

ID#	Agency	Comment Period	Intervener Recommendation	Original BIM Response	VEC/VSEC	Baffinland Commitment (01/22/2021)	Baffinland Status of Resolution (01/22/2021)
CIRNAC-01	CIRNAC	September 2019	<p>A regional seismic assessment was performed for the South Railway embankment, the Mine site, Steensby Port and Milne Port expansion; however a seismic assessment was not carried out for the North Railway alignment. A seismic assessment of the North Railway alignment was needed to evaluate the potential risks to the Project and the potential environmental impacts. CIRNAC recommended Baffinland perform a seismic analysis taking into consideration the major geological structures along the North Railway alignment and incorporate findings into the detailed facility engineering design. Baffinland obtained additional seismic parameters along the railway from the National Building Code of Canada (2015). These seismic data were used for slope stability analyses of the North railway alignment, embankment cuts and fills. Stability analyses were completed using a pseudo-static seismic coefficient of 0.06, based on peak ground acceleration (PGA) of 0.090 g for 1:2500-year return period (2% probability of exceedance based on design life of 50 years). CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	<p>Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	Terrestrial		Resolved

CIRNAC-02	CIRNAC	September 2019	<p>Geotechnical characteristics of the Project area were not fully described in the FEIS Addendum and could present risks that have not been identified. Geotechnical investigations are required to be cold regions/permafrost specific and should include thaw consolidation/thaw strain assessments. CIRNAC requested Baffinland provide, as per the EIS guidelines, a detailed description of the geology and geomorphology aspects in the Project area and consideration of their effects on the major Project components. In response, Baffinland provided Geotechnical recommendations for the Northern Railway, April 26, 2019. The report includes creep and thaw settlement estimates and thermal analysis. This is additional information to the previously submitted reports (Geotechnical Design Criteria, Hatch, March 2019 and Geotechnical investigations along the North railway alignment conducted from 2016 to 2018, Hatch October 5, 2018). This document includes: sampling and laboratory test results supporting the permafrost forecast, geochemical results and borehole data, acid base accounting results of potential quarry locations. CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	<p>Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	Terrestrial		Resolved
CIRNAC-03	CIRNAC	September 2019	<p>The Railway Management Plan should describe how the mitigation measures will be carried out during construction of the rail embankment in the portions of the alignment where potential geotechnical issues have been identified. It was unclear from the review of the Railway Management Plan, how Baffinland intends to monitor any settlement issues that may be encountered. Geotechnical characteristics were not fully described which may present risks that have not been identified. CIRNAC requested Baffinland update the existing Railway Management Plan to include regular monitoring of potential settlement of the North Railway embankment. In response, Baffinland provided the draft document North Railway Operation and Maintenance Management Plan, May 13, 2019. The plan includes infrastructure inspection and maintenance strategy for the North Railway that considers the identified issues. CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	<p>Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	Terrestrial		Resolved

CIRNAC-04	CIRNAC	September 2019	<p>As acknowledged by Baffinland, the potential for permafrost warming due to a warming climate increases the risk of permafrost degradation. Comprehensive geotechnical site investigations help identify areas where the risk associated with excessive settlement is the greatest. Geotechnical site investigations were completed along the North Railway alignment in 2010, 2016 and 2017 (AMEC, 2010a, Hatch, 2017a, Hatch, 2017b, and Hatch, 2018) and the North Railway embankment designs were established as part of a feasibility study completed for the Phase 2 Proposal (Hatch, 2017c). However, they did not include thaw settlement tests or thaw strain assessment. CIRNAC requested Baffinland to: 1) describe how they intend to deal with areas that are prone to excessive settlement that cannot be avoided and 2) commit to performing additional geotechnical assessments which will include thaw settlement tests or a thaw strain assessment. IQUALUIT#1260889 - v7 11 In response, Baffinland provided report titled Geotechnical Recommendations for Northern Railway, Hatch, April 26, 2019. The Report provides creep and thaw settlement estimates and a thermal analysis. The impacted depth with the railway development is shallow and thermal modelling has been carried out including climate change scenarios. Geotechnical data basis, including ice content and ground temperature measurements, have been updated. Ground temperatures below -8 °C and -10 °C at 10 m depth have been reported. Design measures and ongoing adaptive</p>	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial		Resolved
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CIRNAC-05	CIRNAC	September 2019	<p>CIRNAC recommends the following Terms and Conditions be included in the amended Project Certificate, should the Project be approved: Baffinland shall complete thermal modeling of the WRF and include the results in the Waste Rock Management Plan prior to the conclusion of Water Licence Amendment process, subject to NWB requirements. Baffinland shall develop a detailed site wide program to monitor the thaw consolidation and strain prediction under the structures/embankments constructed as part of the Project. The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and incorporated into the adaptive management approach.</p>	<p>Baffinland instituted a thermal monitoring program at the Waste Rock Facility (WRF) in December 2018, the preliminary results of which were presented in the March 2019 Interim Waste Rock Management Plan. Further analysis of the data, including evaluation of freeze/thaw cycles (spring and fall datasets) is required to adequately evaluate the thermal condition of the WRF and development of the thermal model for the WRF. Preliminary data downloaded from thermistor installations in the WRF in July and September 2019 demonstrate the active layer of the WRF is limited to approximately 1.5 metres below the top of pile. These results were presented to CIRNAC, ECCC, NrCan and the QIA on October 10, 2019. The presentations are included in this submission as Appendix E.</p> <p>As the update to the Phase 1 Waste Rock Management Plan was initiated under the current Type A Water Licence 2AM-MRY1325 Amendment No. 1, and the plan is regulated under the Type A Water Licence, a Project Certificate condition is not required to ensure regulator review and approval of the updated Phase 1 Waste Rock Management Plan is achieved. Furthermore, the update to the Phase 1 Waste Rock Management Plan will be completed in December 2019, prior to any Ministerial approval of an amended Project Certificate Term and Condition, thereby making any associated conditions redundant.</p> <p>With respect to thermal monitoring and modelling of structures associated with the Phase 2 Proposal (i.e. the rail embankment, material handling infrastructure at Milne</p>	Terrestrial	<p>Commitment: Baffinland shall complete thermal modeling of the Waste Rock Facility and include the results in the Waste Rock Management Plan prior to the conclusion of Water Licence Amendment process, subject to NWB requirements.</p> <p>Term and Condition: Baffinland shall develop a detailed site program to monitor the thaw consolidation and soil deformation under the structures/embankments constructed as part of the Phase 2 Project. The monitoring results shall be compared with the Final Environmental Impact Statement Addendum predictions and appropriate mitigation measures shall be identified and incorporated into the adaptive management approach.</p>	Resolved
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CIRNAC-06	CIRNAC	September 2019	<p>CIRNAC noted that the mine closure plan and waste rock management plan have not been updated to reflect the proposed production increase and update on ARD/ML issues. Generation of ARD/ML associated with the WRF may affect water quality and soils in the Project area and should be considered in the mine closure strategy. CIRNAC requested Baffinland provide an update of the closure plan presented in the TSD-28 Appendix C-ICRP, March 31, 2016 to include the Northern Railway and the Waste Rock Management Plan, as well as the environmental mitigation strategy. In response, Baffinland provided the updated Interim Closure and Reclamation Plan (ICRP) – Draft, dated May 1, 2019. The ICRP included all aspects of the North Railway and residual effects of the Project have been evaluated. In the ICRP, Baffinland states that a revised Waste Rock Management Plan to address WRF over the next five years, based on recent geochemistry results, is under preparation. The mine closure plan will be updated to take into consideration the revised Waste Rock Management Plan. Phase 2 Marginal Closure and Reclamation Financial Security Estimate were included in the updated ICRP Appendix I, May 1, 2019. In the Water Licence - Management Plans_Concordance_20190502 - Concordance Table, Baffinland states that they will submit a revised version of the ICRP within 60 days following approval of the requested water licence amendment, and in accordance with Part IQALUIT#1260889 - v7 15 C of the Licence for the Annual Security Review process. CIRNAC is</p>	<p>Baffinland understand that CIRNAC is satisfied with the response provided, however the proposed Term and Condition for Comment #8 is relevant to that comment (which deals specifically with PAG identification criteria), not Comment #6, which was a request for Baffinland to provide an update of the closure plan to include the North Railway and the Waste Rock Management Plan, as well as the environmental mitigation strategy.</p>	Terrestrial	See Term and Condition re. CIRNAC-08	Resolved
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CIRNAC-07	CIRNAC	September 2019	<p>CIRNAC recommends the following Terms and Conditions be included in the amended Project Certificate, should the Project be approved: Baffinland shall undertake test work to confirm to the NWB the origin of elevated concentrations of aluminum, mercury and copper in SFE for rock materials sourced from quarry and borrow pits for road / railway construction, and develop and implement an appropriate water quality monitoring and management strategy for railway corridor rock quarries as part of water licensing. The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and implemented.</p>	<p>Shake Flask Extraction is an aggressive test that provides conservative metal leaching results, and as such, they should not be treated as representative of field results in regard to the metals referenced as elevated in the SFE results:</p> <ul style="list-style-type: none"> <li>• Mercury - There was a single CCME exceedance of Hg for QMR2 in the data reported. Otherwise, 13 of the 15 samples had Hg concentrations at or below the minimum detection limit (MDL) of 0.00001 mg/L.</li> <li>• Copper - The results were compared to CCME freshwater aquatic life guidelines, and there were 4 copper exceedances: 0.00637, 0.00876, 0.00299, and 0.01076 mg/L. The discharge limit for copper in Table 10 of the water licence (Effluent Quality Discharge Limits for Open Pit, Stockpiles, and Sedimentation Ponds) is 0.5 mg/L for Cu. The results that exceeded the CCME guideline are one to two orders of magnitude less than the water licence discharge limit.</li> <li>• Aluminum: 14 of the 15 samples contained total aluminum concentrations ranging from 0.122 to 1.05 mg/L, above the CCME guideline value of 0.005 mg/L. if pH &lt;6.5, or 0.1mg/L if pH ≥ 6.5. Previous sampling of the surface water in the Project area, has demonstrated that aluminum concentrations are naturally high. The average concentration of aluminum in Phillips Creek is 1.65 mg/L (see Attachment 1 of Baffinland's January 31, 2019 response to information request / advanced technical comment ECCC 12; Knight Piésold's December 12, 2018 Memo Ref. No.</li> </ul>	Terrestrial	<p>Commitment: Baffinland shall confirm the origin of elevated concentrations of aluminum, mercury and copper in Shake Flask Extraction test results for rock materials sourced from quarry and borrow pits for road / railway construction, and develop and implement an appropriate water quality monitoring and management strategy for railway corridor rock quarries as part of water licensing.</p> <p>The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and implemented.</p>	Resolved
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CIRNAC-08	CIRNAC	September 2019	<p>To assess the potential significant adverse effects associated with ARD/ML, CIRNAC is requesting Baffinland provide the following information associated with the derivation of PAG identification criteria before the conclusion of the NIRB review process for the Project:</p> <p>Demonstration of how the absence of Ca/Mg carbonate mineral content has been considered in the PAG identification criteria. If the NPR is less than 2 criteria and associated 0.2 wt % total sulphur content is retained, there shall be clear demonstration of neutralization capacity to maintain non-acidic conditions. Demonstration of how the influence of soluble sulphate minerals has been incorporated into PAG identification criteria. Demonstration of the variation and uncertainty in ARD/ML behaviour of the different types of waste rock at Deposit 1 and how this has been incorporated into PAG identification criteria. Should the Project be approved, CIRNAC suggests the following Term and Condition be included in the project certificate: Baffinland shall revise the PAG identification criteria and incorporate the new criteria in an updated Waste Rock Management Plan and Interim Closure and Reclamation Plan.</p>	<p>Baffinland remains committed to updating the Phase 1 Waste Rock Management Plan and evaluating the appropriateness of the 0.2% total sulphur cutoff for PAG classification, irrespective of the Phase 2 Proposal approvals process.</p> <p>Preliminary results from the geochemistry program completed in 2019 were communicated to CIRNAC, ECCC, NRCAN and the QIA in a teleconference on October 10, 2019 (Appendix E). Preliminary results from the small data set indicate that use of the 0.2% cutoff would potentially mis-categorize 5% of samples (3 of 55 non-PAG based on 0.2% cutoff) as non-PAG, where shake flash extraction (SFE) results indicated a pH less than 6. If analysis of paste pH was considered in addition to the total sulphur results, the mis-categorization is reduced to 1.8% (1 of 55). If a 0.1% total sulphur cutoff was used, 1.8% of samples would be mis-categorized as non-PAG (1 of 55) with SFE result of pH less than 6. Baffinland is evaluating the addition of paste pH analysis for integration into the current analytical suite for waste rock determination. Based on evaluation of the preliminary results of the geochemistry program, the addition of this test would reduce the potential for misclassification of potentially acid generating rock, and in particular would address short term release of acid leachate from materials that would otherwise be considered non-acid generating. Based on the preliminary results, this secondary screening (in addition to the evaluation of waste placement strategies as a result of the thermal modelling)</p>	Terrestrial	<p>Term and Condition:</p> <p>Baffinland shall develop effective criteria for identification of potentially acid generating rock following industry best practice. Baffinland shall incorporate these criteria in an updated Waste Rock Management Plan and Interim Closure and Reclamation Plan, to be submitted for review during the Water Licence Amendment process, subject to Nunavut Water Board requirements.</p>	Resolved
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CIRNAC-09	CIRNAC	September 2019	<p>Baffinland has gained site operations experience over the last number of years and this experience should be referenced. During the technical review of Baffinland's Phase 2 Application, CIRNAC requested that the following items be addressed in each plan: Explosives Management Plan: Update to reflect new quantities of explosives, as well as other required updates to the storage and handling method; and spill response. Waste Management Plan: Include an estimate of waste quantities that will be generated as a result of the Phase 2 proposal and how the waste reuse and recycling principles are implemented. Hazardous Materials and Hazardous Waste Management Plan: The inventory of the types and volumes of hazardous waste generated or produced by Project Activities. Spill Control Plan: Update required to reflect increased volumes of sewage generated during construction and operation of Phase 2, emergency response equipment needed to respond to spills due to increases in fuels and other hazardous materials used/generated throughout the Project as a result of the Phase 2 proposal. Furthermore, CIRNAC requested that Baffinland should demonstrate how they apply the adaptive management principle to manage these materials. In response, Baffinland provided the document titled: DRAFT Hazardous Materials and Hazardous Waste Management Plan, May 1, 2019, and updated the Explosives Management Plan. The plan includes a table outlining the maximum cumulative quantities of explosives and ammonium nitrate as well as the storage location and</p>	<p>Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	Accidents		Resolved
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CIRNAC-10	CIRNAC	September 2019	<p>A railway maintenance facility/yard at Milne Port Project is presented in the Project Description of the FEIS Addendum. Baffinland was requested to provide a description of forecasted changes in quantities, types of hazardous materials and waste that are expected to be generated under the Phase 2 Proposal. CIRNAC was referred to the Application to Amend Type A Water Licence, 2AM-MRY1325 for this information. A review of the licence application did not provide sufficient information to ascertain whether material and waste associated with this new facility has been considered in determining waste quantities related to Phase 2 and how this would be managed. CIRNAC requested Baffinland provide an inventory of waste types and quantities that would be generated by such a facility indicating additional material/wastes that would require management as a result of this new facility at Milne Port. In response, Baffinland provided the document titled: DRAFT Hazardous Materials and Hazardous Waste Management Plan, # BAF-PH1-830-P16-0011, Revision: Issued for review purposes only, Issue Date: May 1, 2019. The Plan includes information on hydrocarbon waste and hydrocarbon products such as engine oils and filters. Baffinland also provided estimated quantities of wastes and noted these were small in relation to all generated wastes. Table 4.2 of the Plan provides hazardous waste management methods that are appropriate for locomotive maintenance, including the proposed management options. CIRNAC is satisfied with the provided response and does not have any additional</p>	<p>Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	Terrestrial		Resolved
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CIRNAC-11	CIRNAC	September 2019	<p>The Application to Amend Type A Water Licence, 2AM-MRY1325, presents quantities of solid waste, sewage effluent and hazardous waste to be generated from the Phase 2 Proposal, as well as the description of waste management capacity to accommodate the increased volume of materials and waste. However no comparison was provided to current volumes of waste under the existing project. In response to the previously submitted on this issue Baffinland requested CIRNAC examine the Application to Amend the Type A Water Licence, specifically Section 4.7, Table 4.3, Attachments 11.2 and 11.4, as well as Figures B.1 and B.5. However, a review of these documents does not fully address the concern and a comparison of the original project and the Phase 2 with regards to these materials is not evident. Baffinland Response to CIRNAC Technical Comment # 12 provided a comparison of the current volumes of waste generated (2016, 2017 and 2018). CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	<p>Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	Terrestrial		Resolved
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CIRNAC-12	CIRNAC	September 2019	<p>The proposed Snow Management Plan did not provide for estimates of hydrocarbon contaminated snow and ice that will be generated by Phase 2 activities and details on how these will be managed. It was expected that Baffinland should have details of volumes of contaminated snow and ice from its current operational experience. This experience should inform the assessment of current capacities of the snow management areas and any modifications required to meet the management needs for the proposed Phase 2 activities. Baffinland has updated the Snow Management Plan to include the North Railway, construction and operation phases. The Snow Management Plan indicates the snow piles location at Milne port, mine site and along the Tote Road / North Railway. The plan also includes the position of culverts and guidelines for snow management along the North Railway. However, the plan does not include volumes of contaminated snow and ice estimates for the Phase 2 Project development. In their March 2019 Responses to CIRNAC Technical Comment # 13, Baffinland noted that the volume of contaminated snow and ice managed at the Milne Port snow dump is reported in the Qikiqtani Inuit Association / Nunavut Water Board Annual Report for Operations, expressed as the volume of water treated from the facility. In 2017, Baffinland discharged approximately 187 m<sup>3</sup> of treated water from the snow dump facility. Projected quantities of contaminated snow and ice for the phase 2 of the Project are not available, as the primary source of contamination are unplanned spills.</p>	<p>Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	Accidents		Resolved
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CIRNAC-13	CIRNAC	September 2019	<p>Section 8.2.7 of the FEIS Addendum describes the socio-economic baseline conditions for eight of the project's ten VSECs but does not mention the adequacy of baseline data. The presented VSECs are: 1. Education and Training; 2. Livelihood and Employment; 3. Economic Development and Self-reliance; 4. Benefits, Royalty, and Taxation; 5. Community Infrastructure and Public Services; 6. Contracting and Business Opportunities; 7. Population Demographics; and 8. Human Health and Well-being. The Technical Supporting Document on Socio-economic Assessment (TSD 25) briefly discusses baseline information in the assessment methodology subsections for all of the Project's VSECs. Most refer to Appendix C of TSD 25, Updated Socio-economic Baseline Information, which is primarily based on data from Statistics Canada, the Nunavut Bureau of Statistics, and the Nunavut Housing Corporation. However, no discussion is provided on the reliability of data sources or confidence in the updated baseline data. In response to technical comments, Baffinland explained the adequacy of baseline data presented in support of its phase 2 of the Project. A table was provided (Attachment 1: Table 1: Adequacy of Baseline Data Used for Each VSEC) that includes statements on the adequacy of baseline data used for each VSEC presented in TSD 25 and a rationale for their determination. The response provides reasonable descriptions of adequacy/overcoming limitations; identifies VSECs that have no baseline data (e.g., Royalties); and others that have no quantitative data (e.g.,</p>	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Socio-economic		Resolved
CIRNAC-14	CIRNAC	September 2019	<p>In response to technical comments, Baffinland adequately explained the incorporation of IQ in TSD 25 and previous assessments conducted for the Approved Project. The response was supplemented by a report on the use of IQ for the Phase 2 Proposal (Appendix 13). This report outlines Baffinland's approach to IQ, how IQ was incorporated into the Phase 2 Proposal, and future steps that will be followed (including additional IQ that will be collected, the use of IQ in monitoring programs, and adaptive management considerations). CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.</p>	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Human		Resolved

CIRNAC-15	CIRNAC	September 2019	In response to technical comments, Baffinland provided summaries of interactions between the NIRB guidelines for the 'Culture, Resources, and Land Use,' 'Benefits, Royalty, and Taxation,' and 'Governance and Leadership' VSECs (Appendix 1) at the same level of thoroughness as the summaries of interactions provided for other VSECs in TSD 25. CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Socio-economic		Resolved
CIRNAC-16	CIRNAC	September 2019	In response to technical comments and a commitment made at the April 2019 Technical Meeting, Baffinland provided a supplement to the Technical Supporting Document on Cumulative and Transboundary Effects (TSD 27). The supplement describes how the Project's main alternative development scenarios (I. A future without the Phase 2 Proposal; II. A future with the Phase 2 Proposal; and III. Potential future development at the Mary River Project) have been evaluated in accordance with Subsections 6.1 and 7.8 of the NIRB guidelines. Baffinland's view is that the intent of these guidelines is focused on alternative development scenarios, not individual project alternatives. Baffinland also believes that completing a Cumulative Effects Assessment of each Project alternative would result in several development scenarios that would not be practical or useful. CIRNAC agrees with the provided explanation. CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Corporate		Resolved

CIRNAC 1 NE	CIRNAC	February 2020	<p>Internal heat generation: Provide a heat balance to clarify if the internal heat generation correlates with the heat generation associated with the exothermic reaction of PAG waste rock deposited. Such a heat balance needs to account for the expected effects of soluble sulphates.</p> <p>Oxygen consumption: Clarify if an oxygen balance has been performed and if the oxygen consumption correlates with the extent of oxidation process or oxidation volume taking place. Such an oxygen balance needs to account for the expected effects of soluble sulphates.</p> <p>Vibrating Wire Piezometers data: Assess if the water balance reflects that the dry piezometers are a result of infiltration rainfall that percolates through the waste rock or indicate poor functioning of the VWP instrumentation.</p> <p>Continued monitoring: Ensure installation of additional relevant instrumentation (e.g. further thermistors, moisture probes) and update the thermal modeling to account for three dimensional variations (where required, particularly if there needs to be an alteration to the design of the WRF).</p>	Baffinland will provide all responses related to waste rock and/or ARD/ML to the Nunavut Water Board with copy to the Nunavut Impact Review Board on, or before, March 13, 2020.	Freshwater		Resolved for EA Purposes
CIRNAC 1a N	CIRNAC	February 2020	CIRNAC also recommends Baffinland to develop a detailed site wide program to monitor the thaw consolidation and soil deformation under the structures/embankments constructed as part of the Project. The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and incorporated into the adaptive management approach.	With respect to the recommendation related to a site wide monitoring program to monitor thaw consolidation and soil deformation, Baffinland reaffirms the following suggested term and condition, agreed to with CIRNAC on November 5, 2019, and provided to the NIRB in the Supplemental Submission for Phase 2, submitted on January 6th, 2020: Baffinland shall develop a detailed site program to monitor the thaw consolidation and soil deformation under the structures/embankments constructed as part of the Phase 2 Project. The monitoring results shall be compared with the Final Environmental Impact Statement Addendum predictions and appropriate mitigation measures shall be identified and incorporated into the adaptive management approach.	Terrestrial	With respect to the recommendation related to a site wide monitoring program to monitor thaw consolidation and soil deformation, Baffinland reaffirms the following suggested term and condition, agreed to with CIRNAC on November 5, 2019, and provided to the NIRB in the Supplemental Submission for Phase 2, submitted on January 6th, 2020: Baffinland shall develop a detailed site program to monitor the thaw consolidation and soil deformation under the structures/embankments constructed as part of the Phase 2 Project. The monitoring results shall be compared with the Final Environmental Impact Statement Addendum predictions and appropriate mitigation measures shall be identified and incorporated into the adaptive management approach.	Resolved

