas to the scrutiny of others who are experts in the same field (peers), a process which is considered necessary to ensure academic scientific quality. Nor has a process similar to the review of the annual monitoring reports prepared for the Mary River Project. The Report itself reads less as a report, but more akin to a workshop summary (meeting minutes).
- WSP as primary author of the key marine monitoring studies at the Mary River Project was not invited to this workshop, despite invitations being extended to other individuals (including an employee of Oceans North). This seems a significant relevant omission.
- The Report includes the following disclaimer: “The content of this report contains the views of the Working Group and does not necessarily represent the views of the NAMMCO Scientific Committee, the Management Committees or the Council.”

The Report does not consider Inuit Qaujimajatuqangit that “there are no summer stocks” and that distribution and abundance change across NEBI waters between years.

- The Report does not consider IQ shared by QWB to the NWB in March 2022 (QWB, 2022) that indicates:
 - 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.
 - Narwhal also move freely and widely from day to day, from week to week and from month to month in 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.
 - 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.
 - 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 concentrations, killer whales, and ships. Narwhal also probably move in response to factors largely unknown to humans.
 - 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.

- 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.
- 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. Eric was referring to three hypothetical summer stocks delineated by DFO in the above-mentioned 2013 science-based management plan. According to IQ, the three summer stocks of narwhal do not actually exist in reality within the waters of NEBI!
- 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.). DFO’s telemetry data 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.
- At that 2020 workshop, delegates from all six HTOs agreed that DFO’s 2013 hypothetical summer-stock management system was not supported by Inuit Qaujimajatuqangit, and unduly restricted harvesting by Inuit in contravention of sections 5.3.3 and 5.6.50 of the Nunavut Agreement.”
- See also Baffinland responses to MHTO-24, MHTO-26, MHTO-28, and ON-1.

The Report Relies on a Study with a Biased Methodology

- Many of the conclusions of the NAAMCO workshop participants are based on findings of studies from a narwhal noise exposure experiment conducted in Greenland () exposing narwhal to noise from seismic airguns and vessel noise. The workshop participants appear to mainly draw conclusions based on speculations in the Discussion section of the report rather than on direct findings of the report.
- The following are some technical comments on the Heide-Jørgensen et al. (2021) report that do not support the conclusion of workshop participants:
 - The study only considers narwhal responses to vessel noise exposure that followed previous exposure to airgun (seismic) noise. Pre-exposure to seismic noise could have made narwhal more responsive to noise from the seismic vessel itself and should not be extrapolated to apply to the case of narwhal behavioural responses to vessel noise only. Experiments conducted by Miller et. al. (2011), exposing killer whales, sperm whales, and long-finned pilot whales to simulated naval sonar sounds, demonstrated that the whales exhibited stronger behavioural responses to “silent approaches” (i.e. trials when the sonar source was inactive, so called “inter-trials”) that followed a previous “exposure approach” (i.e. trials with the sonar source actively transmitting) than to “silent approaches” that were the first test. Behavioural responses were minor to none when the silent approach was the first approach. That study recommends that “silent approaches” (so called, “inter-trials”) should be made before the first “exposure” condition being tested (Miller et al, 2011). **In plain language: the response of narwhal to ship noise is not the same as the reaction of a ‘stressed’ narwhal responding to ship noise. This study should not be used to draw conclusions relating to routine shipping, particularly at the low speeds (9 knots) in place at the Mary River Project. Narwhal**

reactions to seismic noise are known to consist of high-severity responses (i.e. flee or escape behaviors).