CIRNAC 2 NE	CIRNAC	February 2020	<p>CIRNAC recommends that Baffinland:</p> <ul style="list-style-type: none"> <li>• Confirm the origin of elevated concentrations of aluminum, mercury and copper in Shake Flask Extraction test results for rock materials sourced from quarry and borrow pits for road / railway construction, and develop and implement an appropriate water quality monitoring and management strategy for railway corridor rock quarries.</li> <li>• Compare the monitoring results with the FEIS Addendum predictions, identify and implement the appropriate mitigation measures.</li> </ul>	<p>Baffinland reaffirms the following commitment, agreed to with CIRNAC on November 5, 2019, and provided to the NIRB in the Supplemental Submission for Phase 2, submitted on January 6th, 2020:</p> <ul style="list-style-type: none"> <li>• Baffinland shall confirm the origin of elevated concentrations of aluminum, mercury and copper in Shake Flask Extraction test results for rock materials sourced from quarry and borrow pits for road / railway construction, and develop and implement an appropriate water quality monitoring and management strategy for railway corridor rock quarries as part of water licensing.</li> <li>• The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and implemented.</li> </ul>	Corporate	<p>Baffinland reaffirms the following commitment, agreed to with CIRNAC on November 5, 2019, and provided to the NIRB in the Supplemental Submission for Phase 2, submitted on January 6th, 2020:</p> <ul style="list-style-type: none"> <li>• Baffinland shall confirm the origin of elevated concentrations of aluminum, mercury and copper in Shake Flask Extraction test results for rock materials sourced from quarry and borrow pits for road / railway construction, and develop and implement an appropriate water quality monitoring and management strategy for railway corridor rock quarries as part of water licensing.</li> <li>• The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and implemented.</li> </ul>	Resolved
CIRNAC 3 NE	CIRNAC	February 2020	<p>To assess the potential significant adverse effects associated with ARD/ML, CIRNAC recommends that Baffinland:</p> <ul style="list-style-type: none"> <li>• Demonstrate the origin of the soluble sulphates, estimate possible spatial extent and a tonnage estimate of waste rock containing significant soluble sulphates.</li> <li>• Demonstrate that waste rock associated with the greater life of mine deposit IQALUIT#1277133 17 does not have significant soluble sulphate content.</li> <li>• Provide further justification for the retention of 0.2% total sulphur cut-off threshold for identification of Non-PAG waste rock and using NPR of 2 as a cut-off for PAG identification considering the absence of Calcium / Magnesium carbonate mineral content.</li> <li>• Provide information on the variation and uncertainty in ARD/ML behavior of the different types of waste rock.</li> <li>• Develop effective criteria for identification of potentially acid generating rock following industry best practice and incorporate these criteria in an updated Waste Rock Management Plan and Interim Closure and Reclamation Plan.</li> <li>• Confirm adequate capacity of the WRF pond, including the sufficient contingency within the pond to prevent a potential of uncontrolled/untreated discharge to the environment.</li> </ul>	<p>Baffinland will provide all responses related to waste rock and/or ARD/ML to the Nunavut Water Board with copy to the Nunavut Impact Review Board on, or before, March 13, 2020.</p>	Corporate		Resolved for EA Purposes

DFO-3.1.1	DFO	September 2019	DFO recommends that Baffinland: In consultation with affected Inuit communities, conduct a thorough environmental assessment prior to use of any additional/alternative routes through the Northwest Passage, outside of the current approved shipping route, including Navy Board Inlet. The assessment should include: Clarification whether Baffinland intends to use the alternative routes including the Northwest Passage at any point as part of Phase 2, or whether the alternatives would be solely reserved for future development and will be assessed at such a time, that Baffinland would seek approval for said development.	Per our clarification letter provided to NIRB and MHTO on Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N).	Marine		Resolved
DFO-3.1.2	DFO	September 2019	The assessment should include: Consideration of a larger proportion of the potentially impacted populations for each species along the alternate route, to adequately reflects the increase of use.	See response to DFO 3.1.1.	Marine		Resolved
DFO-3.1.3	DFO	September 2019	The assessment should include: An updated monitoring plan, which would include monitoring shipping through all alternative routes utilized for the Mary River Project, prior to usage of any additional routes outside the current approved shipping route.	See response to DFO 3.1.1.	Marine		Resolved
DFO-3.2.1	DFO	September 2019	In order for DFO to adequately assess the project's marine vessel traffic, DFO requires that Baffinland clarifies: The number of escorted vessels that will be permitted at any one time into the RSA	Baffinland expects that a maximum of four ore carriers would be escorted by a single ice breaker during a single transit in the early shoulder season. Based on acoustic modelling conducted in support of the Phase 2 Proposal, the noise field from a 4th carrier would not appreciably increase the aggregate noise field generated by the ice breaker.	Marine		Resolved

DFO-3.2.2	DFO	September 2019	In order for DFO to adequately assess the project's marine vessel traffic, DFO requires that Baffinland clarifies: The rationale for the maximum of 176 ore carrier transits	<p>Rationale for the 176 ore carriers has been available to DFO since the time of the EIS submission, notably in Section 2.5.2.2 of TSD 24 (Marine Mammal Effects Assessment). Specifically, Baffinland noted that in order to account for the increased tonnage of ore being transported, an increase in vessel traffic serving Milne Port will be required. An estimated 176 ore carrier round trips was provided as an upper limit estimate in Table 2.4 of TSD 24 (provided below for reviewer reference). This table is based on a reasonable mix of vessel types calling on Milne Port between July and October to transport approximately 12 Mt. Baffinland further provided example shipping schedules in the Overview of Marine Operations submitted to the NIRB as Appendix 12 of the December 20, 2019 response submission to information requests.</p> <p>These tables consistently demonstrate the need for 176 ore carriers to transport ore required as part of the Phase 2 proposal. In these shipping schedules Baffinland has given consideration to historical ice conditions, operating experience and the need to have both predictably (i.e. start and end shipping dates) and operational flexibility to allow for contingency due to things like weather, operational malfunctions etc. Baffinland acknowledges that there were inconsistencies in the original EIS submitted in October 2018, those were corrected by December and DFO has been in receipt of this information since that time.</p> <p>Table 2.4: Maximum Number of Ore Carrier Calls (Round-trips) at Milne Port during Phase 2 Operations</p>	Marine		Resolved
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DFO-3.3	DFO	September 2019	<p>DFO is concerned that the present level of assessment may not be adequate to fully assess the effects of the vessels strikes on whales and other marine mammals. In order for DFO to adequately assess the effects of vessel strikes on marine mammals, Baffinland, working cooperatively with DFO, shall re-assess the impact of vessel strikes on bowhead whales and re-evaluate the significance of ship strikes related to the project (including inside and outside the RSA) and should consider other marine mammals (e.g., Killer whale, Sperm whale, Fin whale) that would potentially be entering the RSA in summer during the open water shipping season and risk of vessel strikes. The assessment shall include the knowledge and observation of Inuit hunters and trappers.</p>	<p>The physiological attributes of toothed whales (narwhal, beluga, killer whale) make them relatively less vulnerable to ship strikes compared to baleen whales, as they use echolocation to perceive their environment and can maneuver out of the way of oncoming vessels. Similarly, seals are considered to be at relatively low risk of vessel strike owing to their fast swimming speed, maneuverability and agility. This is consistent with available literature and IQ, as there is no record of a ship strike on narwhal, beluga or seal since shipping operations began in 2015, nor evidence of a recreational vessel strike on any of these species in the RSA (including by hunting vessels which commonly travel at speeds above 13 knots). The critical ship speed threshold above which strikes on marine mammals have a higher potential to occur is 13 knots, and this is largely applicable to baleen whales (e.g. bowhead whales) as they spend a considerable more amount of time at the surface feeding, do not have echolocation ability to detect ships as well at a distance, and are generally less mobile/maneuverable. In order to effectively avoid ship strikes on all marine mammal species, Baffinland has implemented a 9 knot (16.7 km/h) speed restriction applicable to all Project vessels and throughout the entire shipping corridor in the Regional Study Area. This exceeds any existing mitigation in Canadian (and U.S.) waters for reducing the probability of deaths and injuries to whales due to collisions with ships, including the following government-initiated measures to protect the</p>	Marine	<p>Baffinland will implement the following requirement for vessels serving the Mary River Project: Once advised of the presence and location of bowhead whales, Masters of project ships operating within the RSA will be instructed to exercise due caution in order to minimize the likelihood of interaction with the mammals. In such events, Masters will be authorized to adjust speed or alter course within safe and prudent navigational constraints to avoid to the extent possible interaction with bowhead whales.</p> <p>Note:</p> <p>Baffinland notes that the surveillance measures implemented in the Guld of St Lawrence, as refernced by DFO, are to spot right whales and implement the 10 knot speed restriction. This additional mitigation measure is not required in the RSA as a blanket 9 knot speed limit is in place for the entire season. The only mitigation measure more restrictive than the speed limit is a 15 day shut down for non-tended fixed gear fisheries. Again, this is not applicable to Mary River operations. Baffinland strongly urges DFO to consider the commitment provided above and work with Baffinland to implement it.</p>	Resolved
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DFO-3.4	DFO	September 2019	<p>In order for DFO to properly assess the impact of the shipping season on ice formation, DFO recommends that Baffinland provides environmental conditions and ecological factors criteria used to determine yearly opening and closing of the shipping season, along with the monitoring plan to determine if ice-breaking in the shoulder season will have an impact on ice formation and that Baffinland report annually on the determination of opening and closing the shipping season.</p>	<p>The environmental conditions present along the shipping route in terms of ice formation in the Fall are described in Section 4.3 of the Ice Study (TSD-16) for Phase 2. Mid-November is the average date that fastice has formed in Milne Inlet since 1997 and its presence would trigger the end of the shipping season from a technical (vessels receiving positive ice numerals) and environmental (commitment not to break landfast ice) perspective. Baffinland is committed to undertaking an end-of-season aerial survey of the LSA, following the end of shipping operations, to confirm no narwhal entrapment events have occurred. During this survey observations will be taken of the ship track and how it has influenced ice formation. Should local knowledge indicate that ice formation during the fall shoulder season has interrupted travel routes on the sea ice, Baffinland will work with the local community to develop an appropriate monitoring program and/or adaptive management response.</p>	Marine	<p>Environmental and ecological criteria for the opening of the shipping season is described in the Shoulder Season Shipping Operational Guide.</p> <p>The following clarifications will be added to the Shoulder Season Shipping Operational Guide to reflect the environmental and ecological conditions for closing the shipping season.</p> <p>Environmental - The formation of fastice along the shipping route will trigger the end of the shipping season.</p> <p>Ecological - There are no ecological triggers to close the shipping season, however, monitoring and adaptive management will be applied to ensure no significant impacts occur.</p> <p>Note:</p> <p>Seals - During the Fall season Seals are just beginning to establish breathing holes in the ice as part of their development of an overwinter territory, but this is not considered a critical life cycle period. Seals may avoid establishing breathing holes along the shipping route during this peirod, but this would be limited to general area of the ship path, which is minimal in extent. Seals do not start denning until January when enough snow is available on the ice for them to build a den. Shipping</p>	<p><del>Updated - See DFO 3.2.1-NEW and DFO 3.2.2-NEW</del></p>
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DFO-3.5	DFO	September 2019	DFO is concerned about the impacts to pinnipeds and disagrees with Baffinland's conclusions that effects will be non-significant. As such, DFO overall recommends Baffinland implement the most conservative mitigation measure and avoid shipping during the shoulder seasons and ice-breaking activities; only ship during the open water season.	DFO has not provided evidence to support a determination of significance for shipping impacts on pinnipeds. Baffinland considered a substantial body of information in its evaluation of significance of shipping impacts on pinnipeds along the Northern Shipping Route, including Inuit Quajimajatuqangit (IQ), available scientific literature, empirical data (site-specific, quantitative data collected over an extended time series from multiple monitoring programs including aerial surveys, acoustic monitoring, shore-based monitoring, ship-based monitoring), and extensive acoustic modelling. The expert opinion of multiple professionals was incorporated into both the marine mammal effects assessment (TSD 24) and the icebreaking operations effects assessment (Golder 2019). Further to this, Baffinland has developed a number of key mitigation measures to effectively eliminate and/or greatly minimize any adverse impacts on pinnipeds from shipping operations under the Phase 2 Proposal. This includes: <ul style="list-style-type: none"> <li>• Avoidance of sensitive periods - Shipping and icebreaking will be conducted outside key sensitive periods for ringed seal, including pupping, nursing and mating periods – see Table 1.</li> <li>• Project vessels will not exceed 9 knots in the RSA, thus avoiding and/or reducing the risk of vessel strikes on seal and minimizing the extent of acoustic disturbance.</li> <li>• Marine Wildlife Observers (MWOs) will be stationed on all icebreaker transits in the RSA and are responsible for alerting vessel Master and crew to observed potential risk</li> </ul>	Marine		Updated – See DFO 3.4.4-NEW
DFO-3.5.1	DFO	September 2019	Uses walrus haul out buffer zone guidelines set by the US Fish and Wildlife Service (USFWS) and the US Federal Aviation Administration (FAA).	During Phase 2 Operations, Baffinland commits to using the walrus haul out buffer zone guidelines set by the US Fish and Wildlife Service (USFWS) and the US Federal Aviation Administration (FAA).	Marine	During Phase 2 Operations, Baffinland commits to using the walrus haul out buffer zone guidelines set by the US Fish and Wildlife Service (USFWS) and the US Federal Aviation Administration (FAA).	Resolved

DFO-3.5.2	DFO	September 2019	Avoid icebreaking where and when seal density is relatively high. These areas occur in closed embayments and inlets where landfast ice exists	Baffinland will not be icebreaking in closed embayments nor in inlets where landfast ice exists (per Baffinland's commitment to not break landfast ice). Furthermore, as stated previously, icebreaking will avoid sensitive ringed seal life cycle periods (e.g. pupping, nursing, mating) when seal density is relatively high.	Marine	<p>Baffinland will not break ice in closed embayments and inlets where landfast ice exists. Should other areas of high seal density be encountered along the shipping route during the shoulder season, the Ship Board Observer Program will record and report this for potential adaptive management actions. This may include notices to Masters of project ships operating within the RSA to exercise due caution in order to minimize the likelihood of interaction with the mammals. In such events, Masters will be authorized to adjust speed or alter course within safe and prudent navigational constraints to avoid to the extent possible interactions with high density seal areas.</p> <p>See other commitments related to the SBO Program in response to DFO 3.5.3 and 3.5.6</p>	Resolved
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DFO-3.5.3	DFO	September 2019	Provide an estimate of how many ringed seals are in Eclipse Sound, and re-evaluate the percentage of affected seals using available region and water-body specific abundance estimates.	<p>An estimated 15,947 ringed seals are predicted to occur in the combined areas of Eclipse Sound, Pond Inlet and Milne Inlet (5,755 individuals in Eclipse Sound East; 2,457 individuals in Eclipse Sound West; 4,212 individuals in Pond Inlet; 2,763 individuals in Milne Inlet North, and 759 individuals in Milne Inlet South). This is based on ringed seal density estimates from Yurkowski et al. (2019), 1.40 individuals/km<sup>2</sup> for Milne Inlet and 0.98 individuals/km<sup>2</sup> for Eclipse Sound, and includes a correction factor of 2.46 for availability bias (Born et al. 2002) and 1.22 for perception bias (Frost et al. 1988). These were the values used to determine the predicted number of ringed seals affected by icebreaker noise in the Icebreaking Operations Assessment submitted May 13, 2019 to the NIRB. Based on a maximum-case icebreaker transit scenario (2 icebreakers escorting 2 capesize carriers), using corrected ringed seal density estimates for June (Yurkowski et al. 2019), the estimated number of ringed seals predicted to demonstrate avoidance of an icebreaker transit is:</p> <ul style="list-style-type: none"> <li>• 199 individuals (1.2% of 15,947 animals) per transit during Heavy Ice Regime (early summer)</li> <li>• 128 individuals (0.8% of 15,947 animals) per transit during Moderate Ice Regime (early summer)</li> <li>• 84 individuals (0.5% of 15,947 animals) per transit during Light Ice Regime (early summer)</li> <li>• 238 individuals (1.5% of 15,947 animals) per transit during Heavy Ice Regime (fall)</li> <li>• 93 individuals (0.6% of 15,947 animals) per transit during</li> </ul>	Marine	<p>Baffinlands Ship Board Observer Program will confirm the prediction that no seal strikes will occur as a result of project shipping. Should monitoring demonstrate that the predictions are incorrect, Baffinland will implement adaptive management measures in consultation with the MHTO and MEWG.</p> <p>Note:</p> <p>Baffinland will not provide an updated estimate of ship strikes on seals based on a study that covers a period in time and location that are fundamentally different from what is proposed under Phase 2.</p>	<p><del>Updated</del> - See DFO 3.4.1 NEW</p>
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DFO-3.5.4	DFO	September 2019	Implement 300m proposed buffer zone for seals as there currently is for polar bears and walrus.	<p>Baffinland has developed a number of key mitigation measures to effectively eliminate and/or greatly minimize any adverse impacts on pinnipeds from shipping operations under the Phase 2 Proposal. This includes:</p> <ul style="list-style-type: none"> <li>• Avoidance of sensitive periods - Shipping and icebreaking will be conducted outside key sensitive periods for ringed seal, including pupping, nursing and mating periods – see Table 1 in response to DFO-3.5.</li> <li>• Project vessels will not exceed 9 knots in the RSA, thus avoiding and/or reducing the risk of vessel strikes on seal and minimizing the extent of acoustic disturbance.</li> <li>• Marine Wildlife Observers (MWOs) will be stationed on all icebreaker transits in the RSA to inform vessel Master and crew of buffer zones (where applicable), to avoid potential ship strikes on marine mammals, and to record other signs of disturbance to marine wildlife.</li> <li>• The number of daily icebreaker transits in the RSA will be reduced in heavy to moderate (4/10 to 10/10) ice conditions, thereby further reducing potential for vessel strikes and minimizing the daily noise exposure period for ringed seal.</li> <li>• Implementation of a 40-km buffer zone around the floe edge at the entrance of the RSA to reduce interactions between Project vessels and marine mammals (vessels entering the RSA during the spring shoulder season must wait 40 km to the east of the RSA until clearance from the Port Captain is obtained to enter the RSA).</li> </ul> <p>It would not be logistically possible to implement a 300-m</p>	Marine		Resolved
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DFO-3.5.5	DFO	September 2019	Avoid shipping during the shoulder seasons and ice-breaking activities and only ship during the open water season.	<p>As part of the August 23, 2019 submission to the NIRB in support of the Phase 2 Proposal, Baffinland submitted a Draft Early Shipping Season – Operational Guide that clearly outlines the conditions under which Baffinland would begin shipping in the shoulder season. This criterion is based on both ecological and community determinants, and includes the following requirements:</p> <ul style="list-style-type: none"> <li>• Before commencing shipping, Baffinland must receive written confirmation from the MHTO that the floe edge is no longer being used by community members. No transits to Milne Port will be permitted until confirmation is received.</li> <li>• Baffinland will not break ice during ringed seal denning, pupping, nursing or mating periods and will manage its vessel traffic during the Eclipse Sound narwhal summer stock spring migratory period.</li> </ul> <p>Furthermore, Baffinland has established several precedent-setting mitigations to minimize potential effects on ringed seal as a result of ice breaking activities, including:</p> <ul style="list-style-type: none"> <li>• Restricting the number of transits during the early shoulder season where ice concentrations above 3/10 cannot be avoided.</li> <li>• Implementation of speed restrictions (9 knots) that are more conservative than Government of Canada guidelines for speed reduction to 10 knots.</li> <li>• Local Inuit Marine Wildlife Observers (MWOs) will be stationed on all icebreaker transits in the RSA and are responsible for alerting vessel Master and crew to observed</li> </ul>	Marine		Updated – See DFO 3.4.4-NEW
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DFO-3.5.6	DFO	September 2019	<p>Prepare a monitoring plan, with an appropriate survey methodology (e.g., Wilson et al. 2017), for the purpose of documenting and reporting any mortalities due to icebreaking and shoulder season shipping activities or otherwise.</p>	<p>Mitigation and monitoring measures recommended by Wilson et al. (2017) are specific to icebreaking of land-fast ice in the Caspian Sea during peak winter months which corresponds with key life cycle periods for the Caspian seal, including denning, pupping and nursing periods. This is not an appropriate comparison to the present Project (Phase 2 Proposal), as mitigation has already been proposed that includes avoiding breaking land-fast ice altogether, and avoiding icebreaking during the sensitive life cycle periods for ringed seal, including denning, pupping, nursing and mating periods.</p> <p>Reporting procedures for any marine mammal mortalities or injuries due to icebreaking or shipping are outlined in Section 3.7 of the Shipping and Marine Wildlife Management Plan (SMWMP), and are outlined below:          In the event any accidental contact occurs between a Project vessel and a marine mammal or an aggregation of seabirds, with resulting death or serious injury, the regional office of Fisheries and Oceans Canada (marine mammals) or Environment Canada (seabirds) is to be notified and supplied with information documenting the incident (date/time/location, affected species and condition, circumstances of the incident, weather and sea conditions, location/travel direction of the affected animal(s)). The Ship's Master will inform Baffinland Site personnel, who will contact the appropriate government agency. Annually, Baffinland will summarize any such incidents in its report to NIRB. In the event a ship-based Marine Wildlife Observer is</p>	Marine	<p>Baffinland will updated the Marine Monitoring Program to make it clear what behavioural indicators are recorded during the Ship Board Observer Program. These indicators include breaching, flipper slapping, lobtailing, diving, fluking, blowing, resting, looking, feeding, hauled-out, milling, swimming, surfacing. Other recorded information includes initial distance from vessel, minimum distance from vessel (i.e. closest point of approach), and bearing from vessel and movement direction. These methods and indicators are currently described in annual Ship Board Observer Reports.</p>	<p><del>Updated - See DFO 3.4.1</del>  <b>NEW</b></p>
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DFO-3.6	DFO	September 2019	<p>DFO is concerned that the lack of defensible information makes the assessment of the effect of shipping on cetacean difficult and highly uncertain. As such DFO recommends that, for the time being, Baffinland maintain the current level of shipping and avoid shipping during the shoulder seasons and ice-breaking activities. Before any increase in shipping is considered, Baffinland should provide further information and provide further mitigation options in an updated shipping management plan (see DFO-3.6.1-DFO-3.6.6).</p>	<p>Baffinland contracted Hemmera to undertake a third-party peer review of the icebreaking operations effects assessment. Hemmera’s review considered a substantial body of information and used a ‘multiple lines of evidence’ approach for evaluating the significance of shipping impacts on narwhal along the Northern Shipping Route, including the following:</p> <ul style="list-style-type: none"> <li>• Inuit Quajimajatuqangit (IQ)</li> <li>• literature evidence (journal articles and reports published)</li> <li>• empirical evidence (site-specific, quantitative data collected over an extended time series from multiple monitoring programs including aerial surveys, acoustic monitoring, shore-based monitoring, ship-based monitoring)</li> <li>• modelling evidence (acoustic modelling)</li> <li>• evidence from other past environmental assessments in Canada including the Canadian Arctic region</li> <li>• expert opinion including knowledge and experience that trained professionals have accumulated over time in a specific technical discipline. The expert opinion of multiple professionals was incorporated into effects assessment elements for the marine mammal assessment. This included a peer-review of the assessment chapters and associated monitoring reports.</li> <li>• follow-up monitoring programs to address uncertainty</li> </ul> <p>The outcomes of Hemmera’ third party peer review substantiate Baffinland’s original determinations of significance in the icebreaking operations effects</p>	Marine		<p>Updated – See DFO 3.4.4-NEW</p>
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DFO-3.6.1	DFO	September 2019	An estimate of the percentage of narwhal that could exhibit disturbance and avoidance behavior regularly depending on the icebreaking scenarios.	<p>The number of narwhal (and the relative proportion of the Eastern Baffin Bay population and Eclipse Sound stock) that could exhibit disturbance and avoidance from icebreaking operations is provided in the Icebreaking Operations Assessment (Golder 2019) and represents 'average' and 'maximum-case' scenarios - see page 62 and Table D-1 in Appendix A of Icebreaking Operations Assessment (Golder 2019).</p> <p>DFO has suggested that effects are more appropriately assessed at the level of the Eclipse Sound stock (~12,000 narwhal) rather than the larger Baffin Bay population (~140,000 narwhal), given that stock level abundance estimates exist. Values are presented for both below:</p> <ul style="list-style-type: none"> <li>• DISTURBANCE: It is predicted that 3,500 to 4,700 narwhal in the RSA may experience noise levels above the disturbance threshold (120 dB) per icebreaker transit; this represents between 2.5 and 3.3% of the Baffin Bay population (estimated at 141,909 individuals based on DFO 2015a), and between 29 and 39% of the Eclipse Sound narwhal summer herd stock (estimated at 12,039 individuals based on Marcoux et al. 2019).</li> <li>• AVOIDANCE: It is predicted that 1,000 and 2,900 narwhal in the RSA may experience noise levels above the avoidance threshold (135 dB) per icebreaker transit, this represents between 1 and 2% of the Baffin Bay population and between 8 and 24 % of the Eclipse Sound narwhal summer herd stock.</li> </ul> <p>The total daily cumulative exposure period for narwhal from</p>	Marine		Resolved
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DFO-3.6.2	DFO	September 2019	Mitigation measures to address this concern that frequency of entrapments will increase over natural levels due to icebreaking in the fall shoulder season (e.g., no icebreaking while narwhal migrate into and out of Eclipse Sound).	<p>'Natural' levels of narwhal entrapment are presently unknown. Regardless, Baffinland is committed to undertaking an end-of-season aerial survey of the LSA, following the end of shipping operations, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey.</p> <p>The need for the mitigation measure proposed by DFO to not break ice while narwhal migrate into and out of Eclipse Sound is not supported by evidence and an unreasonable application of the precautionary principle. Such a mitigation measure would unnecessarily limit Baffinlands shipping season and the ability to transport the proposed increase in production to market. This recommendation does not adequately consider the shoulder season mitigation measures proposed by Baffinland, including vessel traffic management and setbacks from staging areas.</p> <p>Related to this technical comment, Baffinland would also like to note the following: the background to this comment suggests a linkage exists between the 2015 entrapment event and Baffinland's shipping operations that year (which was limited to 13 ore carriers and 4 fuel/cargo ships). Baffinland would like to formally document that Baffinland's shipping operations in 2015 ended on 12 October 2015 – and at this time, open water conditions were still prevalent throughout the RSA. The entrapment event occurred in early November 2015. Given the lack of spatial and temporal overlap between shipping and the entrapment</p>	Marine	<p>Baffinland is committed to undertaking an end-of-season aerial survey of the LSA for each year shoulder season shipping occurs, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey.</p> <p>Note</p> <p>Mitigation measures are limited, Baffinland has proposed having an icebreaker re-enter the RSA to create an exit pathway, assuming it is safe to do so. It is uncertain if this is a desirable action from the communities perspective. There is also an issue of identifying a natural event from a project affected one. Baffinlands suggests the MEWG is an appropriate forum to investigate such an event occurs in the future, and development adaptive mitigation measures, should they be necessary.</p>	Updated – See DFO 3.4.3-NEW
DFO-3.6.3	DFO	September 2019	Clarify what the 'Eclipse Sound complex' refers to and provide justification for not including the Pond Inlet area in this statement.	The use of the term 'Eclipse Sound Complex' refers collectively to the Eclipse Sound area, inclusive of Milne Inlet, Tremblay Sound, Navy Board Inlet, Eclipse Sound West, Eclipse Sound East and Pond Inlet. Pond Inlet is therefore already included in this statement.	Marine		Resolved
DFO-3.6.4	DFO	September 2019	Re-evaluation of the potential effects using the most recent stock size estimate.	See response to DFO 3.6.1.	Marine		Resolved
DFO-3.6.5	DFO	September 2019	Re-evaluation of the extent beyond the local study area (LSA) and within the RSA, the magnitude and the reversibility of the impacts of ice entrapment on narwhals.	The area outside the marine mammal LSA and inside the marine mammal RSA is restricted to the northern half of Navy Board Inlet and waters off the north coast of Bylot Island. There is no Project shipping undertaken in these areas and they are outside the acoustic zone of influence for Project shipping. Therefore, Baffinland does not feel that a re-evaluation of the effect of entrapment on narwhal is warranted in these areas.	Marine		Updated – See DFO 3.4.2-NEW