- The airguns employed in the Heide-Jorgensen et. al. (2021) study emit impulsive sounds, that are not equivalent in nature to the steady-state non-impulsive noise that is generated by vessels. Physiological and behavioural responses to these two different types of sound sources cannot be assumed to be equivalent due to the different characteristics of these types of sound. Impulsive noise sources (like airguns) have the potential to produce both temporary and permanent hearing loss to marine mammals, and it is reasonable to expect a stronger behavioural response to such sources. In contrast, non-impulsive vessel noise does not reach sound levels loud enough to cause hearing impairment and is less likely to elicit a similar behavioural response in marine mammals. Behavioural responses from Heide-Jørgensen et al. (2021) therefore cannot be extrapolated as being directly applicable to the assessment of Baffinland's shipping activities. **In plain language, the study did not compare the same types of noise exposure and cannot be used to draw conclusions about steady state sound produced by vessels.**
- Current scientific understanding is that marine mammal behavioural responses are not mediated solely by the level of sound being received; the context of noise exposure is also very important (Ellison et al 2011, Southall et al 2007, Finneran et al. 2017). The context of exposure to impulsive airgun noise in the Heide-Jørgensen et al. (2021) experiment is not equivalent to the context of exposure to less-impactful, non-impulsive noise from the predictable passing of slow-moving vessels along a fixed transit route that describes the noise exposure context during Baffinland shipping. **In plain language, if an animal is stressed before it is exposed to a new stimuli, its response will not be the same.**
- Many field-based marine mammal behavioural response studies indicate that when marine mammals are far (e.g. >10 km) from a sound source, where received sound levels are low to moderate, the probability of behavioural response does not correlate with increasing sound levels (Finneran et al. 2017). This implies that at such distances the marine mammals are not responding to a change of received sound level, but rather that a behavioural response at this distance is more likely to be associated with the context of the exposure including the physical presence and motion of the sound source as well as the marine mammal's state at the time of exposure (Finneran et al. 2017, Ellison et al. 2012; Southall et al. 2007). **In plain language, sounds wash out as background noise increases. Animals are primarily responsive to unusual stand out noises in their environment versus noises barely perceivable above background noise. Seismic noise is an unusual stand out noise.**
- No long-term effects of the response study could be detected – this is counter to the workshop participant conclusions that exposure to less impactful vessel noise from Baffinland shipping would result in permanent or large scale displacement of narwhal from Eclipse Sound. **In plain language, participants drew effects from the study that were not supported. Baffinland has studied the animals for 6 years intensively, and responses are so subtle that they are not responding or getting out of the way of the ship. “Fleeing” behavior has not been observed, nor high speed movement away from ships. Animals commonly remain within the presence of the ship.**
- The study emphasized the importance of vessel noise as a source of disturbance however no effort was made to distinguish responses to vessel noise from response to noise from the multi-beam echo sounder (MBES) source in operation on the vessel.

MBES noise is directly audible to narwhal but vessel noise is mainly outside of, or at the low end of, the hearing sensitivity range for narwhal. In plain language, the MBES was much louder than the vessel itself, and it is a source of bias as it was operating throughout the study. **The sound from the MBES would have been more disturbing than the lower vessel noise, and for unknown reasons that bias is ignored.**

- The study implies that narwhals were responding to airgun and vessel noise at the level of background sound levels. The reported “background levels” are unexpectedly high, as noted in the paper itself. It would be better to refer to this as baseline levels, as these levels are not likely representative of true ambient levels but rather of the minimum measurable level for the acoustic recording equipment/setup used. This result should not be extrapolated to other situations and assume that responses would be expected at levels lower than true ambient levels. **In plain language, one cannot assume background noise to be the same across multiple study periods. Background noise varies and should not be an assumption - actual data should be used.**

The Report Relies on a Flawed Metapopulation Model (as Demonstrated by its Gross Underestimate of 2022 Narwhal Numbers)

- The Witting et al. (2023) report, which is the basis for the forward-projected narwhal population estimates in the NAMMCO Report, utilizes a modified version of the ‘metapopulation’ model (Witting et al. 2019) developed by the Joint Working Group (2021) to estimate emigration and immigration rates for a total of 8 summer narwhal feeding areas in the Baffin Bay region of East Canada and West Greenland pre- and post- 2007.
- Due to the extremely limited amount of data used to develop the model, the Witting paper is primarily an exercise in using expert knowledge to assess the sustainability of current and future catches. This is acknowledged by Witting et al. who state that ‘the estimation of parameters is not the purpose of this study.’ **In plain language, this model did not take into account available and relevant information (including information on Eclipse Sound narwhal behavior that is publicly available, well known to some participants of the workshop, or supplied by WSP if asked) and instead drew conclusions based on inadequate data points that could not properly support the conclusions based on professional judgment that the NAMMCO workshop participants draw. Due to the lack of data available, it is not appropriate to run this model and have any confidence in the results.**
- Witting et al. (2019) justify fitting the population dynamic model to each aggregation independently on the grounds ‘that the meta-population model is robust to unbalanced data sets.’ However, the use of a hierarchical model structure would have allowed the pooling of information among the aggregations while accounting for the imbalance in the data sets (Davies and Gray 2015). Finally, it should be noted that the term meta-population suggests that the modeling approach accounts for migration among the populations which is not the case (Dallas et al. 2020). **In plain language, the approach that was used did not follow established scientific methods for addressing data gaps.**
- It is unclear why the fact that the 50% parameter estimates for Smith Sound, Jones sound, and Melville Bay are greater than the upper 90% CI for Admiralty Inlet is not considered evidence for immigration particularly in the case of Melville Bay where visual inspection of Figure 2 in Witting (2023) suggests that approximately 85% of the probability mass is greater than 0 (Berner and Amrhein 2022). **In plain language, it appears that evidence of immigration and emigration are applicable to these stocks, but is precluded as data variability.**