DFO-3.6.6	DFO	September 2019	Short and long term monitoring of potential effects of shipping on cetaceans, potentially including multi-year aerial surveys for determination of the residual environmental effect of ice entrapment.	As stated in Baffinland's response to DFO-3.6.2, Baffinland is committed to undertaking an end-of-season aerial survey of the LSA, following the end of shipping operations, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey. Short- and long-term monitoring of potential effects of shipping on narwhal (example types include narwhal tagging study, shore-based monitoring at Bruce Head, ship-based monitoring, aerial surveys, etc.) will be implemented in support of Phase 2 operations at a frequency that is mutually agreed upon by Baffinland and the MEWG.	Marine	Baffinland is committed to undertaking an end-of-season aerial survey of the LSA for each year shoulder season shipping occurs, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey.  Note  Baffinlands commitment to annual aerial surveys is for the life of the project.	Resolved
DFO-3.7.1	DFO	September 2019	DFO-FHPP recommends that Baffinland clarify on how NL1 was calculated and on how LSR was calculated for ambient noise, providing rationale for the modifications to the equation from Pine et al. (2018), and providing an example of how LSR is calculated.	The computation that is presented in the May 2019 Technical Memorandum is consistent with what is described in Frouin et al. (2019). The modifications to the equation from Pine et al. were made to compute the more intuitive Listening Range Reduction (LRR). LRR was computed using the provided Equation 1. Note that Equation 1 contains a typo, as discussed during a teleconference with DFO on June 13, 2019; there is a minus sign missing in the exponent and the equation should read $LRR = 100 * (1 - 10^{-(NL2 - NL1)/N})$ . The term N in the equation is the geometric spreading loss term. It will typically fall between 10 (cylindrical spreading) and 20 (spherical spreading). It is common practice to assume a value of 15 for a geometric spreading loss in the absence of empirical transmission loss data for a specific environment; this is commonly referred to as the "practical spreading loss model". As described in the Technical Memo, NL1 is the sound pressure level without the masking noise (in this case vessel noise) present. NL1 was determined using the maximum of the mid-frequency cetacean audiogram (Finneran 2015) or the median 1-minute sound pressure level recorded during times with no vessel detections. At 1kHz, the mid-frequency cetacean hearing threshold exceeds the ambient sound level and the LRR is computed relative to the hearing threshold in this case.  References: Finneran, J.J. 2015. Noise-induced hearing loss in marine mammals: A review of temporary threshold shift studies	Marine		Resolved

DFO-3.7.2	DFO	September 2019	DFO-FFHPP recommends that Baffinland conduct a modelling exercise to calculate the LSR associated with the proposed increased transits. Including modelling in other parts of the Regional Study Area including Milne Inlet and Eclipse Sound.	<p>During the Technical Meeting in Iqaluit in April 2019, DFO requested that JASCO expand the analysis in "Frouin-Mouy, H. and E.E. Maxner. 2018. Baffinland Iron Mines Corporation–Mary River Project: 2018 Passive Acoustic Monitoring Program. Document 01720, Version 2.0. Technical report by JASCO Applied Sciences for Golder Associates Ltd." to also include an analysis at 1 kHz. To meet this request from DFO, JASCO performed the calculation for 1 kHz; preliminary results were provided and in a Technical Memo dated May 10, 2019 and final results were included in a revised monitoring report (Frouin-Mouy et al. 2019). Although this analysis is based on the volume of traffic during existing operations, it can be extrapolated to adequately assess the expected future impacts and modelling is therefore not required.</p> <p>The results from the existing conditions can be used to make an informed estimate of the anticipated Listening Space Reduction (LSR), now termed Listening Range Reduction LRR), during proposed Phase 2 activities based on the anticipated increase of vessel traffic. For example, analysis of the 2018 acoustic monitoring data indicated that for a narwhal directly in the shipping lane (AMAR-1 recorder), a 90% LRR1 would occur at 1 kHz for approximately 1% of the time when vessels were present. For a whale in Koluktoo Bay (AMAR-3 recorder), a 90% LRR threshold would never occur for calls emitted at 1 kHz. Under a Phase 2 scenario, one can assume that narwhal would be subject to a similar proportional loss of listening</p>	Marine		Updated—See DFO 3.3.1 NEW—
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DFO-3.7.3	DFO	September 2019	DFO-FFHPP recommends that Baffinland provide new calculations based on the new guidelines (Southall et al. 2019) or provide comments on the difference in methods and results between the older and newer methods, as well as consider temporary threshold shift (TTS) and not just permanent threshold shift (PTS), where relevant.	<p>The thresholds and auditory weighting functions in Southall et al. (2019) are consistent with those from NMFS (2018) that were used in the acoustic modelling assessments. The methods and results are unchanged. The noise from transiting vessels will not exceed the thresholds for Temporary Threshold Shift. This can be seen in Figures E-42 through E-53 in TSD 24 (Marine Mammals Effects Assessment) Appendix B and Figures D-39 through D-76 in Appendix B of the Icebreaking Operations Assessment submitted to the NIRB on May 13, 2019.</p> <p>References:  National Marine Fisheries Service (NMFS). 2018. 2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. US Department of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59. 167 pp.  <a href="https://www.fisheries.noaa.gov/webdam/download/75962998">https://www.fisheries.noaa.gov/webdam/download/75962998</a>  Southall B.L., J.J. Finneran, C. Reichmuth, P.E. Nachtigall, D.R. Ketten, A.E. Bowles, W.T. Ellison, D.P. Nowacek and P.L. Tyack. 2019. Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. Aquatic Mammals 2019, 45(2), 125-232.</p>	Marine		Resolved
DFO-3.7.4	DFO	September 2019	DFO-FFHPP recommends that Baffinland provide long term monitoring plan to verify the prediction of the sound propagation modelling and its potential effects on the populations of marine mammals.	<p>A comparison of model estimates and measured data is presented in Frouin-Mouy et al. (2019). Similar analyses will be conducted using data collected during the 2019 shipping season to characterize the degree of conservatism in the sound propagation modelling that has been conducted. Additional AMARs have been deployed and will collect data during the Fall 2019 and Spring 2020 seasons. We are confident that the model provides a conservative estimate of the sound field, allowing for a precautionary assessment of the potential acoustic impacts. Monitoring data to date indicate that the narwhal are not showing pronounced reactions to the current levels of vessel activities.</p> <p>References:  Frouin-Mouy, H., E.E. Maxner, M.E. Austin and S.B. Martin. 2019. Baffinland Iron Mines Corporation—Mary River Project: 2018 Passive Acoustic Monitoring Program. Document 01720, Version 4.0. Technical report by JASCO Applied Sciences for Golder Associates Ltd.</p>	Marine	<p>An analyses will be conducted using data collected during the 2019 shipping season to characterize the degree of conservatism in the sound propagation modelling that has been conducted. Additional AMARs have been deployed and will collect data during the Fall 2019 and Spring 2020 seasons to further this analysis.</p> <p>See response to DFO 3.8.4 for commitment to long term acoustic monitoring.</p>	Updated - See DFO 3.3.1-NEW & DFO 3.3.3-NEW

DFO-3.8.1	DFO	September 2019	Baffinland should provide an assessment of the percentage (%) of time that narwhals will be exposed to noise under the Phase 2 proposal shipping scenario.	<p>Tables referenced this response are provided in Appendix F. Early Shoulder Season:</p> <p>The predicted 'per transit' and 'cumulative daily' noise exposure period that narwhal (and all marine mammal species) would be exposed to under Phase 2 shipping during the early shoulder season is presented below in Table 2 for disturbance (120 dB) and in Table 4 for avoidance (135 dB). During 'heavy' ice conditions (6/10 to 10/10 concentration), narwhal would be exposed to noise levels above the disturbance threshold for up to 9.5 hours per day (40% of the day, limited to a single transit event per 24-h period), effectively providing &gt;14 h of quiet time for narwhal in a given day (60% of the day, Table 2). With respect to avoidance behaviour, narwhal would be exposed to noise levels above the avoidance threshold (135 dB) for up to 2 h per day (8% of the day) during 'heavy' ice conditions (Table 4). During 'moderate' ice conditions (4/10 to 5/10 concentration), the 'per transit' exposure period for disturbance is predicted to be 4.5 h (Table 2). With a maximum of two transits per day allowable in 'moderate' ice conditions, the resulting cumulative daily noise exposure period for disturbance is predicted to be 9 h (37% of the day) (Table 2), equivalent of 15 h of quiet time (63% of the day). With respect to avoidance behaviour, narwhal would be exposed to noise levels above the avoidance threshold (135 dB) for up to 1.6 h per day (7% of the day) during 'moderate' ice conditions (Table 4). During 'light' ice conditions (<math>\leq 3/10</math>), the 'per transit' exposure period for</p>	Marine		Resolved
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DFO-3.8.2	DFO	September 2019	Re-evaluate the impact of masking on narwhal noting the evidence that narwhals will get close enough to vessels to experience masking effects.	<p>The conclusions made by Baffinland in the Phase 2 assessment that the effect of acoustic masking from shipping during both the shoulder and open water season is non-significant for narwhal was also independently supported by the results of the peer review of Baffinland’s Mary River Phase 2 Assessment Conclusions conducted by Hemerra (Appendix N).</p> <p>In their review, Hemerra determined that acoustic masking from shipping and icebreaking operations are not anticipated to result in population or stock level effects on narwhal given:</p> <ul style="list-style-type: none"> <li>• Many of the narwhal calls occur at predominantly higher frequencies than icebreaker noise and hence may not be masked</li> <li>• The majority of icebreaking will occur in the shoulder seasons when abundances of narwhal are generally lower</li> <li>• Icebreaking will be intermittent in nature (as per mitigation measures) and the effects of masking will cease in the absence of icebreaking</li> <li>• Literature indicates that in the presence of noise, narwhal initially exhibit a “freeze” response during which vocalizations cease; in the absence of communication clicks, acoustic masking is unlikely to occur. Following the initial “freeze” response narwhals have been documented to begin vocalizing again. This behaviour may suggest narwhal likely exhibit some level of habituation.</li> </ul> <p>This conclusion of non-significance is made with moderate confidence given the lack of scientific understanding in</p>	Marine	DFO is yet to discuss outstanding issue with Baffinland	<del>Updated – See DFO 3.3.2</del> <b>NEW</b>
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DFO-3.8.3	DFO	September 2019	Re-evaluate the level of the impact of masking from icebreaking on narwhal and provide supporting evidence, justification, and rationale for their conclusions.	<p>Currently, there are no established regulatory thresholds that would aid in the determination of significance of acoustic masking effects on narwhal. Erbe et al. (2016) characterize acoustic masking as a complex phenomenon and masking levels can be variable and dependent on the physiological and anatomical characteristics and activity of the sender and receiver, the levels of ambient noise and the degree of habituation of the individuals, as well as any anti-masking strategies employed. There is no call masking model developed in the literature that is narwhal-specific and no research is available on the hearing ability (i.e., audiogram) of narwhal (Erbe et al. 2016). There is uncertainty about how repeated exposure to icebreakers and ore carriers will affect narwhal and how narwhal might use anti-masking strategies to overcome masking effects. More research is needed to understand the process and biological significance of masking, as well as the risk of masking by various anthropogenic activities, before masking can be incorporated into regulation strategies or quantitatively within an effects assessment (Erbe et al. 2016).</p> <p>Although there is acknowledged uncertainty on how narwhal will be affected by repeated exposure to icebreakers and ore carriers or how narwhal might use anti-masking strategies to overcome masking effects, based on acoustic monitoring results to date and in light of conservative mitigation measures proposed by Baffinland, the degree of acoustic masking resulting from Project</p>	Marine	DFO is yet to discuss outstanding issue with Baffinland	Updated - See DFO 3.3.2-NEW
DFO-3.8.4	DFO	September 2019	Commits to additional acoustic monitoring related to icebreaking beyond 2019 regardless of if Phase 2 is approved or not, to verify predictions and better inform/refine ongoing monitoring, mitigation, and adaptive management	Baffinland will continue to undertake acoustic monitoring supportive of its operations in accordance with terms and conditions of the existing Project Certificate No. 005.	Marine	Baffinland will continue to undertake acoustic monitoring supportive of its operations in accordance with terms and conditions of the existing Project Certificate No. 005.	Resolved

DFO-3.9.1	DFO	September 2019	<p>All project related vessels (e.g., icebreakers, escort vessels, ore carriers) have MWOs present for the entire shipping season (e.g., port to port). If this not logistically possible, an alternative plan should be developed by Baffinland to monitor presence and behavior of marine mammals.</p>	<p>Placing marine wildlife observers on ore carriers as they enter the RSA is not an option due to safety and logistical limitations. It is also unfeasible to place MWOs on each vessel from their originating and terminating ports, which would be required as Milne Port is not equipped to process such arrivals to enter Canada from another country. Baffinland notes that monitoring for Project effects within the Regional Study Area (RSA) allows for effective and comprehensive monitoring of areas of Inuit traditional land use and harvesting and within the area where incremental effects have the greatest potential to interact with the effects of existing and reasonably foreseeable activities on marine mammals. The ship-based observer (SBO) program was re-instituted when a safe and logistically feasible opportunity presented itself. The Marine Wildlife Observers (MWOs) are based aboard the icebreaker which is only operating in the RSA during the shipping shoulder seasons. However, potential effects of shipping on marine mammals during the open water season are collected through other ongoing monitoring programs implemented by Baffinland including marine mammal aerial surveys, the Bruce Head Shore-based Monitoring Program, the Passive Acoustic Monitoring (PAM) program and the Narwhal Tagging Program. These programs collectively provide for data evaluation of potential interactions of vessels with marine mammals during the entire shipping period.</p>	Marine	<p>Baffinland will implement an incidental marine mammal monitoring program with vessel operators calling on Milne Port, which will request incidental observations of marine mammals to be recorded and relayed to Baffinland. In support of this program, Baffinland will develop educational materials for vessel crew to assist in marine mammal identification and data recording. Baffinland will provide a draft of the materials and program for review by the MEWG before they are finalized.</p>	<p><del>Updated - See DFO 3.5-NEW</del></p>
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DFO-3.9.2	DFO	September 2019	Baffinland provide the “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” for DFO to review.	<p>The Standing Instructions to Masters are provided to Captains to operate their vessel within the RSA and outline, among other things, the manner in which to avoid separating an individual from a group of marine mammals are as follows:</p> <ul style="list-style-type: none"> <li>• Maintain constant speed and course when possible.</li> <li>• Follow waypoints provided in Standing Instructions to Masters</li> <li>• Reduce vessel speed to 9 knots.</li> <li>• Heed guidance of Shipboard Marine Wildlife Observers who are monitoring vessel interactions with marine mammals.</li> <li>• 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).</li> <li>• Do not approach within 300 m of a walrus or polar bear on observed sea ice.</li> </ul>	Marine		Resolved
DFO-3.10.1	DFO	September 2019	With current level of information provided, DFO is not able to adequately assess the risk of ballast water release on the spreading of unwanted species in the project area. In order to DFO properly assess the ballast release, DFO recommends that Baffinland, prior to issuance of the project certificate and issuance of authorizations, provide the following (DFO 3.10.1-DFO-3.10.6)The ballast water dispersion model and analyses be complete.	<p>Comparison with 2018 seasonal data has been completed and provided in a Technical Report (Appendix N) with appendices.</p> <p>The above memo was sent to DFO, QIA, Parks Canada, Transport Canada, NPMO and NIRB on October 11, 2019.</p> <p>References: Golder Associates Ltd. 2019. Technical Report - Ballast Water Dispersion Modelling - Ballast Water Model Validation. Submitted to Baffinland Iron Mines Corporation. 1663724-154-R-Rev0. 09 October 2019.</p>	Marine	DFO to develop specific recommendation for Baffinland consideration	Updated— See DFO 3.6.1-NEW and DFO 3.6.2-NEW