- Taken at face value, the annual abundance estimates for Eclipse Sound and Admiralty Inlet are consistent with an increase in the number of narwhals in Admiralty Inlet between 2003 and 2010 and a decrease in Eclipse Sound between 2004 and 2012. Furthermore, given the proximity of the two areas and the similar rates of change it is also reasonable to conclude that the changes primarily represent displacement of individuals from Admiralty Inlet to Eclipse Sound. However, although the data are consistent with shipping being partly or even solely responsible for the apparent migration, the limitations of the data and the analytic approach suggest that Witting (2023) is overly confident when he states that “increased shipping of iron ore is by far the most likely cause.” In fact, despite the limited information, the data nonetheless suggest that large-scale migrations among feeding areas may not be uncommon. Of Inglefield Bredning and Somerset Island, which are the only other feeding areas for which an informative estimate of migration is possible, the data for the latter are consistent with the immigration of ~13,000 individuals between 1981 and 1996. And in the case of Admiralty Inlet the data are consistent with the emigration of ~23,000 individuals between 1975 and 2002 (there is only one data point for Eclipse Sound prior to the increase in shipping which prevents detection of any trend). Finally, Witting’s (2023) conclusion that it is highly probable that the concurrent timing of the increase in shipping and the emigration of individuals is causal is further weakened by the use of a simple before-after (BA) analysis (Christie et al. 2019) based on a post-hoc fixed break point (Fraser et al. 2018). Stronger evidence might be provided by an analysis that relates the annual migration patterns to the actual shipping activity via a causal network (Kaikkonen et al. 2021). Again, the data paucity in the other breeding grounds is inappropriately leveraged to suggest immigration/emigration is not occurring in those areas. Immigration/emigration could be occurring in these areas – the appropriate data is not available or has not been collected to test this hypothesis, and so it is inappropriate to draw the conclusions drawn given these data deficiencies.
- The 2022 narwhal abundance estimate for Eclipse Sound based on 2022 aerial survey data was 4,592 narwhal (90% CI of 3,754-5,617 narwhal). This mean estimate is 23 times higher than the value predicted by Witting (2023). This suggests that the population model used by Witting (2023) does not reliably account for the population dynamics in the two areas. **In plain language, Witting predicted only 203 narwhal would be in in Eclipse Sound in 2022, a gross underestimate of the actual 2022 aerial survey results of 4592 narwhal. This clearly illustrates the unreliability of Witting’s model and weak predictive power.**
- The 2007 breakpoint in population abundance used by Witting (2023) and included in the NAMMCO Report was based on an analysis of shipping in the entire NORDREG shipping zone (Pizzolatto et al. 2014). That is, a vessel present anywhere within the NORDREG zone, whether at Eclipse Sound or north of the Northwest Territories, would be included in the shipping dataset. The reliance on this dataset is incorrect, since it does not reflect shipping trends in the areas of interest (e.g., Eclipse Sound and Admiralty Inlet). The analysis of shipping data separated into Eclipse/Milne, Admiralty Inlet, and Lancaster Sound zones indicates that different breakpoints exist for the four areas – 2013 and 2016 for Milne/Eclipse, 2014 for Admiralty Inlet, 2012 for Lancaster Sound. **In plain language, the overly broad data set did not focus on the relevant shipping data and so has limited relevance on shipping occurrence in Eclipse Sound.**
- For three of the summering areas in the population model (Smith Sound, Jones Sound, and East Baffin Island), only one or two years of data are available. Data availability also differed between the areas; for example, Eclipse Sound data were available between 2004 and 2022, while for Admiralty Inlet, abundances were available for 1975 and 1981. Despite these differences and overall data scarcity, a complex population model was developed, and abundances were

estimated from 1970 to 2025 for all areas. These hind- and fore-casts are then discussed without supporting data (for example, the predicted population collapse in 2022 (which did not in actuality occur, and in fact saw 2022 increased numbers as compared to 2021), discussed above). **Put another way, there was no available data to compare to any of the other summering grounds outside Eclipse Sound and Admiralty.**

- It is unclear why other breakpoints in the time series were not examined, as it is possible that the change in narwhal population abundance did not happen in the same year as the increase in shipping. It could be beneficial to fit several models with different breakpoints and assess their respective fit to the data. This would allow assessment of whether there is a lag (or a mismatch) between shipping data time series and narwhal population abundance. From a visual inspection of Admiralty Inlet and Eclipse Sound results, it appears likely that an earlier breakpoint may fit the data better. **As a plain language comment it is not clear why only one breakpoint was focused on rather than considering other available reasonable breakpoints.**
- The modeling results presented for Admiralty Inlet prior to the 2007 breakpoint appear to not fit the data well. Specifically, the 90% confidence interval of the predicted population estimates does not include two of the three annual means available for that time period, suggesting that the predicted Admiralty Inlet trend may not correctly represent the population dynamic in the area. **Simply put, the data is not accurately represented.**
- The assessment of climate change hypothesis by visualizing August and September sea surface temperature between 2010 and 2022 had several shortcomings:
 - The time series did not start early enough, even though the Copernicus data for sea surface temperatures are available starting in 1993.
 - The data resolution was too low – assessment of trends on a monthly basis is too coarse, since narwhal movement into the summering areas (that is, the migration decision making) occurs on a shorter time scale. That is, the data should have been assessed on a weekly resolution.
 - Other variables, such as bottom temperature and percent of area taken by sea ice, should have been included in the assessment.
- The NAMMCO workshop conclusions ignore the fact that there was a decreasing trend in the estimated abundance of narwhal in Eclipse Sound (corresponding with an inverse increasing trend of narwhal in Admiralty Inlet) that has been observed since 2004, and that these trends were in place well before Baffinland shipping commenced in the RSA in 2015. **There is clear evidence, supported by IQ and these data, that there has always been movement between these areas in equivalent numbers well before project shipping in numbers.**
- The Report does not consider the 2022 aerial survey results, which show an increasing trend in narwhal numbers in the RSA. Specifically, the 2022 abundance estimate for the Eclipse Sound narwhal stock was 4,592 narwhal (CV = 0.10, 95% CI of 3,754–5,617) which is statistically higher than the 2021 estimate of 2,595 (CV = 0.33, 95% CI of 1,369–4,919; Golder 2022a) (t-test = 2.017, p = 0.049), indicating that narwhal numbers in Eclipse Sound appear to be increasing from the low numbers observed in 2021 despite no material change in shipping levels between these years. **This result is in direct contraction to projected modelling results presented in the NAMMCO report and effectively demonstrate that the model used has very poor predictive power with respect to narwhal abundance in the RSA or adjacent summer ground areas. The associated conclusions in the NAMMCO report should therefore be considered invalid.** See also responses to MHTO-22, MHTO-24, MHTO-26, MHTO-27, MHTO-28, ON-4 for further references to aerial survey results.

Conclusion

- In general, the NAMMCO workshop report makes multiple high-level and unsubstantiated generalizations including numerous statements that are poorly defended by the available data or by sound scientific arguments or rationale.
- Furthermore, the participants failed to consider multiple sources of available literature and research results that potentially conflict with the final conclusion reached by the participants as presented in the NAMMCO workshop report, in that Baffinland shipping is the primary cause for the observed displacement of narwhal from the Eclipse Sound region. For example, several of the workshop participants are active/standing MEWG members, so are well aware of the extensive behavioral response studies undertaken in the RSA to date in support of the Project. We would assume that results from Baffinland's Narwhal Tagging Program and Bruce Head Shore-based Monitoring Program would be relevant in NAMMCO's consideration of Project shipping as a key driver of narwhal displacement from Eclipse Sound, given that this work was completed in the Project area of interest, on the exact receptors of concern (Eclipse Sound narwhal), involving the exact stressors of concern (iron ore carriers along the Northern Shipping Route). Inexplicably, the authors elected to ignore this information but instead rely on a study in Greenland focusing on narwhal responses to ship noise after being immediately pre-exposed to high-amplitude seismic air gun noise (an inherent source of bias in the study design which is largely ignored).
- Narwhal behavioral responses studies to Project shipping have been investigated/monitored over a seven-year period (2015-2022) as part of the Bruce Head Shore-based Monitoring Program and the Narwhal Tagging Program. As part of this work, a total of 33 different response variables (i.e., indicators) have been investigated that look specifically at different ways narwhal may express disturbance behaviour following exposure to Project shipping. This 'multiple lines of evidence' approach to Project effects monitoring is one of the reasons Baffinland has high confidence in its stated conclusions.
- The Board should be further aware that several of the contributing NAMMCO authors/workshop participants are the same DFO Science representatives that jointly own the 2017-2018 narwhal tagging data with WSP (Golder at the time), which was collected as part of the DFO/Golder collaborative 2017/2018 Narwhal Tagging Program. As co-owners of the data, DFO has had ample opportunity (5+ years) to analyze and present the tagging data.

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