DFO-3.10.2	DFO	September 2019	All project vessels use ballast water treatment plus exchange strategy.	<p>It is noted that all vessels calling to Milne Port are required to operate in accordance with Transport Canada's Ballast Water Control and Management Regulations (Regulations; SOR/2011-237) pursuant to the Canada Shipping Act, 2001 (S.C. 2001, c. 26) and the International Maritime Organization's International Convention for the Control and Management of Ship's Ballast Water and Sediment (IMO 2017). Baffinland wishes to emphasize that current ballast water sampling by Baffinland remains a voluntary measure that exceeds federal and international guidelines for ballast water management.</p> <p>Baffinland has put into place additional measures that exceed regulatory and industry standards to include the requirement for all vessels calling on Milne Port that treat their ballast under the D2 Standard to also perform a ballast water exchange prior to treatment. This practice will continue until Baffinland provides updated ballast water dispersion modelling that more accurately reflects the spectrum of salinity and temperature that can be expected to be discharged at Milne Port.</p> <p>The Ballast Water Management Plan will be updated post-Phase 2 Proposal approval to reflect the commitments described above.</p>	Marine	<p>Baffinland will revise the Ballast Water Management Plan to include a requirement for all vessels to conduct ballast water exchanges (with or without D2 treatment systems) prior to calling on Milne Port, until such a time that ballast water treatment systems are compliant with the D2 standards set by the IMO.</p> <p>Should Baffinland wish to discontinue the practice of exchange plus treatment, Baffinland will provide updated ballast water modelling that reflects the range of salinity that may be present in the ballast water tanks where no exchange occurs.</p>	<p><del>Updated - See DFO 3.6.3 NEW and DFO 3.6.4 NEW</del></p>
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DFO-3.10.3	DFO	September 2019	<p>Monitoring of all ballast water discharges for compliance with Regulations D-1 and D-2, which includes a provision requiring the ballast water of each ship is tested to confirm that it meets Canadian requirements for salinity (at least 30 ppt) and number of viable organisms (Regulation D-2) prior to discharging.</p>	<p>Baffinland wishes to emphasize that current ballast water sampling by Baffinland remains a measure that exceeds federal and international guidelines for ballast water management, including those mandated by Transport Canada.</p> <p>Baffinland has committed to implementing a pilot ballast water biological monitoring program for ships currently only subject to the D1 standard (open water exchange). This program has been designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017 and will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island.</p> <p>The Ballast Water Management Plan will be updated post-Phase 2 Proposal approval to reflect the commitments described above.</p>	Marine	<p>Baffinland is continuing to discuss a resolution to TC-02 regarding the sampling of multiple ballast water tanks in circumstances where ballast water is taken on at multiple locations. Baffinland will mirror any commitment to TC here for DFO.</p> <p>Baffinland will implement a pilot ballast water biological monitoring program for ships calling on Milne Port. This program will be designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017. This program will include sampling from one ballast tank on a total of five vessels per shipping season.</p> <p>Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island.</p>	<p><del>Updated - See DFO 3.6.5-NEW</del></p>
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DFO-3.10.4	DFO	September 2019	A monitoring plan which includes biological sampling of ballast water and hull fouling for all arriving ships (not just foreign flagged vessels) to evaluate the number and types of organisms being discharged, and more intensive seasonal sampling for marine fish and invertebrates.	See response to DFO-3.10.3	Marine	<p>Ballast water - See commitment to implement a pilot ballast water biological monitoring program (3.10.3)</p> <p>Hull fouling - Baffinland cannot implement a biological sampling program. Biological growth is typically limited to the deepest sections of the hull, so the only way to collect samples in these areas is to use divers. This would require 'lock out' of the vessel, which is not possible on our ore carriers. We do collect biological AIS data for hull biofouling via high definition ROV video surveys of the hulls – this is undertaken on a subset of the vessels calling to port each summer (this occurred in 2018 and 2019, and will be the plan moving forward).</p> <p>Note – lock out means that we would physically put locks on all the controls in the mechanical room and on the bridge such to ensure that no intakes, engines, discharges of the ship are operational. This is an occupational requirement when diving in proximity to ships due to the danger present. This procedure requires significant time and insurance to permit, which Baffinland does not feel is warranted given the biological program already in place.</p> <p>Baffinland will continue to integrate feedback from MEWG Members in the design of the MEEMP program, such as more intensive seasonal sampling for marine fish and invertebrates.</p>	Updated – See DFO 3.6.6-NEW and DFO 3.6.7-NEW
DFO-3.10.5	DFO	September 2019	An assessment of potential biological and ecological effects of ballast discharge and identification of the high risk species or groupings of species of concern. These species may include, but not be limited to any NIS/AIS that have been detected in the course of past AIS/MEEMP monitoring, and should be updated in the event that new NIS/AIS are detected in future monitoring.	Identification of high-risk biological species or groupings of species of concern is the responsibility of DFO. Baffinland will continue to share all results of the Marine Environment Effects Monitoring Program and AIS Monitoring Program with DFO to assist in this regard.	Marine	Baffinland will update the AIS monitoring program in the next iteration of the Marine Monitoring Program for Phase 2 to describe the process it follows for identifying high-risk biological species discovered through its sampling programs.	Updated – See DFO 3.6.8-NEW

DFO-3.10.6	DFO	September 2019	<p>An early response plan (similar to an oil spill response plan) be developed with applicable regulators and local communities so that, should an NIS/AIS be detected, significant environmental effects or major change to species composition could be avoided.</p>	<p>In Baffinland's March 2019 response to Technical Comment DFO 3.8.2, Baffinland has committed to the following: "Should it be confirmed that an AIS has become established in the Project area and that this introduction was a direct result of Baffinland shipping operations, Baffinland is committed to working with DFO to develop management actions for control of the AIS in accordance with DFO's Canadian Action Plan to Address the Threat of AIS. The level of intervention would correspond proportionally to the level of threat of the AIS." This commitment was reiterated to DFO following the June technical meetings with the following "Baffinland will work with DFO to develop a management and response approach in the event a non-indigenous species is identified during monitoring." It is also noted that Baffinland's management of AIS is focused on prevention through regular ship inspections and on-board ballast water testing (as outlined in Baffinland's BWMP) and through comprehensive AIS monitoring in the marine receiving environment as outlined in the Marine Environment Effects Monitoring Program and AIS Monitoring Program Annual Reports.</p>	Accidents	<p>Baffinland will work with DFO to develop a management and response approach in the event a non-indigenous species is identified during monitoring. This response approach will be added as an attachment to the AIS monitoring program.</p>	<p><del>Updated - See DFO 3.6.9-NEW and DFO 3.6.10-NEW</del></p>
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DFO-3.11.1	DFO	September 2019	All iron ore carriers related to the Baffinland Project stop and reduce noise when cruise ships are in the area.	<p>Project economics require reasonably predictable access, based on information on community land-use and historic ice conditions. Once shipping has begun, any interruptions have cascading effects that diminish the viability of the project. As such, for each cumulative 24-hour loss, or delay, two potential ship loads are lost. In 2019, numerous cruise and pleasure crafts were operating in the Pond Inlet, Eclipse Sound area, from July to September. Some of these vessels remained in the area for consecutive days at a time. Restricting movement of ore carriers during these periods when pleasure craft were in the vicinity would result in time that cannot be recouped. There is currently no traffic management scheme in the area except that which is administered for Baffinland Project shipping. The measures in place (speed limits, defined routes, no passing areas, no-go zones, etc) all contribute to diminishing risks and lowering impacts. Pleasure craft do not operate with the same level of risk mitigation. Given these comments, and the degree to which the project has already undertaken measures to address community concerns, it remains entirely unclear to Baffinland why DFO would request that Baffinland suspend regular shipping operations when cruise ships are present in the area given that Baffinland's mitigations for minimizing effects of shipping in the RSA are far more conservative than those adopted by cruise ships operating in the RSA. To further illustrate, Baffinland notes that it has committed to restricting vessel speeds to less than 9 knots, and has demonstrated compliance to that</p>	Marine		Resolved
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DFO-3.11.2	DFO	September 2019	Baffinland conduct a thorough cumulative effects analysis and assessment examining all the combined impacts of all the Project activities inside and outside the study areas. This should include a final assessment on the expected available quiet time during the shipping season and whether the Phase 2 development will in fact result in continuous noise through the shipping route.	<p>The Phase 2 development will not result in continuous noise along the shipping route. Table 1 presents the aggregate number of vessels in the RSA per month, based on both Project and estimated known non-project related vessel traffic.</p> <p>For the open-water shipping season, the predicted 'per transit' and 'cumulative daily' noise exposure period<sup>1</sup> that narwhal (and all marine mammal species) would be exposed to is presented in Table 2 for the 'average' case (up to 6 vessel transits in the RSA per day including Project and non-Project vessels), and in Table 3 for the 'maximum' case (up to 9 vessel transits in the RSA per day including Project and non-Project vessels). The predicted 'cumulative daily' noise exposure period for disturbance is predicted to be, on average, up to 11.4 h (48% of the day), equivalent to &gt; 12 h of quiet time (52% of the day), and under a 'worst case' scenario, up to 16.2 h (68% of the day), equivalent to ~8 h of quiet time (32% of the day). Again, these estimates are based on acoustic modelling results, and are therefore considered to be conservative.</p> <p>For the early shoulder season, it is assumed that only Project vessels would be active in the RSA. Therefore, daily noise exposure periods presented for the early shoulder season in Baffinland's response to DFO-3.8.1 would apply, as summarized below.</p> <ul style="list-style-type: none"> <li>• During 'heavy' ice conditions (6/10 to 10/10 concentration), narwhal would be exposed to noise levels above the disturbance threshold for up to 9.5 hours per day</li> </ul>	Marine	DFO to develop specific recommendation for Baffinland consideration	Updated— See DFO 3.7-NEW
DFO-3.12	DFO	September 2019	If the Project is approved, DFO-FFHPP recommends Baffinland, during DFO's regulatory phase, provide rationale for the selection of crossing infrastructure for fish bearing watercourses.	This will be provided as part of the application for an authorization under the Fisheries Act for the North Railway.	Freshwater	Baffinland will include the requested information in the application for the Fisheries Act Authorization	Resolved
DFO-3.13.1	DFO	September 2019	If the Project is approved, DFO-FFHPP recommends that, during the Regulatory phase, Baffinland: Analyze monitoring reports related to the Tote Road existing watercourses crossings and provide comprehensive "lessons learned" report (for the Tote Road crossings) that would include strategic analysis of what will be done differently to ensure the fish-passage issue will be mitigated, avoided and addressed	A discussion on lessons learned from the Tote Road crossings will be provided with the crossing selection rationale as part of the application for an authorization under the Fisheries Act.	Freshwater	Baffinland will include the requested information in the application for the Fisheries Act Authorization	Resolved
DFO-3.13.2	DFO	September 2019	If the Project is approved, DFO-FFHPP recommends that, during the Regulatory phase, Baffinland: Provide updated hydrological assessment of proposed watercourses crossings that includes, but is not limited to, crossing selection and design criteria, flow rates, velocities and discharge.	This information will be provided to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Freshwater	Baffinland will include the requested information in the application for the Fisheries Act Authorization	Resolved

DFO-3.14.1	DFO	September 2019	Provide detailed water withdrawal plan that includes an in-depth risk analysis informed by site specific fish and fish habitat features for the waterbodies chosen for water withdrawal as part of any 'DFO Request for Review' submission.	This information will be provided to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Freshwater	Baffinland will include the requested information in the application for the Fisheries Act Authorization	Resolved
DFO-3.14.2	DFO	September 2019	Conduct a thorough localized assessments on the waterbodies selected for water withdrawal in order to adequately assess the potential impacts on the fish habitat resulting from 20% of the 10-year dry unit runoff water withdrawal on fish-bearing watercourses and connecting waterbodies. This assessment should include, but not be limited to, an assessment of the effects to littoral/shore/riparian areas from the proposed water withdrawal, the specific withdrawal locations proposed for each waterbody including fish habitat in the area and updated rationale on how this level of withdrawal will be environmentally protective threshold.	Fish habitat surveys were completed at water withdrawal sites in late August 2019. Localized assessments of water withdrawals will be undertaken and presented in a Detailed Water Withdrawal Plan that will be provided to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Freshwater	Baffinland will include the requested information in the application for the Fisheries Act Authorization	Resolved
DFO-3.14.3	DFO	September 2019	Provide additional rational/ assessment to support the assertion that 40% of the 10-year dry unit runoff water withdrawal from non-fish-bearing streams will not negatively affect downstream fish-bearing waterbodies.	The limits for water withdrawal were established as a screening tool to identify suitable waterbodies on the Northern Transportation Corridor. The limits are conservative but require additional site-specific assessments to confirm the avoidance of impacts on fish and fish habitat. These site-specific assessments will be provided as part of the Request for Review Application to DFO as part of project permitting.	Freshwater	Baffinland will include the requested information in the application for the Fisheries Act Authorization	Resolved
DFO 3.1.1 NE	DFO	February 2020	DFO recommends Baffinland provide a brief review and assessment of how changing the limitation from the amount of ore to number of voyages will alter any of the provided assessments and models provided to this point in the assessment process.	Baffinland has considered all Project vessels (ore carriers, freight vessels, and fuel vessels) in its assessment. For example, see the estimates of daily exposure duration and daily quiet time for Phase 2 Shipping based on modelled and measured sound levels (specifically Tables 11 and 12) in section 4.1.3.2 of the Marine Mammal Monitoring Technical Memo (Appendix B).	Marine		Resolved

DFO 3.1.2 NE	DFO	February 2020	DFO recommends Baffinland provide consideration for vessels, in addition to ore carriers, in determining the potential for impacts due to increased production.	On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board: Baffinland can confirm that it will not surpass the number of vessels described and assessed in the Phase 2 FEIS Addendum to ship an additional 20% of ore over 12 Mtpa in the maximum operational flexibility scenario. For clarity, this is a limit of 176 ore carriers, 12 freight vessels and 12 fuel vessels. Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.	Marine	Baffinland can confirm that it will not surpass the number of vessels described and assessed in the Phase 2 FEIS Addendum to ship an additional 20% of ore over 12 Mtpa in the maximum operational flexibility scenario. For clarity, this is a limit of 176 ore carriers, 12 freight vessels and 12 fuel vessels.	Resolved
DFO 3.2 NEW	DFO	February 2020	DFO is concerned with Baffinland's determination of the starE72+D:M+D:N+D:M+D:N+D:R+D:O+E72+D:M+D:N	Please refer to responses below.	Marine		N/A
DFO 3.2.1 NE	DFO	February 2020	A summary of monitoring conducted during the opening and closing of the shipping season	On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board: Baffinland commits to provide a summary of monitoring conducted during the opening and closing of the shipping season, as well as a summary of the determinants for opening and closing the shipping season as part of its annual reporting. The requirement for, and format of, this report will be included in the final Marine Monitoring Plan, should Phase 2 be approved. Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved. Background Shipping during the shoulder seasons to date has been monitored through several of Baffinland's marine monitoring programs (which are subject to ongoing annual reporting requirements) and include: Opening of the Shipping Season •Aerial Surveys (Distribution and Abundance) - A marine mammal aerial survey was conducted immediately prior to the start of, and in the early shoulder season to examine changes in distribution and abundance of marine mammals in relation to early season shipping activities. This was then followed by a second leg of marine mammal aerial-based abundance survey to estimate the abundance of the Eclipse Sound narwhal summer stock and compare this to previous	Marine	Baffinland commits to provide a summary of the following information as part of its annual reporting requirements, and in preliminary field reports within 35 days of Spring shoulder season shipping activities commencing and 15 days of Fall shoulder season activities ending: i. marine monitoring programs, ii. determinants for opening and closing the shipping season, iii. ecological and cultural (or "Inuit use") factors that influence shipping activities iiii. other information, as requested by DFO and other regulators and key stakeholders, relevant to the marine environment  The requirement for, and format of, these reports will be included in the final Marine Monitoring Plan, should Phase 2 be approved. Additional information requested after submission of the preliminary field report is to be provided by Baffinland as a memo within 35 days and will be included in Annual Reporting.	Resolved

DFO 3.2.2 NE	DFO	February 2020	<p>Consideration for marine mammal behaviours or additional ecological factors in their determination of shipping season opening and closing, such as the mentioned outmigration of narwhal, and a commitment to reporting annually on the determination of the opening and closing of the shipping season.</p>	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☐ Baffinland commits to updating the Draft Early Shipping Season-Operational Guide, to better characterize considerations used in determining the nominal shipping season. See response to DFO 3.2.2 for the commitment to report on determinants of opening and closing the shipping season.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p> <p>Background</p> <p>As part of the August 23, 2019 submission to the NIRB in support of the Phase 2 Proposal, Baffinland submitted a Draft Early Shipping Season – Operational Guide that clearly outlines the conditions under which Baffinland would begin shipping in the shoulder season. This criterion is based on both ecological and community determinants, and includes the following requirements:</p> <ul style="list-style-type: none"> <li>• Before commencing shipping, Baffinland must receive written confirmation from the MHTO that the floe edge is no longer being used by community members. No transits</li> </ul>	Marine	<p>☐ Baffinland commits to updating the Draft Early Shipping Season-Operational Guide, to better characterize considerations used in determining the nominal shipping season. See response to DFO 3.2.2 for the commitment to report on determinants of opening and closing the shipping season.</p>	Resolved
DFO 3.3 NEW	DFO	February 2020	<p>DFO is concerned that the Baffinland provided acoustic modelling does not fully allow DFO to assess cumulative sound level and the assessment of the effect of the sound on marine mammals. DFO recommends that Baffinland</p>	<p>The cumulative effects of Project and non-Project vessel noise on marine mammals in the RSA is described in Section 4.1.3.2 of the Marine Mammal Monitoring Technical Memo (Appendix B). This describes the cumulative daily noise exposure on marine mammals in the RSA based for both average and maximum daily vessel transit scenarios accounting for both Project and non-Project vessels.</p>	Marine		Resolved

DFO 3.3.1 NE	DFO	February 2020	Provide the committed to technical memorandum which include calculations for the LSR associated with the proposed increased transits and modelling in other parts of the RSA including Milne Inlet, Eclipse Sound and Koluktoo Bay, for DFO's review.	The requested LSR calculations are provided in Section 4.1.4 of the Marine Mammal Monitoring Technical Memo (Appendix B). This describes the cumulative daily noise exposure on marine mammals in the RSA based for both average and maximum daily vessel transit scenarios accounting for both Project and non-Project vessels. The initial commitment was for JASCO to prepare a stand-alone technical memorandum which included a summary of noise measurements of shipping Operations in 2019 as well as modelling of Listening Range Reduction under a Phase 2 scenario. The memo prepared by JASCO was integrated into the above-mentioned technical memorandum in an effort to provide DFO and other regulators with an integrated summary of monitoring and modelling results as previously requested by these parties.	Marine		Resolved
DFO 3.3.2 NE	DFO	February 2020	DFO recommends that, before the Project is approved, Baffinland reevaluate the impact of masking on narwhal to a magnitude of 2.	re-evaluation of masking effects on marine mammals in the RSA has been completed and is presented in Section 4.1.4 and Section 6.0 of the Marine Mammal Monitoring Technical Memo (Appendix B). This describes the cumulative daily noise exposure on marine mammals in the RSA based for both average and maximum daily vessel transit scenarios accounting for both Project and non-Project vessels. Masking effects on narwhal have been re-assessed to a Magnitude 2 rating.	Marine		Resolved

DFO 3.3.3 NE	DFO	February 2020	Commit to collect data with AMARs at an appropriate frequency (eg. yearly) and develop a long-term monitoring plan, which is provided to MEWG members and approved by DFO, prior to the start of the Phase 2 increased shipping season.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland commits to collecting acoustic data in the RSA using AMARs to characterize the degree of conservatism in the sound propagation modelling, at an appropriate frequency for the duration of the Phase 2 construction and operation periods, to be determined in consultation with Inuit and MEWG members, of which DFO is a member. Recommendations from MEWG members will be treated consistent with the consensus-based decision requirements of the final updated MEWG Terms of Reference. Baffinland commits to updating the marine monitoring plan (MMP) with this long-term monitoring plan, should Phase 2 be approved.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p>	Marine	Baffinland commits to collecting acoustic data in the RSA using AMARs to characterize the degree of conservatism in the sound propagation modelling, at an appropriate frequency for the duration of the Phase 2 construction and operation periods. Baffinland will collaborate with Inuit and DFO on the development of the draft program prior to submission to the MEWG for additional advice and recommendations. Recommendations from MEWG members will be treated consistent with the consensus-based decision requirements of the final updated MEWG Terms of Reference. Baffinland commits to updating the marine monitoring plan (MMP) with this long-term monitoring plan, should Phase 2 be approved.	Resolved
DFO 3.4 NEW	DFO	February 2020	DFO is concerned about the impacts to marine mammals from shoulder season shipping and ice-breaking and disagrees with Baffinland's conclusions that effects will be non-significant.	Please refer to responses below.	Marine		N/A

DFO 3.4.1 NE	DFO	February 2020	<p>DFO recommends that Baffinland prepare a monitoring plan, with an appropriate survey methodology, for the purpose of documenting and reporting any impacts due to icebreaking and shoulder season shipping activities, which includes the indicators Baffinland intends to use and rationale for the selection of said indicators. Baffinland should provide this plan or an adequate outline of the proposed plan to DFO for review and approval prior to any addition of ice breaking activities.</p>	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following three commitments relevant to the given recommendation, which it is formally providing here for to the Board:</p> <ul style="list-style-type: none"> <li>☑ Baffinland has provided a draft Marine Monitoring Plan (MMP) as part of the Phase 2 review process. Should Phase 2 be approved, Baffinland will update this Plan to reflect all relevant commitments and terms and conditions.</li> <li>☑ Rather than develop a separate, stand-alone monitoring plan specific to icebreaking as suggested by DFO, Baffinland will include a specific section relevant to icebreaking and shoulder season shipping activities in the MMP. Survey methodology and indicators (including rationale) will be determined in consultation with the MEWG, of which DFO is a member. Recommendations from MEWG members will be treated consistent with the consensus-based decision requirements of the final updated MEWG Terms of Reference.</li> <li>☑ An updated draft MMP will be provided to the MEWG for comment and the NIRB within 180 days of issuance of an amended Project Certificate, should Phase 2 be approved. Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</li> </ul> <p>Background Baffinland notes that under the current permitting and construction schedule, Phase 2 shipping levels would not commence before 2024, providing at least 4 years to</p>	Marine	<p>Baffinland commits to update the Marine Monitoring Plan (MMP) to include a specific section relevant to icebreaking and shoulder season shipping activities in advance of the 2021 shipping season. Through the ICA, Baffinland is also committed to the development initial Indicators for the MMP in collaboration with QIA by December 2020. These initial OITR's will then be subject to review by Inuit (through the Inuit Committee) and regulators (through the MEWG) before finalization (no later than August 30, 2021).</p> <p>In advance of the 2021 shipping season, BIM can also commit to providing an updated draft MMP that will include a placeholder for a dedicated section specific to icebreaking and shoulder season activities. A full update to the MMP will occur following receipt of a positive decision from the Minister. Updates to the MMP will be actively worked on with the MEWG in 2021 (following a decision). A final MMP would then be in place for the 2022 shipping season. Recommendations from MEWG members on survey methodologies and initial indicators will be treated consistent with the decision-making requirements as outlined in the forthcoming updated MEWG Terms of Reference.</p>	Resolved
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DFO 3.4.2 NE	DFO	February 2020	<p>DFO recommends Baffinland provide consideration for the reevaluation of the magnitude and the reversibility of the impacts of ice entrapment on narwhals.</p>	<p>Baffinland’s assessment of magnitude and reversibility were based on the following points:</p> <ul style="list-style-type: none"> <li>• There is no evidence in the literature connecting shipping and entrapment events.</li> <li>• Existing IQ, literature, and empirical data (e.g., narwhal tagging data, Ship-based Observer data, fall aerial surveys) indicate that most narwhal have left or are leaving the RSA before freeze-up.</li> <li>• Ice conditions at the time of outmigration are similar to ice conditions the animals occupy overwinter in Baffin Bay pack ice.</li> <li>• In early shoulder season of 2019, aerial surveys documented narwhal in 10/10 ice concentrations when other open water areas were available, confirming the animal’s strong connection to heavy ice. Narwhal tagging data also confirms that narwhal naturally occupy areas of 10/10 ice including when no shipping is taking place.</li> <li>• No narwhal entrapment events occurred as a result of icebreaking operations during previous Nanisivik Mine operations which included icebreaking earlier in the season (May) and ending in November.</li> <li>• No entrapment events occurred during Baffinland icebreaking operations in 2018 and 2019.</li> </ul> <p>Based on the above rationale, Baffinland does not anticipate that shipping operations will result in entrapment of narwhal in the RSA. Regardless, Baffinland has still committed to undertaking an aerial-based clearance survey after cessation of fall shipping activities to</p>	Marine	<p>Baffinland recognizes that DFO disagrees with the certainty assigned to the potential for ice entrapments of marine mammals in the Phase 2 FEIS Addendum. To address DFO’s concerns about uncertainty, Baffinland has committed to run annual end of season clearance surveys (DFO 3.6.2) and develop a response plan for the potential event of an ice entrapment (DFO 3.4.3 NEW).</p>	Resolved
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DFO 3.4.3 NE	DFO	February 2020	<p>DFO recommends Baffinland commit to producing a response plan in the event of ice entrapments, as determined by the committed to multi-year aerial surveys. This plan should include action level triggers and associated outlined response actions, in the event of an ice entrapment and subsequently an increase in frequency of ice entrapments. This plan should be developed in discussion with DFO and other parties and provided to DFO for review and approval.</p>	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland commits to produce a response plan for the potential event of an ice entrapment, should this be observed during the annual end of season clearance surveys. This plan will include action level triggers and associated response actions. This plan will be developed in consultation with the MHTO and DFO, understanding that these two groups are ultimately responsible for determining the appropriate course of action should an entrapment event occur.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p>	Marine	<p>Baffinland commits to run an annual end of season clearance survey. The survey will occur within 7 days following the close of the shipping season. Determination on the need for the end of season surveys will be where ice conditions warrant the survey, and in collaboration with MHTO and DFO. Baffinland commits to provide GIS coordinates and a description of group size(s) of narwhal along the aerial survey tracks. In addition, Baffinland will document ice conditions along the aerial survey tracks in order to inform changes in ice conditions and/or areas of greater risk for entrapment. This data will be provided to DFO as part of the fall shoulder season shipping reports as committed to under DFO 3.2.1 (NEW).</p> <p>A reporting structure will be determined in collaboration with MHTO, DFO, and other relevant boards and organizations in the event an ice entrapment is observed during the annual end of season clearance survey, as will procedures for determining if the event is a natural or project-related event, and associated response actions. This reporting structure is essential to determine the best course of action should an ice entrapment occur. After five years of annual end of season clearance surveys once Phase 2 shipping is operational, Baffinland and DFO will collaborate to analyze the data acquired from these surveys to determine what has been learned about any potential ice entrapments, and if the annual surveys should continue to proceed.</p>	Resolved
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DFO 3.4.4 NE	DFO	February 2020	<p>Overall, DFO reiterates the recommendation that Baffinland implement the most conservative mitigation measure and avoid shipping during the shoulder seasons and ice-breaking activities; only ship during the open water season.</p>	<p>Baffinland is confident in the conclusion drawn in the assessment of icebreaking activities (Golder, 2019) that, with mitigation, Phase 2 operations will not result in significant residual effects to marine mammals. Confidence is based on conservative assumptions and modelling scenarios applied in the assessment, the extensive set of shipping-related mitigation measures proposed and outlined in the draft Shipping and Marine Wildlife Management Plan (SMWMP) for Phase 2, and commitments for follow-up monitoring to manage uncertainty. To further address interveners outstanding uncertainties in the assessment, Baffinland contracted Hemmera to undertake a third-party peer review of the icebreaking operations effects assessment. Hemmera’s review considered a substantial body of information and used a ‘multiple lines of evidence’ approach for evaluating the significance of shipping impacts on narwhal along the Northern Shipping Route, including the following:</p> <ul style="list-style-type: none"> <li>• Inuit Quajimajatuqangit (IQ)</li> <li>• Literature evidence (journal articles and reports published)</li> <li>• Empirical evidence (site-specific, quantitative data collected over an extended time series from multiple monitoring programs including aerial surveys, acoustic monitoring, shore-based monitoring, ship-based monitoring)</li> <li>• Modelling evidence (acoustic modelling)</li> <li>• Evidence from other past environmental assessments in Canada including the Canadian Arctic region</li> </ul>	Marine		Outstanding - In Progress
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DFO 3.5 NEW	DFO	February 2020	DFO reiterates if having MWOs present for the entire shipping season on all project related vessels (e.g., icebreakers, escort vessels, ore carriers) is not logistically possible, an alternative plan should be developed by Baffinland to monitor presence, behavior and potential ship strikes of marine mammals.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following two commitments relevant to the given recommendation, which it is formally providing here for to the Board:</p> <ul style="list-style-type: none"> <li>☑ Baffinland will prepare and submit to DFO a literature review of ship-based marine mammal remote monitoring systems. This literature review will include a summary of commercially available remote wildlife monitoring systems that could be installed on vessels to supplement existing marine mammal monitoring programs and enhance detection of ship strikes on marine mammals. The remote monitoring systems identified in this literature review will inform adaptive management, should the need be triggered. For clarity, in the event of a ship strike on a marine mammal, a single event, although unlikely based on present mitigations (i.e. speed restrictions), would trigger an adaptive management response.</li> <li>☑ Baffinland will implement an incidental marine mammal monitoring program with vessel operators calling on Milne Port, which will request incidental observations of marine mammals to be recorded and relayed to Baffinland. In support of this program, Baffinland will develop educational materials for vessel crew to assist in marine mammal identification and data recording. Baffinland will provide a draft of the materials and program for review by the MEWG before they are finalized. Baffinland expects that this commitment will satisfy DFO's</li> </ul>	Marine	<p>Baffinland has indicated that it is only feasible to have Marine Wildlife Observer's present on the MSV Botnica. Noting that having MWO's present on ships may not be feasible at all times due to safety concerns, and that certain environmental conditions may limit visibility, Baffinland commits to develop a pilot project using remote technology to monitor for ship strikes along the shipping route within the Nunavut Settlement Area. The intent of the pilot project is to determine the efficacy of mitigation to prevent ship strikes and of monitoring to detect ship strikes and any near misses.</p> <p>To solicit early feedback from DFO in advance of developing and submitting the methodology and parameters for the monitoring program to the MEWG, DFO will provide reports from all comparable studies conducted by DFO 8 months in advance of the start of the program and will identify what aspects of these programs DFO is recommending Baffinland integrate into the program design. Where relevant, Baffinland will incorporate the guidance provided by DFO into the study design prior to distributing it to the MEWG for review. Methodology and parameters for the monitoring program will be submitted to the MEWG (of which DFO is a member) for review and recommendations. Recommendations from MEWG members will be treated consistent with the decision-making requirements as outlined in the forthcoming updated MEWG Terms of</p>	Resolved
DFO 3.6 NEW	DFO	February 2020	In order to DFO properly assess the ballast release, DFO recommends that, prior to initiating increased shipping for the Phase 2 development, Baffinland provide the following:	Please refer to responses below.	Marine		N/A

DFO 3.6.1 NE	DFO	February 2020	Clarification on where vessels have been discharging ballast to date and how Baffinland validates/tracks this information.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>Project vessels are limited to releasing ballast water at one of the three anchorage locations at Milne Port, or while berthed at the ore dock. Further, prior to any ballast water discharge D-1 compliance testing must be completed. Instructions to not release ballast water prior to arrival at Milne Port and completion of ballast water testing is provided to all ship operators in Baffinland’s Standing Instruction to Masters (SITM). This requirement will remain under Phase 2.</p> <p>Baffinland expects that this commitment will satisfy DFO’s concern and the comment will now be considered resolved. For additional information refer to Appendix B</p>	Marine	Project vessels are limited to releasing ballast water at one of the three anchorage locations at Milne Port, or while berthed at the ore dock. Further, prior to any ballast water discharge D-1 compliance testing must be completed. Instructions to not release ballast water prior to arrival at Milne Port and completion of ballast water testing is provided to all ship operators in Baffinland’s Standing Instruction to Masters (SITM). This requirement will remain under Phase 2.	Resolved
DFO 3.6.2 NE	DFO	February 2020	A commitment to including discharge coordinates in ballast reporting.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>Baffinland commits to record the Milne Port anchorage and associated coordinates where compliance testing and discharge occurs in the ballast water testing forms, completed by Baffinland’s environmental monitors. Baffinland expects that this commitment will satisfy DFO’s concern and the comment will now be considered resolved. For additional information refer to Appendix B.</p>	Marine	Baffinland commits to record the Milne Port anchorage and associated coordinates where compliance testing and discharge occurs in the ballast water testing forms, completed by Baffinland’s environmental monitors. A dataset with discharge coordinates will be provided to MEWG members as part of annual reporting requirements.	Resolved

DFO 3.6.3 NE	DFO	February 2020	A commitment that exchange will be carried out prior to treatment for all vessels conducting exchange plus treatment procedures.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland will require all vessels calling on Milne Port that treat their ballast under the D2 Standard to also perform a ballast water exchange prior to treatment. This updated commitment will be reflected in the 2020 Standing Instructions to Masters.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved. For additional information refer to Appendix B.</p>	Marine	Baffinland will require all vessels calling on Milne Port that treat their ballast under the D2 Standard to also perform a ballast water exchange prior to treatment. For ships unable to conduct exchange as specified in Canadian Ballast Water Regulations (e.g. ships on Canadian domestic trips), exchange is to be conducted as specified in revised ABWEZs for Eastern Arctic as per DFO CSAS advice (see DFO 2015, Stewart et al. 2015 and Goldsmit et al. 2019). This updated commitment will be reflected in the 2020 Standing Instructions to Masters.	Resolved
DFO 3.6.4 NE	DFO	February 2020	Clarify what would trigger Baffinland to discontinue exchange plus treatment practices.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland will consider discontinuing exchange plus treatment requirements should treatment systems efficacy reach a point that makes the benefits of an exchange plus treatment system negligible. In this event Baffinland will update ballast water dispersion modelling to more accurately reflects the spectrum of salinity and temperature that can be expected to be discharged at Milne Port under Phase 2 operations if prior exchange were to be discontinued.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved. For additional information refer to Appendix B.</p>	Marine	Baffinland will consider discontinuing exchange plus treatment requirements should treatment systems efficacy reach a point that makes the benefits of an exchange plus treatment system negligible. This decision will be made in consultation with TC and DFO, and will be based on a consideration of factors outlined in DFO 2019 (i.e. if ballast water organism concentration or composition, environmental conditions, shipping patterns, proportion of voyages meeting the D-2 standard, or available data describing these conditions change in the future, and updates to global research on ballast systems). In this event Baffinland will update ballast water dispersion modelling to more accurately reflect the spectrum of salinity, temperature, and discharge volumes that can be expected to be discharged at Milne Port under Phase 2 operations if prior exchange were to be discontinued.	Resolved

DFO 3.6.5 NE	DFO	February 2020	Clarification on how Baffinland intends to monitor ballast water discharges for compliance with D2 regulations.	<p>The D-2 regulations are currently not scheduled to be fully phased in until 2024. If Phase 2 is approved, it is anticipated that shipping at Phase 2 levels would not occur until 2024. It is anticipated that in order to ensure industry compliance with the D-2 regulations, prior to 2024 Transport Canada will issue refined guidance on the need for pre-discharge compliance testing requirements for all vessels entering Canadian waters. Baffinland will monitor ballast water discharges for compliance with D-2 regulations in accordance with the Transport Canada guidance, once issued.</p> <p>While the D-2 regulations are not currently phased in, Baffinland is generally familiar with this type of monitoring and anticipates that Transport Canada guidance will follow similar protocols. Baffinland understands that vessels subject to D-2 must be outfitted with IMO Type-Approved treatment systems. Following installation of the IMO Type-Approved treatment systems, some flag states may follow additional guidance from IMO, which require vessels to undergo compliance testing during commissioning in accordance with the IMP BWM.2/Circ.70. The purpose of such testing is to demonstrate that the principle treatment methods of the system are capable of functioning as installed.</p> <p>Through this process, compliance testing is conducted as follows:</p> <ol style="list-style-type: none"> <li>1. A sample should be collected during a ballast water uptake to characterize the ambient water, by any means</li> </ol>	Marine	<p>Transport Canada appreciates the efforts by BIM to ensure current regulations are followed with respect to their plans for ballast water management. Given the learning curve associated with use of ballast water treatment systems, for Phase 2, Transport Canada (TC) in consultation with Fisheries and Oceans Canada (DFO), recommends, in conjunction with present sampling and testing protocols being proposed/adopted [NTD - will be summarized in complete package] by BIM, that BIM implement a ballast water compliance sampling plan based on a risk-based targeting methodology to be developed in consultation with DFO and TC.</p> <p>Such a risk-based methodology should be applied to evaluate the risk of all vessel ballast water management (D1, D2) with subsequent salinity and D-2 biological compliance sampling conducted on vessels identified as high or very high risk. The respective risk-based methodology and associated ballast water compliance sampling plan will be developed in consultation with DFO and TC following completion of DFO's Project-specific sampling conducted on a subset of vessels calling to Milne Port. The risk-based methodology and associated ballast water compliance sampling plan should include a consideration of other compliance initiatives or research being undertaken elsewhere by TC relative to implementation of the D-2 standard.</p>	Resolved
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DFO 3.6.6 NEW	DFO	February 2020	<p>A commitment to develop of a biofouling sampling program, approved by DFO and completed prior to increase shipping activities for Phase 2, which specifically includes physical collection of organisms in a representative, standardized and comprehensive manner (sampling of hull and niche areas) that will allow for identification of non-native species that may be transported through project shipping.</p>	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland remains committed to conducting ship hull biofouling monitoring surveys using an ROV on ore carriers, with focused efforts on areas of the hull and niche areas where biofouling has the greatest potential to occur (e.g. chain lockers, stern tube, rope guard, bottom, rubber side, etc.). The projected number of ore carriers that will be sampled annually will be determined in consultation with the MEWG, of which DFO is a member. Recommendations from MEWG members will be treated consistent with the consensus-based decision requirements of the final updated MEWG Terms of Reference.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p> <p>Background</p> <p>Baffinland has considered the use of divers (physical collection) for biofouling monitoring but this option has not</p>	Marine	<p>BIM commits to ensuring that vessels arriving to Milne Port and Steensby Port are following IMO International Guidelines for Biofouling Management (and any associated updates to these Guidelines) by including adherence to these Guidelines as a requirement in vessel procurement contracts.</p> <ul style="list-style-type: none"> <li>• Baffinland will include in its contracts with ship owners a requirement to follow IMO Guidelines for Biofouling Management</li> <li>• Baffinland will require each vessel to maintain a Biofouling Management Plan and Biofouling Record Book consistent with Appendix 1 and 2 of the IMO Guidelines</li> <li>• Baffinland will provide a copy of the management plans and record books for each vessel in its Annual Report to the MEWG.</li> <li>• Initiation of this commitment will begin in 2021.</li> </ul>	Resolved
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been selected, due to the unnecessary safety risks to personnel. Sampling by a remotely operated vehicle (ROV), however, remains a viable alternative that can continue to be implemented at Milne Port. Baffinland notes ship hull monitoring is already successfully completed in compliance with PC Condition No. 91.

To Baffinland's knowledge, Milne Port is the only marine port in Canadian Waters that currently undertakes annual ship hull biofouling monitoring as part of its operations. This level of monitoring presently exceeds all regulatory requirements of Transport Canada related to hull biofouling.

For additional information refer to Appendix B.

BIM will develop a robust monitoring program design with input from DFO and other relevant parties that describes its plan for conducting ROV surveys of vessels to evaluate the extent of biofouling on ship hulls arriving in Milne Port prior to the 2022 shipping season.

The sampling design will include appropriate sampling effort (with respect to number of vessels and coverage of each vessel) to evaluate differences in extent of biofouling across vessels with different biofouling management measures and histories to provide data for risk assessments to guide future monitoring and management of high risk vessels. Targets for sampling efforts will be established in consultation with DFO and submitted for review and recommendations from Inuit and the MEWG. Recommendations from MEWG members will be treated consistent with the decision-making requirements as outlined in the forthcoming updated MEWG Terms of Reference.

This monitoring program will also be applied to vessels calling at Steensby Port as soon as shipping commences for the southern route

Based on new information gathered through vessel biofouling monitoring, a review of vessels Biofouling Management Plans and Record Books and, where known, a review of vessels sailing history relative to variables that could influence the extent of hull fouling and have already been well described in the literature (e.g., Coutts 1999; Coutts & Taylor 2004; Ruiz & Smith 2005), BIM will develop a risk assessment and establish a risk-based sampling plan to guide future monitoring and management of high risk vessels. This risk assessment and risk-based sampling plan will be developed in consultation with DFO, and submitted to the MEWG (of which DFO is a member) for review and recommendations. Recommendations from MEWG members will be treated consistent with the decision-making requirements as outlined in the forthcoming updated MEWG Terms of Reference

					<p>Biological sampling (i.e., collection of genetic material, tissue samples, and/or whole organisms) of vessel biofouling would contribute to the identification and monitoring of aquatic invasive or non-indigenous species that have the potential to propagate in northern waters as a result of the Project's shipping activities. BIM will revisit the state of technology and methods used to assess and conduct biological sampling of vessel biofouling and submit a report, to the MEWG by the end of 2021, on options that exist to conduct this work. It is not expected that this report will consider diving as a means to conduct the biological sampling.</p> <ul style="list-style-type: none"><li>• Once a feasible and safe technology or method has been determined with the MEWG, a pilot program will be run during the next shipping season to determine if it is suitable. If it is not, the report will be revisited and a new technology or method will be selected for another pilot program to be implemented during the next shipping season.</li><li>• Based on the results of the pilot program, it will be confirmed with the MEWG whether a technically and economically feasible technology or methods exist. If the MEWG agrees by consensus that the program stands to provide valuable data, BIM will update its MMP to include a biological sampling component for biofouling in advance of the next shipping season. The updated monitoring plan will be provided to the MEWG for review and comment before it is finalized.</li></ul> <p>In the event that modifications to biofouling management practices are proposed, Baffinland will consult with DFO and other relevant parties to determine if updates to the risk assessment and risk-based sampling plan are required. Updates to the assessment and the sampling plan will be submitted to the MEWG for review and recommendations prior to implementation. Recommendations from MEWG members will be treated consistent with the decision-making requirements as outlined in the forthcoming updated MEWG Terms of Reference.</p>	
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DFO 3.6.7 NE	DFO	February 2020	<p>A commitment to update the monitoring plan, to include more intensive sampling, which includes greater seasonal and spatial coverage, increased sample sizes to address concern related to statistical power for detection, clear protocols for determining identity and status of species (native, non-indigenous or cryptogenic).</p>	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland commits to updating the marine monitoring plan (MMP) in consultation with MEWG members and this will be undertaken prior to the start of the Phase 2 increased shipping season. The updated MMP will detail the revised MEEMP sampling design which includes greater seasonal and spatial coverage and increased sampling effort and sample sizes to address DFO concerns related to statistical power for detection.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p> <p><u>Background</u></p> <p>The Aquatic Invasive Species (AIS) Monitoring Program is a biological screening program (species ID, presence /absence data); as such, it does not involve any statistical analysis. The updated MMP will include clear protocols for determining identify and status of species collected as part of this program. The sampling effort for the AIS Monitoring Program is currently very rigorous. For example, in 2018 an estimated total of 745,124 zooplankton organisms (representing 44 taxa), 62,803 benthic infaunal organisms (representing 349 taxa), 25 distinct benthic epifaunal organisms, 1,733 encrusting epifaunal organisms (representing 9 taxa) and 6 distinct macrofloral organisms</p>	Marine	<p>Baffinland commits to updating the marine monitoring plan (MMP) in consultation with MEWG members and this will be completed prior to the start of the Phase 2 increased shipping season. The updated MMP will detail the revised MEEMP sampling design which includes greater seasonal and spatial coverage and increased sampling effort and sample sizes to address DFO concerns related to achieving sufficient statistical power for detection of project effects (<math>\geq 0.8</math>) (as per recommendations in DFO 2020, pages 4-7).</p> <p><u>Background</u></p> <p>The Aquatic Invasive Species (AIS) Monitoring Program is a biological screening program (species ID, presence/absence data); as such, it does not involve any statistical analysis. The updated MMP will include clear protocols for determining identity and status of species collected as part of this program (as per recommendations in DFO 2019 and DFO 2020 and comments on disposition table provided in June (DFO 3.8.1) and November (DFO 3.10.4). The sampling effort for the AIS Monitoring Program is currently very rigorous.</p>	Resolved
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DFO 3.6.8 NE	DFO	February 2020	An assessment of potential biological and ecological effects of ballast discharge and identification of the high risk species or groupings of species of concern. These species may include, but not be limited to any NIS/AIS that have been detected in the course of past AIS/MEEMP monitoring, and should be updated in the event that new NIS/AIS are detected in future monitoring.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland continues to maintain that the identification of high-risk biological species or groupings of species of concern is the primary responsibility of DFO. Despite this, Baffinland is committed to supporting the development of a trigger list of species through the process outlined in response to DFO 3.6.9 and to refining that list with DFO following Phase 2 approval.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p> <p>Background</p> <p>In addition to NIS monitoring already being conducted in accordance with PC Conditions No. 76, 87, and 91, Baffinland has also committed to conducting a ballast water biological monitoring pilot program in 2020 to assist DFO in determining which species could be deemed high risk. This ballast water biological monitoring program will also be implemented for Phase 2.</p> <p>For additional information refer to Appendix B.</p>	Marine	Baffinland continues to maintain that the identification of high-risk biological species or groupings of species of concern is the primary responsibility of DFO. Despite this, Baffinland is committed to supporting the development of a trigger list of species and associated response plans through the process outlined in response to DFO 3.6.9 and 3.6.10, and to refining that list with DFO following Phase 2 approval.	Resolved
DFO 3.6.9 NE	DFO	February 2020	A commitment to develop an appropriate early response plan with a clear sequence of events to be followed in the event that a nonindigenous species is introduced and/or becomes established.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland commits to develop an appropriate early response plan with a clear sequence of events to be followed in the event that a nonindigenous species is introduced and/or becomes established</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p> <p>Background</p> <p>On January 23, 2020 Baffinland shared a draft Rapid Response Plan (RRP) framework (Appendix B) with DFO on for review and input.</p>	Marine	Baffinland commits to follow the most updated version of DFO's AIS Rapid Response Framework in the event that a nonindigenous species is introduced and/or becomes established.	Resolved

DFO 3.6.10 N	DFO	February 2020	A commitment to develop taxa-specific response plans for high risk species or groups of species identified through species level risk assessments. These could be informed by known vessel origins prior to arrival at the project.	<p>On January 23, 2020, Baffinland met with DFO representatives to discuss outstanding issues related to the marine environment. Baffinland provided the following commitment relevant to the given recommendation, which it is formally providing here for to the Board:</p> <p>☑ Baffinland commits to work with the MEWG and DFO to establish species-specific Rapid Response Plans. Rapid Response Plans will be developed for species identified as high risk through ongoing NIS monitoring in the receiving environment, the ROV biofouling monitoring program, results yielded from the 2020 biological ballast water sampling pilot program, and through a review of the Canadian Marine Invasive Screening Tool.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p>	Marine	<p>Baffinland commits to work with the MEWG and DFO to establish species-specific Rapid Response Plans. Rapid Response Plans will be developed for species identified as high risk through ongoing NIS monitoring in the receiving environment, the ROV (or any other future) biofouling monitoring program, results yielded from the 2021 biological ballast water sampling pilot program (and any ongoing ballast monitoring), examination of existing invasive species databases and lists in key ecoregions where vessels calling originate from (as per Goldsmit et al., 2020 Global Change Biology), and based on ranking of potential risk using the Canadian Marine Invasive Screening Tool.</p>	Resolved
DFO 3.7 NEW	DFO	February 2020	DFO recommends that Baffinland conduct a thorough analysis and assessment examining all the combined impacts of all the Project activities inside and outside the study areas.	<p>Baffinland has undertaken a detailed environmental assessment of potential impacts on Marine Environment and Marine Mammal VECs in the Regional Study Area. A combined effects assessment is included in Section 6 of the Marine Mammal Monitoring Tech Memo (Appendix B). Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p>	Marine	<p>Baffinland recognizes that DFO disagrees with the determinations of the Combined Effects Assessment located in Table 22 of Baffinland's Marine Mammal Monitoring Technical Memorandum updated in May 2020 (document # 1663724-186-TM-Rev2-38000). DFO is concerned that the combined effects assessment does not adequately consider uncertainty and potential interactions between combined effects, nor does it consider combined effects outside of the Regional Study Area.</p> <p>To account for residual uncertainty in the effects assessment, Baffinland has made several commitments related to the strengthening of monitoring programs, as well as the implementation of pilot projects to better detect and monitor effects of the project on the marine environment. Implementation of these commitments will be developed in collaboration with DFO, Inuit, and relevant organizations to ensure that all recommendations and concerns are addressed and accounted for. If results of the monitoring programs indicate that there are significant or meaningful impacts to the marine environment, Baffinland commits to undertake investigations to determine the cause of the impact, and will identify any mitigations or other adaptive management strategies to address the impact for review and recommendations by Inuit and the MEWG. Recommendations from MEWG members will be treated consistent with the decision-making requirements as</p>	Resolved

DFO 3.8 NEW	DFO	February 2020	If the Project is approved, DFO recommends Baffinland provide decision criteria and decision matrix for the selection of water crossing methods for fish bearing watercourses in support of any regulatory applications made to DFO.	Baffinland provides the following commitment in relation to the recommendation: <input checked="" type="checkbox"/> Baffinland will provide decision criteria and decision matrix for the selection of water crossing methods for fish bearing watercourses in support of any regulatory permit applications made to DFO. Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.	Freshwater	Baffinland will provide decision criteria and decision matrix for the selection of water crossing methods for fish bearing watercourses in support of any regulatory permit applications made to DFO.	Resolved
DFO 3.9.1 NE	DFO	February 2020	If the Project is approved, DFO recommends that, during the Regulatory phase, Baffinland: Analyze monitoring reports related to the Tote Road existing watercourses crossings and provide comprehensive "lessons learned" report (for the Tote Road crossings) that would include strategic analysis of what will be done differently to ensure the fish-passage issue will be mitigated, avoided and addressed	Baffinland provides the following commitment in relation to the recommendation: <input checked="" type="checkbox"/> Baffinland will analyze monitoring reports related to the Tote Road existing watercourses crossings and provide comprehensive lessons learned report (for the Tote Road crossings) that would include strategic analysis of what will be done differently to ensure the fish-passage issue will be mitigated, avoided and addressed. This report will be included as part of any regulatory applications made to DFO. Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.	Freshwater	Baffinland will analyze monitoring reports related to the Tote Road existing watercourses crossings and provide comprehensive lessons learned report (for the Tote Road crossings) that would include strategic analysis of what will be done differently to ensure the fish-passage issue will be mitigated, avoided and addressed. This report will be included as part of any regulatory applications made to DFO.	Resolved
DFO 3.9.2 NE	DFO	February 2020	Provide updated hydrological assessment of proposed watercourses crossings that includes, but is not limited to, crossing selection and design criteria, flow rates, velocities and discharge, and fish passage.	Baffinland provides the following commitment in relation to the recommendation: <input checked="" type="checkbox"/> Baffinland will provide an updated hydrological assessment of proposed watercourses crossings that includes, but is not limited to, crossing selection and design criteria, flow rates, velocities and discharge, and fish passage. This content will be included as part of any regulatory permit applications made to DFO. Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.	Freshwater	Baffinland will provide an updated hydrological assessment of proposed watercourses crossings that includes, but is not limited to, crossing selection and design criteria, flow rates, velocities and discharge, and fish passage. This content will be included as part of any regulatory permit applications made to DFO.	Resolved
DFO 3.10.1 N	DFO	February 2020	DFO recommends that Baffinland: Provide detailed water withdrawal plan that includes an in-depth risk analysis informed by site specific fish and fish habitat features for the waterbodies chosen for water withdrawal as part of any 'DFO Request for Review' submission.	Baffinland provides the following commitment in relation to the recommendation: <input checked="" type="checkbox"/> Baffinland will provide a detailed water withdrawal plan that includes an in-depth risk analysis informed by site specific fish and fish habitat features for the waterbodies chosen for water withdrawal as supplemental information to water licensing and any DFO Request for Review submission. Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.	Freshwater	Baffinland will provide a detailed water withdrawal plan that includes an in-depth risk analysis informed by site specific fish and fish habitat features for the waterbodies chosen for water withdrawal as supplemental information to water licensing and any DFO Request for Review submission.	Resolved

DFO 3.10.2 N	DFO	February 2020	Conduct a thorough localized assessments on the waterbodies selected for water withdrawal in order to adequately assess the potential impacts on the fish habitat resulting from 20% of the 10-year dry unit runoff water withdrawal on fish-bearing watercourses and connecting waterbodies. This assessment should include, but not be limited to, an assessment of the effects to littoral/shore/riparian areas from the proposed water withdrawal, the specific withdrawal locations proposed for each waterbody including fish habitat in the area and updated rationale on how this level of withdrawal will be environmentally protective threshold.	<p>Baffinland provides the following commitment in relation to the recommendation:</p> <p>☑Baffinland will conduct a thorough localized assessment on the waterbodies selected for water withdrawal in order to adequately assess the potential impacts on the fish habitat resulting from 20% of the 10-year dry unit runoff water withdrawal on fish-bearing watercourses and connecting waterbodies. This assessment will include an assessment of the effects to littoral/shore/riparian areas from the proposed water withdrawal, the specific withdrawal locations proposed for each waterbody including fish habitat in the area and updated rationale on how this level of withdrawal will be an environmentally protective threshold. This content will be included as supplemental information to water licensing and regulatory permit applications made to DFO.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p>	Freshwater	☑Baffinland will conduct a thorough localized assessment on the waterbodies selected for water withdrawal in order to adequately assess the potential impacts on the fish habitat resulting from 20% of the 10-year dry unit runoff water withdrawal on fish-bearing watercourses and connecting waterbodies. This assessment will include an assessment of the effects to littoral/shore/riparian areas from the proposed water withdrawal, the specific withdrawal locations proposed for each waterbody including fish habitat in the area and updated rationale on how this level of withdrawal will be an environmentally protective threshold. This content will be included as supplemental information to water licensing and regulatory permit applications made to DFO.	Resolved
DFO 3.10.3 N	DFO	February 2020	Provide additional rationale/ assessment to support the assertion that 40% of the 10-year dry unit runoff water withdrawal from non-fish-bearing streams will not negatively affect downstream fish-bearing waterbodies.	<p>Baffinland provides the following commitment in relation to the recommendation:</p> <p>☑Baffinland will provide additional rationale/ assessment to support the assertion that 40% of the 10-year dry unit runoff water withdrawal from non-fish-bearing streams will not negatively affect downstream fish-bearing waterbodies. This content will be included as supplemental information to water licensing and regulatory permit applications made to DFO.</p> <p>Baffinland expects that this commitment will satisfy DFO's concern and the comment will now be considered resolved.</p>	Freshwater	Baffinland will provide additional rationale/ assessment to support the assertion that 40% of the 10-year dry unit runoff water withdrawal from non-fish-bearing streams will not negatively affect downstream fish-bearing waterbodies. This content will be included as supplemental information to water licensing and regulatory permit applications made to DFO.	Resolved

ECCC-FC1	ECCC	September 2019	<p><b>ECCC recommends that the NIRB include or amend the Terms and Conditions of Project Certificate No. 005 to require the Proponent to:</b> Submit all air quality and meteorological monitoring data as part of the annual reports and compare the monitoring data to the CAAQS, where applicable. The air quality and meteorological monitoring data should be presented to include at least, but not limited to:</p> <ul style="list-style-type: none"> <li>• Time series of data.</li> <li>• Hourly, daily, and annual averages in graphical and/or tabulated form (if applicable to the air quality or meteorological parameter).</li> <li>• Comparison to the CAAQS (and relevant statistical forms, if three years is not available, CAAQS can be calculated using one year).</li> <li>• Wind roses.</li> <li>• Graph and tables indicating seasonal variability.</li> <li>• Comparisons to other years of data.</li> </ul> <p>Include any photos taken of dust on snow in the annual reports.</p> <p>Present the predicted concentrations in the annual reports as a range of absolute concentrations.</p>	<p>Baffinland will provide all quality assured measured air quality and meteorological data in an annual report and compare to applicable criteria as outlined in the revised Air Quality and Noise Abatement Plan (AQNAMP) for the project. The annual report will include all raw data, averages in graphical and tabular form as most relevant to the data set, comparison to relevant criteria and visual presentation including wind roses and comparisons to previous year's data. In relation to photography, if major dusting events are observed, they will be photographed and included in the annual report. Also, the available satellite imagery will be reviewed and included if considered relevant. The use of satellite imagery will be evaluated on an ongoing basis to confirm whether it adds value or provides any relevant context to the dust fall evaluations. As the revised AQNAMP will be updated to detail these reporting requirements specifically, additional requirements in the Terms and Conditions of the Project are not deemed necessary. As per recent discussions, the 2020 CAAQS would be used for comparison purposes only with the objective to "keep clean areas clean" with respect to ambient air quality while the Project Standards are based on Nunavut Standards where available, or otherwise the most stringent available from a Provincial or other Territorial Government. Appendix G includes memos describing dustfall management action triggers for the protection of human health and vegetation. Baffinland will reflect the commitment to annual reporting</p>	Atmospheric	<p>Baffinland will reflect the commitments provided in its response in the Air Quality and Noise Abatement Management Plan following the issuance of an amended Project Certificate. In the interim these commitments will be captured in a commitment register, to be provided to the Board during the Public Hearings. Baffinland does not object to having relevant terms and conditions modified to reflect this commitment.</p>	Resolved
ECCC-FC2	ECCC	September 2019	<p>ECCC recommends that the Proponent: Investigate NO<sub>2</sub> reduction measures that could be applied to power generation that would offset the use of a portion of the emissions from the generators. This information should be provided in a management plan along with a quantitative analysis of the potential emissions offset. Commit that all mobile equipment (new and existing) be Tier 4 or better.</p>	<p>Baffinland will review options to reduce NO<sub>x</sub> emissions and document this review in the first annual air quality report. The report will also quantify potential reductions achievable, where feasible. New equipment procurement will meet Tier 4 standard or better, however, Baffinland cannot commit to replacement of existing equipment that does not meet the Tier 4 standard.</p>	Atmospheric	<p>Baffinland commits to investigate and implement NO<sub>x</sub> reductions measures, where feasible, and report on this in the 2020 annual air quality report (to be submitted by March 31, 2021)</p>	Resolved

ECCC-FC3	ECCC	September 2019	<p><b>ECCC recommends that the NIRB amend the Terms and Condition #7 of Project Certificate No. 005 to require the Proponent to:</b></p> <ul style="list-style-type: none"> <li>• Complete the AQNAMP in consultation with ECCC and other interested interveners.</li> <li>• Monitor PM2.5 and TSP using continuous monitors at: <ul style="list-style-type: none"> <li>• The sites that already monitor NO2 and SO2 at both Milne Port and the Mine Site.</li> <li>• New locations on or close to the Project Boundary at both the Milne Port and Mine Site that include sites that are close to locations of passive dustfall monitoring and in locations that have predicted and passively measured high dustfall; and site placement also consider prevailing wind direction.</li> </ul> </li> </ul> <p>ECCC recommends that the Proponent update the AQNAMP with the following:</p> <ul style="list-style-type: none"> <li>• Present the predicted concentrations in the AQNAMP as a range of absolute concentrations.</li> <li>• Investigate ways to mitigate the emissions from the stockpiles and present these in the AQNAMP for review.</li> <li>• Include management actions for the stockpiles in Section 4 of the AQNAMP as well as Table 5-2, and Table 5-3.</li> <li>• Define the management action trigger levels for both the 24-hour and annual averaging periods for all species (Table 5-1, Table 5-2, and Table 5-3).</li> <li>• Define the frequency at which air quality and meteorological data is reviewed that allows for timely response for implementation of corrective actions in response to exceedances of triggers.</li> <li>• Include details on how the air quality data and meteorological data will be analyzed together during the investigation of exceedance of trigger levels and necessary management actions.</li> <li>• Confirm the trigger levels for dustfall</li> </ul>	<p>Baffinland is committed to updating the AQNAMP in consultation with ECCC and other interested interveners and has undertaken a number of discussions in relation to this commitment. The revised AQNAMP will include the following (which is consistent with ECCC's recommendations):</p> <ul style="list-style-type: none"> <li>• Monitor PM2.5 and TSP using continuous monitors at: <ul style="list-style-type: none"> <li>o The sites that already monitor NO<sup>2</sup> and SO<sup>2</sup> at both Milne Port and the Mine Site.</li> <li>o Seasonally at at least one new location on or close to the Project Boundary at both the Milne Port and Mine Site considering prevailing wind direction during the peak dust season and locations of sensitive receptors (camp locations). These will be seasonal as permanent power is not available near the boundaries thus the systems will run on solar power as feasible during the summer.</li> </ul> </li> </ul> <p>The revised AQNAMP will also include the following recommended items:</p> <ul style="list-style-type: none"> <li>• Presentation of the predicted concentrations in the AQNAMP as a range of absolute concentrations.</li> <li>• Investigation of ways to mitigate the emissions from the stockpiles as warranted.</li> <li>• Include management actions for the stockpiles in Section 4 of the AQNAMP as well as Table 5-2, and Table 5-3.</li> <li>• Define the management action trigger levels for both the 24-hour and annual averaging periods for all species (Table 5-1, Table 5-2, and Table 5-3).</li> <li>• Define the frequency at which air quality and</li> </ul>	Atmospheric	<p>Baffinland will reflect the commitments provided in its response in the Air Quality and Noise Abatement Management Plan following the issuance of an amended Project Certificate. In the interim these commitments will be captured in a commitment register, to be provided to the Board during the Public Hearings. Baffinland does not object to having relevant terms and conditions modified to reflect this commitment.</p>	Resolved
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ECCC-FC4	ECCC	September 2019	<p>Given the sensitive nature of the Arctic, ECCC recommends the Proponent investigate additional mitigation measures to mitigate the black carbon associated with Project-related shipping.</p>	<p>The science surrounding the various sources of the black carbon emissions, especially shipping, is continually evolving. Baffinland will keep abreast of the technology changes that could reduce black carbon emissions and implement changes if and when the technology has been deemed feasible and economically achievable by the shipping contractors. The shipping contractors will follow the latest emissions limits that are published by ECCC. Notwithstanding the above, in order to manage shipping logistics, Fednav Limited (Fednav) has been partnering with Baffinland to act as their Shipping Agent. Fednav, a 75-year old company, is Canada's largest ocean-going, dry-bulk ship owning and chartering group. It is known for its "best in class" service, excelling in the safe navigation of the Canadian Arctic. Fednav has participated in every major shipping project in the Canadian Arctic since the late 1950s, and thus has demonstrated proven excellence in the delivery of innovative and effective solutions in challenging arctic regions. Fednav's mission and core values aligns with those of Baffinland, particularly with regards to their approach in achieving the highest levels of corporate social responsibility, with the aim of protecting people and the communities in which it serves. Fednav is a founding member and collaborator of Green Marine, a voluntary North American program aimed at strengthening the marine industry's environmental performance through various means, by "promoting a process of continuous</p>	Atmospheric	<p>Baffinland commits to investigate and implement black carbon reduction measures, where feasible, and report on this in the 2020 annual air quality report (to be submitted by March 31, 2021). The investigation will consider the use of distillate fuels as a reduction measure for local black carbon emissions.</p>	Resolved
ECCC-FC5	ECCC	September 2019	<p><b>ECCC recommends that</b> • <b>The NIRB include a new Term and Condition as part of Project Certificate No. 005 that</b> requires the Proponent to Submit the Phase 1 WRMP for review by interested parties. • The Proponent consider the results of the Phase 1 WRMP in re-evaluating the 0.2 % Sulphur cut-off for quarries and rock cuts.</p>	<p>Baffinland remains committed to updating the Phase 1 Waste Rock Management Plan and evaluating the appropriateness of the 0.2% cutoff for PAG classification, irrespective of the Phase 2 approvals process. As the update to the management plan was initiated under the current Type A Water Licence 2AM-MRY1325 Amendment No. 1, and the plan is regulated under the Type A Water Licence, a Project Certificate condition is not required to ensure regulator review and approval of the updated Phase 1 Waste Rock Management Plan is achieved. Furthermore, the update to the Phase 1 Waste Rock Management Plan will be completed in December 2019, prior to any Ministerial approval of an amended Project Certificate, thereby making any associated conditions redundant.</p>	Terrestrial	<p>Baffinland remains committed to updating the Phase 1 Waste Rock Management Plan and evaluating the appropriateness of the 0.2% cutoff for PAG classification, irrespective of the Phase 2 approvals process.</p>	Resolved

ECCC-FC6	ECCC	September 2019	ECCC continues to recommend that the Proponent conduct Arctic diesel fuel spill modelling for all scenarios in order to account for the differences in the fate and behaviour with IFO and adequately determine the best response strategy for Arctic Diesel.	Baffinland commits to conduct additional Arctic diesel fuel spill modelling to account for shoulder season shipping and update the SSRP as necessary (Appendix G). This will occur prior to the 2020 shipping season.	Accidents	Baffinland commits to conduct additional Arctic diesel fuel spill modelling to account for shoulder season shipping and update the SSRP as necessary (Appendix G). This will occur prior to the 2020 shipping season.	Resolved
ECCC-FC7	ECCC	September 2019	ECCC recommends that the Proponent: <ul style="list-style-type: none"> <li>Identify whether they intend to use the alternative shipping through Navy Board Inlet and/or the Northwest Passage and if so, under which circumstances.</li> <li>Conduct an environmental assessment prior to using alternative shipping, including an evaluation of potential effects of shipping on migratory birds, the aquatic environment and the atmospheric environment.</li> </ul>	Per our clarification letter provided to NIRB and MHTO on Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)	Marine	N/A	Resolved
ECCC-1 NEW	ECCC	February 2020	As per Table 2 data above, and according to the proponent's estimates, at peak production (12 Mtpa from this Phase 2 Project, plus the 18 Mtpa from the previously Approved Project) the Project will contribute a high proportion of the total black carbon emissions in the Canadian Arctic. ECCC recommends that the proponent provide further description and analysis on how they came to the conclusion that the emissions of black carbon from Project-related marine vessels is not a significant impact. Given the sensitive nature of the Arctic, ECCC also recommends that the proponent consider using black carbon mitigation measures as suggested by Canada to the IMO (Lack, 2017). For example, the proponent could consider low aromatic distillate fuels, or other alternative low aromatic fuels.	Baffinland confirms the statement included on Page 17 of the Atmospheric Environment presentation was an error. Baffinland did not conduct a significance evaluation on black carbon and should not have used that terminology to reflect the conclusions from the Technical Memo – Black Carbon Emissions for the Phase 2 Project (August 22, 2019). While the project will increase black carbon emissions in the Arctic, quantitative cause-and-effect analysis of this impact would be unfeasible to carry out, and the lack of national standards or regulations specific to black carbon emissions presents a challenge for setting a quantitative significance threshold. Emissions of black carbon can travel long distances through the atmosphere, and black carbon in the Arctic is influenced by sources outside of the Arctic, and is subject to seasonal variability. Because of this, it is not possible to determine cause and effect relationships between a single project or source and potential observed changes to snow or ice. As such, while changes to snow and ice may occur as a result of black carbon, it is not possible to attribute those changes to a specific project or source. Baffinland notes that the Government of Canada has announced its support for a ban on heavy fuel oil (HFO) in Arctic waters. The Mining Association of Canada, of which Baffinland is a member, has been working with decision makers and other stakeholders at the national and international level in relation to the HFO ban. As previously confirmed, Baffinland will comply with regulatory restrictions and limits and will continue to do so throughout	Atmospheric	Baffinland to provide the preliminary feasibility assessment 15 days prior to a Public Hearing, and a follow up report in the 2020 Annual Report (which wouldn't be until 2021)	Outstanding - In Progress
ECCC-2 NEW	ECCC	February 2020	ECCC recommends that the proponent revise the definition of PAG rock.	Baffinland will provide all responses related to waste rock and/or ARD/ML to the Nunavut Water Board with copy to the Nunavut Impact Review Board on, or before, March 13, 2020.	Freshwater	N/A	Resolved

ECCC-3 NEW	ECCC	February 2020	ECCC recommends that: <ul style="list-style-type: none"> <li>•The proponent assess all samples with Acid Base Accounting (ABA) and Shake Flask Extraction (SFE);</li> <li>•The proponent assess a wide range of samples without relying on the 0.2 wt. % S cut off, in order to ensure that no PAG rock is misclassified as non-AG rock and</li> <li>•The Proponent adopt Golder's recommendation that all samples be submitted for ABA and SFE testing on an ongoing basis.</li> </ul>	Baffinland will provide all responses related to waste rock and/or ARD/ML to the Nunavut Water Board with copy to the Nunavut Impact Review Board on, or before, March 13, 2020.	Freshwater	N/A	Resolved for EA Purposes
ECCC-4 NEW	ECCC	February 2020	ECCC recommends that the proponent: <ul style="list-style-type: none"> <li>•Not use sulphide content only to classify Potentially Acid Generation and non-Acid Generating rock;</li> <li>•Verify whether there are layers of the lifts that are not frozen within the Waste Rock Facility.</li> </ul>	Baffinland will provide all responses related to waste rock and/or ARD/ML to the Nunavut Water Board with copy to the Nunavut Impact Review Board on, or before, March 13, 2020.	Freshwater	N/A	Resolved for EA Purposes
ECCC-5 NEW	ECCC	February 2020	ECCC recommends that the proponent provide clarification on the thickness of the cover proposed in the waste rock facility closure.	Baffinland will provide all responses related to waste rock and/or ARD/ML to the Nunavut Water Board with copy to the Nunavut Impact Review Board on, or before, March 13, 2020.	Freshwater	N/A	Resolved
ECCC-6 NEW	ECCC	February 2020	ECCC recommends that the proponent provide clarification on potential treatment or mitigation measures for high sulphate, given the high levels of sulphate measured in the Waste Rock Facility in 2019 and given the use of ferric sulphate in the currently used treatment process.	Baffinland will provide all responses related to waste rock and/or ARD/ML to the Nunavut Water Board with copy to the Nunavut Impact Review Board on, or before, March 13, 2020.	Freshwater	N/A	Resolved for EA Purposes
GN-01	GN	September 2019	<b>The GN recommends that the NIRB include a term and condition limiting the increased use of the Tote Road to no greater than six years. The GN proposes the following term and condition with respect to the disposition of this issue:</b> 1. Use of the Tote Road to support truck-based hauling of ore, at rates of ore production greater than 2018 levels, is approved for a maximum period of 6 years.	Baffinland believes 6 years is a reasonable time period to allow for elevated trucking along the Tote Road in the event of unforeseen delays in post environmental assessment permits and/or construction scheduling. For clarity, however, Baffinland plans for the North Railway to be fully operational by 2022. Rather than a Term and Condition Baffinland suggests that there is already an adequate process for handling unforeseen modifications to projects as proposed and approved. The Project Description for Phase 2 is clear on the short-term duration of trucking above 6 Mtpa and Baffinland would argue that operating at that level longer than 6 years would constitute a modification to the Project and require the NIRB to determine the most appropriate course of action.	Terrestrial	N/A	Resolved

GN-02	GN	September 2019	<p>Since the Technical Review Period, the Proponent has made several revisions to the TEMMP (BIM 2019a – Commitment # GN 10). The Proponent has also committed to the following initiative to ensure FEIS Addendum assumptions and predictions are verified and that the Project’s effects are adequately monitored at the regional level: “To help define caribou monitoring at the regional level, Baffinland and the GN will finalize a caribou research MOU during the Phase 2 review. The monitoring components of this MOU will be incorporated as explicit programs within a revised TEMMP.” (BIM, 2019b – Commitment # GN 8 and 9) The Proponent and the GN are currently negotiating a more robust caribou habitat research arrangement. Development of the research MOU is currently in progress. As per the commitment made by the Proponent, the GN expects negotiations to be complete prior to the conclusion of the final hearing. Pending the outcome of the negotiations prior to the hearing, the GN may provide further advice to the NIRB and an additional written submission during the Final Hearing. If necessary, the GN may make a proposal on terms and conditions in respect of this issue depending on the outcome of the parties’ negotiations.</p>	<p>Baffinland has worked closely with the GN over the last few months to revise the TEMMP (as requested by the GN) and develop a mutually agreed upon caribou research agreement (also referred to as the GN MOU) (still in progress). Baffinland has made every effort to address this request and looks forward to finalizing the agreement with the GN in a way that will be mutually beneficial to both parties.</p>	Wildlife	<p>Baffinland is committed to work with the GN to develop a mutually agreed upon research agreement (also referred to as the Research and Relationship Agreement) that includes the following aspects, which are based on GN's internal budgeting and community consultation schedules for its North Baffin Regional Monitoring Program:</p> <ul style="list-style-type: none"> <li>• By July 30 of each year, the GN to share a preliminary proposal with Baffinland (the "GN Preliminary Proposal") outlining the planned activities that may be carried out as part of its North Baffin Regional Monitoring Program for the twelve-month period commencing on January 1 of the following year, which would be subject to any future revisions arising as a result of consultation by the GN with communities and the Qikiqtani Inuit Association.</li> <li>• By October 1 of each year, the GN to share a final proposal with Baffinland (the "GN Final Proposal") based on the GN Preliminary Proposal and including any revisions as a result of consultation.</li> <li>• Baffinland would provide its total annual financial contribution to GN on or before November 30 of each year following review and acceptance by Baffinland of a GN Final Proposal. The financial contribution could include monetary and/or in-kind support.</li> <li>• Collaboration as possible regarding scientific peer-reviewed research into mitigative measures or potential disturbance effects, as related to the Mary River Project.</li> <li>• GN will provide Baffinland with reports on work carried out under its North Baffin Regional Monitoring Program.</li> </ul>	Resolved
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GN-03	GN	September 2019	<p>Engineering the embankments to make the slopes gentler and top dressing the sides with a finer grain material may address the problems outlined above depending on how much of the railway is subject to this mitigation measure. During the Technical Review Period, the GN expressed concern with the Proponent's plan to construct 11 wildlife crossing structures along that 110 km railway; noting that the effectiveness of these structures is unproven in the Arctic and as planned the crossings would likely be too small and widely spaced to adequately increase the permeability of the railway for caribou (GN 2019 – TRC GN 13). There is also concern with sparsely spaced crossings artificially increasing rates of predation. During the Technical Review Period, the Proponent committed to "...provide a report on the Caribou Crossing Workshop and a revised railway wildlife crossing plan (include the proposed number, preliminary location and length of crossings) before the final hearing. Report to be provided by August 23rd. (2) Consider engineering long sections (kilometers in length) of the northern railway to facilitate caribou crossing. This idea will be discussed at the caribou crossing workshop." (BIM, 2019b – commitment # GN 12) The GN may make a proposal on terms and conditions in respect of this issue following receipt of results from the Proponent. The Proponent has not provided the Caribou Crossing Workshop report or the revised wildlife crossing plan. The GN accordingly must maintain its concerns as set out more fulsomely in its Technical Review Comments.</p>	<p>Baffinland's Rail Alignment Summary Report is included in this submission as Appendix P. The contents of the Report should address the concerns raised by the GN in their final written submission.</p> <p>Based on input provided during the Crossing Selection Workshop from participants representing Pond Inlet, Igloolik, QIA and GN, the following modifications have been proposed for the design of the North Railway to aid in caribou crossing:</p> <ul style="list-style-type: none"> <li>• 30 level crossings to be installed at locations identified by community representatives during helicopter overflights (subject to Transport Canada and Community Acceptance)</li> <li>• A smoother fill material (Type 8 - 6 inches' or less in size) will be used along the entire railway embankment (change from Type 12 - 24 inches or less)</li> <li>• A gentler slope (1:2 ratio) will be used for all portions of the railway embankment between 2 and 4 meters (change from 1:1.5)</li> <li>• A gentler slope will be created at the edges of crossings to assure approach from any angle is safe</li> <li>• 4 additional plate arch culverts will be installed in areas where the railway embankment is high enough to allow an underpass (10 plate arch culverts are already proposed at fish bearing water crossings, which may also serve to allow passage for terrestrial wildlife throughout the year)</li> </ul> <p>Baffinland would like to note that the conclusions presented by the GN in their submission regarding permeability of the North Railway - namely, an embankment height of 1.5</p>	Wildlife	<p>Commitment: Baffinland commits to build the North Railway with the general specifications for the purposes of increasing caribou permeability</p> <ul style="list-style-type: none"> <li>• Use of Type 8 over Type 12 fill material for the entire alignment</li> <li>• For embankment heights under 4 meters the slope ratio will be 1V:2H; for embankment heights over 4 meters the slope ratio will remain 1V:1.5H</li> </ul> <p>Commitment: Baffinland commits to a pilot program that will investigate the effectiveness of gentler slopes on caribou crossing. To evaluate this pilot program, Baffinland will support regional studies of caribou movements to assess caribou responses to the railway. The assessment of this pilot program's success shall be based on results from studies that have statistical power to detect Project effects exceeding those predicted in the FEIS addendum. The details of this program include:</p> <ul style="list-style-type: none"> <li>• The gentler slopes will be built with a slope ratio of 1V:3H</li> <li>• The total amount of fill required to build the North Railway will remain unchanged from currently proposed i.e. the fill material required to build sections with a slope of 1:3 will be acquired by reverting other areas previously allocated a 1V:2H slope (at an embankment height of 4m and below) back to a 1V:1.5H slope</li> <li>• The pilot program will include a minimum of 10km of 1V:3H slopes</li> </ul>	Resolved
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GN-04	GN	September 2019	<p>The GN recommends that:1. The Proponent should engineer a significant portion of the railway's embankment to facilitate caribou crossing by creating gentler slopes (i.e. 4:1) and top-dressing larger rock material with a finer grain material.2. Should the Project proceed, the Proponent should resolve uncertainty regarding caribou responses to the railway through investment in the regional scale monitoring of caribou movements using methods such as collars and aerial surveys as per GN Final Written Submission Comment GN-02 (Regional Caribou Monitoring). The purpose of this monitoring should be to confirm FEIS Addendum predictions and facilitate adaptive management. This investment should be clarified during the NIRB's review of the Project in-order to provide certainty that adverse effects will be detected and mitigated in a timely manner.The GN notes that commitments made by the Proponent in respect of recommendations (1) and (2) listed above are still outstanding (see GN Final Written Submission comments GN-03 [Railway Design and Construction to Facilitate Caribou Crossing] and GN-02 [Regional Caribou Monitoring]).Accordingly, the GN may make a proposal on terms and conditions with respect to the disposition of this issue following receipt of results from the Proponent.</p>	<p>1. As identified in response to GN-03, Baffinland is committed to engineering the entire railway embankment from a finer course building material (Type 8 - &lt;6 inches) as a result of input received during the Crossing Selection Workshop. Baffinland is also committed to providing a gentler slope (1:2 ratio) anywhere along the railway that the embankment is between 2 and 4 meters and adding up to 30 level crossing (1:5 ratio) locations, which is consistent with Baffinland's commitment to the GN in relation to TRC-13 (consider up to 22 crossings). Baffinland disagrees that embankment heights at less than 2 meters with a slope of 1:1.5 will be a barrier to caribou crossing. Implementing a blanket 1:4 slope requirement along 'significant' portions of the embankment would roughly double the footprint of the railway (1.37 million square meters to 2.74 million square meters) and the volume of quarry material required to build it (3.56 million cubic meters to 6.78 million cubic meters). Aside from the expanded terrestrial impact of the wider embankment and additional quarries, most culverts would need to double in length, greatly increasing the chances of creating serious harm to fish and fish habitat. Baffinland cannot carry out the requested design mitigation suggested by the GN, nor is it reasonable or necessary given the modifications Baffinland has already committed to. Understanding the GN's recommendation to engineer significant portions of the railway embankment with a gentler slope (i.e. 4:1) is due to uncertainty in the general</p>	Wildlife	Baffinland will update the Additional Level Crossing Construction Decision Matrix to include advice from the Terrestrial Environment Working Group (TEWG).	Resolved
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GN-05	GN	September 2019	<p>The GN is of the opinion that uncertainty surrounding the cumulative effects on caribou habitat cannot be resolved further at this stage of the NIRB's review. Additional resolution and mitigation of risk can only be obtained through further research and monitoring, should the Project proceed. The greatest areas of uncertainty requiring further research and monitoring are: (1) the ZOIs and disturbance coefficients that would be generated by the Project; and (2) the accuracy of the RSPF. <b>The GN proposes the following Term and Condition/Commitment with respect to disposition of this issue:</b> 1. The Proponent shall undertake research to estimate the Zone(s)-of-Influence (ZOI) and disturbance coefficients (DC) exerted by the Project on caribou, and shall provide to NIRB updated estimates of cumulative habitat losses for caribou, at least every 5 years.</p>	<p>This is the first time that the GN has mentioned concern regarding the accuracy of the RSPF model, which was created using GN collar data and used in previous assessments (FEIS and ERP).</p> <p>Baffinland has already revised the TEMMP as requested by the GN to address their concerns with the Zone of Influence (ZOI) and makes the following two commitments (TEMMP, Table 4.8):</p> <ul style="list-style-type: none"> <li>• Baffinland and the GN-DoE will develop a MOU related to regional caribou monitoring. When caribou numbers are sufficient to provide robust statistical analysis of distribution within the ZOI, an annual aerial survey program (pending approval) can be implemented to document abundance and distribution of caribou in the RSA.</li> <li>• Determination of long-term caribou distribution patterns identified by a GN and Baffinland-sponsored caribou satellite collaring program.</li> </ul> <p>Baffinland intends to further develop programs and program design through consultation with the GN, MHTO, TEWG and other parties as appropriate, and can provide results to the NIRB (for any program) if requested, at any time. Baffinland does not believe an additional Term and Condition is necessary given the requested commitment is already included in the TEMMP.</p>	Wildlife	<p>BIMC will update the Terrestrial Environment Mitigation and Monitoring Plan to reflect that it will undertake research to estimate the Zone(s)-of-Influence (ZOI) and disturbance coefficients (DC) exerted by the Project on caribou, and shall provide to NIRB updated estimates of cumulative habitat losses for caribou, at least every 5 years.</p>	Resolved
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GN-06	GN	September 2019	<p>The GN recommends that the Proponent work with the GN through their MOU to promote greater female employment at the Project. The GN recommends that the Proponent include monitoring gender-specific initiatives in their Socio-Economic Monitoring Plan to identify success and challenges in implementing these initiatives, and to share past and ongoing success of implementing gender-specific initiatives with the GN and other stakeholders. <b>The GN proposes the following Terms and Conditions with respect to the disposition of this issue:</b> 1. The Proponent is strongly encouraged to monitor the success of existing and newly implemented gender-specific initiatives through the Socio-Economic Monitoring Plan to determine their success or to identify any challenges to their implementation. The Socio-Economic Monitoring Plan shall be updated within six (6) months of issuance of the Project Certificate and information is to be provided in the Socio-Economic Monitoring reports. 2. The Proponent is strongly encouraged to share information on the ongoing implementation of current gender-specific initiatives, including their successes and challenges, with the GN, the Qikiqtani Socio-Economic Monitoring Committee and Mary River Working Group, and other northern resource development operators. The GN proposes the following commitment with respect to the disposition of this issue: 1. The Proponent shall work with the GN through their MOU to promote greater female employment with the Mary River Project, with a goal of attracting more women into the mining industry and</p>	<p>Baffinland supports the intentions of the Government of Nunavut with respect to this subject and proposes two commitments, rather than Terms and Conditions, to satisfy the intent of their recommendations:</p> <ol style="list-style-type: none"> <li>1. The Proponent will continue to monitor female employment rates at the Project through its Socio-Economic Monitoring Plan and will share information on the ongoing implementation of current gender-specific initiatives, including their successes and challenges, with the QSEMC and SEMWG as appropriate.</li> <li>2. The Proponent shall work with the GN through their MOU to promote greater female employment at the Mary River Project, with the additional goal of attracting more women into the mining industry more generally.</li> </ol>	Socio-economic	<ol style="list-style-type: none"> <li>1. The Proponent shall work with the GN through their MOU to promote greater female employment at the Mary River Project, with the goals of a) employing and retaining more women with the Project including in more senior level positions, and b) attracting more women into the mining industry more generally.</li> <li>2. The Proponent will assess the ongoing implementation of current and proposed gender-specific initiatives, including their successes and challenges, in conjunction with monitoring female employment rates at the Project through its Socio-Economic Monitoring Plan. The Proponent will report to the QSEMC and SEMWG, as appropriate, on the effectiveness of these gender-specific initiatives.</li> </ol>	Resolved
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GN-07	GN	September 2019	<p>The GN recommends that the Proponent develop a separate section in the Workplace Harassment Policy or the Workplace Harassment and Violence Program on sexual harassment in order to present a clear understanding of the effects of sexual harassment and to address the specific needs of sexual harassment victims. This should include a clear definition of what sexual harassment looks like in the workplace, how to appropriately engage with victims of sexual harassment, and initiatives aimed at the prevention of sexual harassment. In addition, the GN recommends that the Proponent review the comments provided by the GN on their Workplace Harassment and Violence Program and update their policies to reflect these suggestions. The GN has the following specific recommendations for the Workplace Harassment and Violence Program: Under How to Report Workplace Violence and Harassment (pg. 1 of 8), the GN suggests the Proponent add the following action: Both parties should keep a written/dated/signed copy of the complaint form. The GN suggests that the Proponent make it clear to employees that harassment is potentially a chargeable offense and that there may be legal remedies. Under Who to Report Workplace Violence or Harassment to (pg. 1 of 8), the GN suggests the Proponent include that where a formal complaint is not deemed harassment but the employee feels a review is warranted, that the employee may submit their complaint to the RCMP. Under Commitment to Investigate (pg. 2 of 8) the GN suggests the Proponent include the following: Support the</p>	<p>Baffinland supports the intentions of the Government of Nunavut with respect to this subject and proposes three commitments, rather than Terms and Conditions, to satisfy the intent of their recommendations:</p> <ol style="list-style-type: none"> <li>1. The Proponent will update its Workplace Harassment Policy and Workplace Harassment and Violence Program and include a component on sexual harassment that addresses the unique nature of sexual harassment in the workplace and supports the specific needs of sexual harassment victims. The Government of Nunavut will be engaged in this process. This update will occur within 6 months of amended Project Certificate issuance.</li> <li>2. The Proponent will update its employee orientation program to reflect the revisions in the Workplace Harassment and Violence Program, including components related to sexual harassment in the workplace and bystander intervention. This update will occur within 6 months of amended Project Certificate issuance.</li> <li>3. The Proponent will work with the GN to establish a sub-committee through their MOU to review implementation of Company policies and initiatives regarding sexual harassment in the workplace, subject to all applicable privacy laws, and to explore potential new ways to address this issue at the Mary River Project. Baffinland Human Resource Staff will be available to specifically address this topic through the MOU subcommittee as and when required.</li> </ol> <p>Baffinland notes that it takes the issue of employee safety</p>	Socio-economic	<ol style="list-style-type: none"> <li>1. The Proponent will update its Workplace Harassment Policy and Workplace Harassment and Violence Program and include a component on sexual harassment that addresses the unique nature of sexual harassment in the workplace and supports the specific needs of sexual harassment victims. The Government of Nunavut will be engaged in this process. This update will occur within 6 months of amended Project Certificate issuance.</li> <li>2. The Proponent will update its employee orientation program to reflect the revisions in the Workplace Harassment and Violence Program, including components related to sexual harassment in the workplace and bystander intervention. This update will occur within 6 months of amended Project Certificate issuance.</li> <li>3. The Proponent will work with the GN to establish a sub-committee through their MOU to review implementation of Company policies and initiatives regarding sexual harassment in the workplace, subject to all applicable privacy laws, and to explore potential new ways to address this issue at the Mary River Project. The proponent and GN will move forward on this issue through the MOU within 6 months of issuance of the Project Certificate. Baffinland Human Resource Staff will be available to specifically address this topic through the MOU sub committee as and when required.</li> </ol>	Resolved
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GN-08	GN	September 2019	<p>The GN recommends the Proponent work with the GN through the MOU to promote employment across the Qikiqtani Region in an effort to ensure that employment benefits remain in Nunavut and specifically in the Qikiqtani Region. Some of these initiatives to promote employment across the Qikiqtani shall include, but are not limited to, the following: Where and when the Proponent will provide employment or training programs in non-point of hire communities and what restrictions will be imposed; Employment and training opportunities to be posted in all Qikiqtani communities; Responding to unsuccessful job applicants in addition to job interviewees from all Qikiqtani communities in an effort to encourage their employability in future applications; and Covering travel costs for Baffinland employees from across the Qikiqtani region to an existing point of hire community for the project. The GN proposes the following Commitments with respect to the disposition of this issue: 1. The Proponent shall work with the GN through their MOU to promote employment opportunities with the Mary River Project across all Qikiqtani communities once LSA priority hires have been maximized, with a goal of ensuring Project benefits remain in the Qikiqtani Region as much as possible. Some initiatives may include training opportunities in non-point of hire communities, posting employment and training opportunities in all Qikiqtani communities, considering methods of communicating with unsuccessful job applicants, and continuing to provide travel for all Baffinland employees from across the Qikiqtani</p>	<p>Baffinland supports the intentions of the Government of Nunavut with respect to this subject and proposes the following modified commitment wording from that proposed by the GN in their submission:</p> <p>1. The Proponent shall work with the GN through their MOU to promote employment opportunities with the Mary River Project across all Qikiqtani communities, consistent with relevant provisions of the Mary River Inuit Impact and Benefit Agreement. Initiatives may include training opportunities in non-point of hire communities, posting employment and training opportunities in all Qikiqtani communities, communicating with unsuccessful job applicants, and continuing to provide travel for all Inuit Baffinland employees from across the Qikiqtani Region to a point of hire community.</p>	Socio-economic	<p>1. The Proponent shall work with the GN through their MOU to promote employment opportunities with the Mary River Project across all Qikiqtani communities, consistent with relevant provisions of the Mary River Inuit Impact and Benefit Agreement. Initiatives may include training opportunities in non-point of hire communities, posting employment and training opportunities in all Qikiqtani communities, communicating with unsuccessful job applicants, and continuing to provide travel for all Inuit Baffinland employees from across the Qikiqtani Region to a point of hire community.</p>	Resolved
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GN-09	GN	September 2019	<p>The GN recommends that the Proponent develop a clear safety protocol that informs potential land users of rules and safety protocols for both the use of project roads and crossing the North Railway. This safety protocol should include the risks associated with road use and the North Railway or being in the vicinity of roads and the railway. The Proponent should also develop a Communication Plan to guide communication of this information and include the frequency of communication, to whom, the methods of communication, and the items to be communicated. This safety protocol and communication plan for non-Project road and rail users should be included as part of the Road Management Plan and Rail Management Plan. The GN recommends that the Proponent update their Hunter and Visitor Site Access Procedures to include any considerations for the construction and operation of the North Railway. The Hunter and Visitor Site Access Procedures should be included in the Safety Protocol and Communication Plan to ensure that it and any updates are shared. The GN proposes the following Commitments with respect to the disposition of this issue: 1. The Proponent shall develop a Safety Protocol and Communication Plan that will outline non-Project safety measures and how the Proponent will communicate to land users the rules and procedures for using the Tote Road and other project roads, crossing the North Railway, visiting the project site, and the risks associated with the road and the North Railway. The Safety Protocol and Communication Plan may include the</p>	<p>Baffinland held a crossing workshop with community representatives, a Government of Nunavut representative, and representatives from the Qikiqtani Inuit Association at the Mine Site July 29-August 2, 2019. A number of mitigation measures were identified as a result of the workshop, including:</p> <ul style="list-style-type: none"> <li>• Provision of cabins at three locations, subject to MHTO approval</li> <li>• Provision of dedicated mobile equipment to move people, equipment, cargo and snowmobiles between the port and mine</li> <li>• Snowmobile trails in 5 areas alongside the railway totalling 20.25 km to address areas of travel concern</li> <li>• Snowmobile trail along the entire Option 1 deviation length of 29 km (if Option 1 is retained as the alignment for construction).</li> </ul> <p>A summary of the workshop is presented as part of Appendix P. This information will be incorporated into a future safety protocol and communication plan to be developed in two parts:</p> <ul style="list-style-type: none"> <li>• Safety Protocol and Communications Plan – prior to railway construction</li> <li>• Safety Protocol and Communications Plan – prior to railway operations</li> </ul> <p>Baffinland proposes the following commitment, drawing from the GN's proposed wording: Baffinland will submit to the NIRB a Safety Protocol and a Communications Plan prior to construction of the North</p>	Socio-economic	<p>1. Baffinland will submit to NIRB a Safety Protocol and a Communications Plan prior to construction of the North Railway or within 18 months of issuance of the Project Certificate; and a Safety Protocol and a Communications Plan prior to operation of the North Railway. The protocols and plans will include:</p> <p>Safety Protocol and Communications Plan – prior to railway construction or within 18 months of Project Certificate issuance:</p> <ol style="list-style-type: none"> <li>Complete a risk register prior to construction</li> <li>Address safety issues related to both the road and rail, during the construction period</li> <li>Be implemented by the Company, its contractors, and non-Project land users</li> <li>Integrate Baffinland's existing Hunter and Visitor Site Access Procedure</li> <li>Communicate to land users the rules and procedures for using the Tote Road and other project roads, visiting the project site, and the risks associated with the road and the North Railway during the construction period</li> <li>Include Rules of the Road, such as speed limits, signs on the road, right of way protocols, safety restrictions regarding the discharge of firearms in proximity to the road and rail construction areas, etc.</li> <li>Identify potential hazards on the road such as mine traffic, snow drifts, steep hills, sharp corners, construction areas, and washouts</li> </ol>	Resolved
HC-FC-01	HC	September 2019	<p>HC recommends the NIRB consider the following terms and conditions: 1) That the Proponent investigate further measures to reduce and mitigate NO<sub>2</sub>, PM<sub>2.5</sub>, and other common air pollutants to protect human health. Measures may include: a. implementation of Tier 4 engines for all mine site vehicles; b. investigate additional measures to reduce emissions from highest emitters of NO<sub>2</sub>; c. additional measures to mitigate the air pollutant emissions associated with project-related shipping</p>	<p>These items are addressed by Baffinland in the Air Quality and Noise Abatement Management Plan (AQNAMP) and through the climate change strategy. The climate change strategy has identified several fuel consumption reduction measures which would also lead to reductions in air pollutants. The various mitigation measures and commitments to reduce air emissions are discussed in Section 4 of the revised AQNAMP. Mitigation measures are discussed for the various components of operations such as Mine Site air quality, Northern Transportation Corridor, Milne Port, aircraft operation and ship operation.</p>	Atmospheric	See commitment to ECCC-FC2	Resolved

HC-FC-02	HC	September 2019	<p>HC recommends the NIRB consider the following modification to existing monitoring and reporting requirements and terms and conditions:1) The Proponent continue to undertake continuous monitoring of NO2 and other air quality contaminants identified in the air quality and noise abatement management plan (August 23 2019), and implement additional monitors at sites relevant to human health.2) The Proponent incorporate all air quality monitoring data into the annual monitoring reports, to allow for comparison to the CAAQS and the Nunavut ambient air guideline.3) If the monitored levels of any non-threshold pollutant exceed model predictions at sites relevant to human health, then a revised risk assessment should be presented. If warranted, appropriate adaptive management plans, targeted mitigation measures, and implementation strategies should be developed.</p>	<p>The responses to these queries are provided in the response to ECCC-FC1 and ECCC-FC3. These concerns will be addressed in the revised AQNAMP.</p>	Atmospheric	<p>Baffinland will update the Air Quality and Noise Abatement Management Plan with the following text: "Use the existing continuous air quality monitors on site to validate the predictions of NO2 and other air quality contaminants in the EIS moving forward. Share results through reporting mechanisms, such as the annual report. Should exceedances occur beyond the EIS predictions, include an updated human health risk assessment in the annual report."</p>	Resolved
HC-FC-03	HC	September 2019	<p>HC recommends the NIRB consider the following terms and conditions:The Proponent continue monitoring COPCs reported in the risk assessment, and that monitoring is done in all environmental media, for each project phase. If concentrations of any COPCs increase in any environmental media during project activities, HC recommends that the Proponent update the human health risk assessment model with new environmental monitoring data, and extend the monitoring program to include relevant country foods as indicated by the risk assessment.</p>	<p>Baffinland will continue with monitoring of COPCs reported in the country foods risk assessment. If increases in a specific COPC are confirmed to be occurring outside of the Potential Development Area (PDA) and if country foods could be influenced by those changes, Baffinland will update the human health risk assessment model with the new data. Decisions related to extending the monitoring program to any relevant country foods would be made based on consideration of risk assessment outcomes. Updated modelling would be triggered by changes from monitoring stations that are outside the PDA where harvesting could occur. Changes to COPCs at stations inside the PDA would not trigger a need for re-modelling because changes in COPCs are expected within the active footprint of industrial activities. As part of existing terrestrial monitoring for metals in soil and vegetation, sampling is conducted within a distance gradient approach from the edge of PDA: Near (0–100 m); Far (101 –1,000 m); and Control (&gt;1,000 m). The study was designed to detect changes in environmental media (soil and vegetation) at Near sites relative to baseline conditions and in comparison to sites further from the PDA. That objective requires collections being made within 0–100 m of the PDA. Any remodelling effort should also consider changes (or lack thereof) in more ecologically relevant distant stations (i.e., those stations located between 100 m and 1,000 m from the PDA boundary). Consideration of change at near sites (0 – 100m) and far sites (100 – 1,000 m), relative to baseline</p>	Atmospheric	<p>Baffinland will continue with monitoring of COPCs reported in the country foods risk assessment during all phases (including closure). If increases in a specific COPC are confirmed to be occurring outside or inside (in the closure phase) of the Potential Development Area (PDA) and if country foods could be influenced by those changes, Baffinland will update the human health risk assessment model with the new data. Decisions related to extending the monitoring program to any relevant country foods would be made based on consideration of risk assessment outcomes. Updated modelling would be triggered by changes from any of the monitoring stations where harvesting could occur. Any remodelling effort should also consider changes (or lack thereof) using a distance gradient approach from the edge of PDA: Near (0–100 m); Far (101 –1,000 m); and Control (&gt;1,000 m) and more ecologically relevant distant stations (i.e., those stations located between 100 m and 1,000 m from the PDA boundary). Consideration of change at PDA (closure phase), near sites (0 – 100m) and far sites (100 – 1,000 m), relative to baseline data, and environmental quality guidelines, in conjunction with statistical analyses, would be used to identify the need for supplementary risk assessment modelling.</p>	Resolved

MHTO-1	MHTO	September 2019	Given the motion passed by our membership at the most recent AGM, we recommend that the NIRB not approve the railway or additional mining at this time. We provide additional discussion in comment MHTO-2 which recommends additional information that is required before we will be in a position to offer support for the railway project.	The full response to this submission is provided in Appendix B.	Corporate		Outstanding
MHTO-2a	MHTO	September 2019	Baffinland must compile and submit reporting on feasibility of the preferred and alternative rail routes as well as in depth assessments of alternate routes. Baffinland must also provide additional rationale for excluding options that are preferable to the community of Pond Inlet. This includes previous alternatives from Mary River including routes and ports to the East.	The full response to this submission is provided in Appendix B.	Terrestrial		Outstanding
MHTO-2b	MHTO	September 2019	Finally, Baffinland must undertake significantly more community consultation to reach more than the current "we believe" statement related to community preference for railway routing	The full response to this submission is provided in Appendix B.	Socio-economic		Outstanding
MHTO-3	MHTO	September 2019	Baffinland must undertake additional monitoring of caribou and update its current effects assessment for Phase 2. Baffinland must employ Inuit and specifically consult with the MHTO in the development and implementation of caribou monitoring programs. Inuit should also be trained in the interpretation of results from Baffinland's studies, and should be informing Baffinland on what "significant" means to Inuit in terms of impacts to caribou or number of caribou sighted.	The full response to this submission is provided in Appendix B.	Wildlife		Outstanding
MHTO-4a	MHTO	September 2019	We, the MHTO we must be consulted by Baffinland with regard to its shipping plans, and will not support shipping activities that begin or persist outside of our approval every year in the spring and fall to authorize the beginning, and to require the end of Baffinland's shipping season.	The full response to this submission is provided in Appendix B.	Marine		Outstanding

MHTO-4b	MHTO	September 2019	Baffinland must indicate how its plans to ship ore can be constrained by Inuit use of ice and still manage to achieve production targets and economic viability. We have concerns we may be faced with a similar scenario as happened with the Production Increase Proposal, where Baffinland said they had to increase production or the mine would shut down. How can we be assured Baffinland will not threaten mine shut down again if operations cannot continue as it demands? We have no certainty that the Phase 2 development will operate as Baffinland is stating within the FEIS Addendum, and we are equally uncertain that promises of a seasonal shipping schedule determined by Inuit approval will hold up in the face of economic pressures on Baffinalnd to move ore to market. NIRB must protect our interests and not allow additional pressure to be put on our resources and allow Baffinland to ignore our desires because of mining costs and desire for profits.	The full response to this submission is provided in Appendix B.	Marine		Outstanding
MHTO-4c	MHTO	September 2019	Baffinland must indicate how its plans to ship ore can be constrained by Inuit use of ice and still manage to achieve production targets and economic viability. We have concerns we may be faced with a similar scenario as happened with the Production Increase Proposal, where Baffinland said they had to increase production or the mine would shut down. How can we be assured Baffinland will not threaten mine shut down again if operations cannot continue as it demands? We have no certainty that the Phase 2 development will operate as Baffinland is stating within the FEIS Addendum, and we are equally uncertain that promises of a seasonal shipping schedule determined by Inuit approval will hold up in the face of economic pressures on Baffinalnd to move ore to market. NIRB must protect our interests and not allow additional pressure to be put on our resources and allow Baffinland to ignore our desires because of mining costs and desire for profits.	The full response to this submission is provided in Appendix B.	Marine		Outstanding
MHTO-5a	MHTO	September 2019	MHTO recommends Baffinland clarify how the ships size and frequency with Phase 2 are so different from the original Mary River project that concerns about using the narrow Milne Port have been abated.	The full response to this submission is provided in Appendix B.	Marine		Outstanding
MHTO-5b	MHTO	September 2019	MHTO recommends that Baffinland be required to submit a full assessment of baseline conditions and potential impacts of shipping and ice-breaking at the floe edge in spring and fall, and that this be submitted and thoroughly considered, prior to NIRB's decision being rendered.	The full response to this submission is provided in Appendix B.	Marine		Outstanding

MHTO-5c	MHTO	September 2019	MHTO recommends no additional shipping routes be approved at this time.	The full response to this submission is provided in Appendix B.	Marine	Baffinland is not proposing any additional shipping routes under the Phase 2 Proposal. This includes the use of Navy Board Inlet and the Northwest Passage.	Partially Resolved
MHTO-5d	MHTO	September 2019	MHTO recommends Baffinland undertake significantly more monitoring of marine wildlife and ecosystem, specifically that Inuit receive on the job training to conduct these studies, and also to interpret data and compile reporting. We would like to hear the assurances Baffinland is giving us about no impacts, from an Inuk that has been trained in the science and procedures of its monitoring and review.	The full response to this submission is provided in Appendix B.	Marine		Outstanding
MHTO-5e	MHTO	September 2019	MHTO recommends Baffinland undertake additional sampling of ship ballast water, hull fouling, and other contaminants that may be released by ships calling to port. MHTO also recommend that Baffinland consider partnering with another organization, or developing on its own, a sampling laboratory in Pond Inlet that could process limited samples and employ local people to do so.	The full response to this submission is provided in Appendix B.	Marine		Outstanding
MHTO-6	MHTO	September 2019	MHTO recommends the NIRB reject the alternative option to use the Tote Road to ship ore in excess of 6 Mtpa on the basis that no adequate assessment was provided to support its consideration and/or approval.	The full response to this submission is provided in Appendix B.	Corporate		Partially Resolved
MHTO-7a	MHTO	September 2019	We recommend that Baffinland be required to incorporate Inuit knowledge into its determination of significance, identification of indicators and development of thresholds. We recommend that Baffinland's current conclusions regarding impact significance in the FEIS Addendum be revised to take account of Inuit needs, and that indicators and thresholds be developed and in place prior to approving the Phase 2 development.	The full response to this submission is provided in Appendix B.	Human		Outstanding
MHTO-7b	MHTO	September 2019	We recommend that Baffinland develop monitoring programs in consultation with Inuit, and that it hire and train Inuit to participate in additional scientific studies and monitoring activities, and to interpret results.	The full response to this submission is provided in Appendix B.	Socio-economic		Outstanding

MHTO-7c	MHTO	September 2019	MHTO requires additional resources to manage the responsibilities associated with participating in the highly technical and ongoing assessments of Mary River phases of development as well as the annual monitoring and working group activities. We recommend Baffinland provide the MHTO with annual funding to participate more fully in the review and comment submissions for its increasingly complex project development. Without proper support, this project will be absent any meaningful input from the hunters and trappers of Pond Inlet. We have not received any increases to our funding owing to project-related demands on our time. Given that this is a Proponent driven process, we recommend that Baffinland provide funding to support our ability to participate in ongoing activities related to additional assessments and regular mitigation and monitoring programs in place for the previously approved project.	The full response to this submission is provided in Appendix B.	Corporate		Outstanding
MHTO-7d	MHTO	September 2019	Recommend NIRB assume lead role in marine and terrestrial environment working groups, require Baffinland to remain transparent and accountable, and deliver more prescriptive direction to Baffinland for its ongoing mitigation measures and any proposed changes to monitoring plans.	The full response to this submission is provided in Appendix B.	Corporate		Outstanding

NRCAN-01	NRCAN	September 2019	<p>NRCAN recommends that the Proponent follow through on the plans outlined in their response to NRCAN to support detailed design and environmental monitoring and management programs. Specifically NRCAN recommends the Proponent: Conduct the summer 2019 mapping program in areas where the railway corridor deviates from the road. Conduct the winter 2019/20 drilling program, described in their response, to obtain additional subsurface data to support design. Conduct the pre-drilling program, described in their response, to improve delineation of ice-rich areas to support implementation of appropriate measures to deal with permafrost conditions prior to cuts or embankment construction. Install thermistors during the 2019/20 and pre-drilling programs to establish baseline conditions along the corridor prior to construction.</p>	Baffinland has committed to carrying out the plans as outlined in NRCAN's final written submission comment	Terrestrial	<p>Baffinland commits to:</p> <ul style="list-style-type: none"> <li>• Conducting the summer 2019 mapping program in areas where the railway corridor deviates from the Tote Road, including along the Route 1 deviation alignment. This summer mapping program was completed in summer 2019.</li> <li>• Conducting the winter 2019/2020 drilling program along the deviation route, following the proposed Route 3 deviation alignment, and near the port terminus to obtain additional information on subsurface conditions to inform the final design.</li> <li>• Conducting a pre-drilling program, to be completed by the railway contractor and supervised by BIM's Engineer during the construction period. Boreholes will be advanced into permafrost along the rail alignment prior to the railway earthworks. Boreholes will be used to delineate zones of ice-rich and ice-pore permafrost and to determine the required permafrost treatment prior to making cuts and placing fill for the embankments.</li> <li>• Installing thermistors and other monitoring instruments along the rail alignment including along the Route 3 deviation during the pre-drilling programs to establish baseline conditions prior and during rail construction.</li> </ul>	Resolved
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NRCan-02	NRCan	September 2019	<p>NRCan recommends that the Proponent implement the recommendations provide by Hatch in the design memo and the plans for further analysis and instrumentation as outlined in their response to NRCan to support detailed design and environmental monitoring and management programs. Specifically NRCan recommends the Proponent:Implement the recommendations made by Hatch to accommodate the 30 year design life including those related to pile length embedment and number of piles required for foundations.Continue to refine the thermal, stability and creep analysis incorporating new data collected during geotechnical investigations and from instrumentation along the railway corridor to support final design of embankments and bridges.Consider local factors (such as snow accumulation and presence of water bodies) in the 2D thermal modelling to support final design of embankments, cuts and bridges.Establish instrumentation as outlined in their response, prior to and during construction to improve characterization of baseline ground conditions, support final design, evaluate impacts due to construction and railway performance, and to inform the implementation ofmitigation/maintenance measures when triggers are reached.</p>	<p>Baffinland has committed to implementing recommendations outlined by Hatch in their design memo and plans for further analysis and instrumentation. Pile designs have been revised per recommendations to accommodate the 30-year design life.</p>	Terrestrial	<p>Baffinland commits to:</p> <ul style="list-style-type: none"> <li>• Implementing the recommendations to accommodate the 30 year design life provided in the project memorandum 'Analysis of Proposed Rail Line Cut Sections and Port Area Structures Considering a Mine Life of 30 Years' (Hatch, 2019) including those related to pile length embedment and number of piles required for foundations.</li> <li>• Continue to refine the thermal, stability and creep analysis incorporating new data collected during geotechnical investigations and from instrumentation along the railway corridor, along the Route 3 deviation alignment as well the rail alignments outside the rail deviation, to support final design of embankments and bridges.</li> <li>• Consider local factors (such as snow accumulation and presence of water bodies) in the 2D thermal modelling to support final design of embankments, cuts and bridges.</li> <li>• Establish instrumentation along the rail alignment, including along the Route 3 deviation alignment, prior to and during construction to improve characterization of baseline ground conditions, support final design, evaluate impacts due to construction and railway performance, and to inform the implementation of mitigation /maintenance measures when triggers are reached.</li> </ul>	Resolved
PCA-01	PCA	September 2019	<p>Parks Canada recommends that:The Proponent identify whether they intend to ship through Navy Board Inlet and/or the Northwest Passage and if so, under what circumstances.Should the intention of the Proponent be to use this route, the project assessment should be informed by a review of potential impacts including: - Consultation with affected communities, - description of circumstances under which the route will be used, - identification of potential effects, mitigations, and significance of residual impacts, - gathering and incorporation of Inuit Qaujimanituqangit relevant to use of the route, and - identification of cumulative effects.</p>	<p>Per our clarification letter provided to NIRB and MHTO on Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)</p>	Marine		Resolved

PCA-02	PCA	September 2019	<p>Parks Canada recommends that:DFO Science review and provide expert advice regarding marine (and freshwater) monitoring plans from the Proponent, independent of the MEWG (as per DFO Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2", p. 51) in preparation for the submission of these plans to the MEWG, and the updated Terms of Reference for the MEWG be finalized and approved by all members, including the NIRB.</p>	<p>Baffinland notes that in recent in person Terrestrial and Marine Working Group meetings (June 20 and 21, 2019, Iqaluit) the functionality of the Working Groups and updates to the Terms of References were discussed. It was noted by some members during these meetings that they had observed improved changes to the functioning of the Working Groups. Notwithstanding, proposed changes to the ToR's have been ongoing throughout the summer 2019, with drafts available to the NIRB for review. In response to recommendations made by several Working Group members to date, Baffinland has submitted proposed revisions to the ToRs in Appendix O of this submission that reflect a more consensus-based approach to decision making that more clearly identifies how recommendations are identified, supported, communicated, and tracked. Baffinland believes the updated draft Terms of Reference provide the mechanism and accountability for the implementation of recommendations made by both the MEWG and DFO. Provision of draft monitoring programs to DFO Science before other MEWG members, aside from being impractical from a planning cycle perspective, is not consistent with the spirit of the working groups, which is to solicit advice from a range of scientific experts and knowledge holders in a collaborative environment. The prioritization of DFO Science participation in monitoring planning would also contradict Baffinlands commitment to weigh science and Inuit Qaujimanituaqangit equally, and that of DFO as outlined in the PC-04a recommendation.</p>	Marine	<p>Baffinland commits to amend the Terms of Reference for the MEWG in collaboration with MEWG Members.</p>	Outstanding - In Progress
PCA-03	PCA	September 2019	<p>Parks Canada recommends that:Recommendations presented by DFO in the "Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2" regarding AIS (pp 31-48) be implemented, for example:• All project vessels use a treatment plus exchange strategy, and the Proponent be required to develop a coordinated early detection and rapid response plan for invasive species in Milne Inlet/Eclipse Sound with applicable regulators, communities, and other potential partners.• The ballast water dispersion model and analyses be completed prior to issuance of the project certificate and issuance of authorizations.</p>	<p>Please refer to responses to DFO 3.10.1-3.10.6.</p>	Marine	<p>See Commitment to DFO 3.6 NEW series</p>	Resolved

PCA-04a	PCA	September 2019	<p>Parks Canada believes there are significant gaps in information and as a result, uncertainty in conclusions, related to the impacts of shipping on the marine environment. The Government of Canada supports the establishment of Tallurutiup Imanga NMCA and as a result, Parks Canada recommends that the precautionary principle, as described by section 9(3) of the CNMCAA and the Tallurutiup Imanga IIBA, be followed when considering any decisions and recommendations regarding shipping. Parks Canada recommends that: If the project were to proceed, the Proponent work with DFO and incorporate Inuit Qaujimanituqangit, to address uncertainties and gaps in the Proponent's information and conclusions as described by the existing and pending DFO Science Canadian Science Advisory Secretariat Science Responses and that this occur prior to any increase in levels of shipping (for the total number of proposed project vessels: ore carriers, resupply vessels, tugs, and icebreakers).</p>	<p>Baffinland notes that Parks Canada has not provided any independent analysis to support their recommendations other than that sourced from the 'Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2'. This Review Report was conducted at the request of DFO's Fish and Fish Habitat Protection Program and is adequately reflected in DFO's final written submissions. Respectfully, while Parks Canada does have a mandate to protect areas in the RSA, they rely on the expertise of the other federal Intervenor for much of their submission, and do not maintain their own technical expertise to support their recommendations on these matters. Baffinland believes it is reasonable to request that the Board view the Parks Canada's submission as a reiteration of the DFO submission, and not a separate and distinct set of recommendations.</p> <p>Baffinland has also identified that neither the references or detailed review sections of Parks Canada's comment include any documentation submitted past June 17, 2019, consistent with what was considered in DFO's 'Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2'. This has made it challenging for Baffinland to identify and respond to potential outstanding issues, as it appears that the great majority of issues raised were</p>	Marine		Outstanding - In Progress
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PCA-04b	PCA	September 2019	<p>Parks Canada recommends that: Shipping only occur during a clearly defined open water season. As described by Transport Canada, the Proponent could consider the definition of 'open water' as found in the Polar Code: "Open water means a large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present."</p>	<p>Baffinland would like to be clear that Transport Canada has NOT recommended that shipping only occur during a clearly defined open water season, as could be insinuated from this recommendation. Transport Canada (TC-04) did recommend that Baffinland provide a consistent definition of open water (which Baffinland has agreed), but it was in the context of understanding Baffinland's intentions to transfer fuel during the shoulder season.</p> <p>Baffinland also notes that this recommendation did not consider Baffinland's Draft Early Shipping Season – Operational Guide, submitted August 23, 2019, which outlines the conditions under which Baffinland would commence and manage shoulder season shipping. This is an important mitigation and could have been reviewed in light of the recommendation that has been made.</p> <p>Key details of the draft Early Shipping Season – Operational Guide are described here in for the benefit of Parks Canada. The criteria for initiating shoulder season shipping include environmental, ecological and community determinants as follows:</p> <ul style="list-style-type: none"> <li>• Before commencing shipping operations, Baffinland must receive written confirmation from the MHTO that the floe edge is no longer being used by community members. No transits to Milne Port will be permitted until confirmation is received.</li> <li>• Baffinland will not break landfast ice.</li> <li>• Baffinland will not break ice during ringed seal parturition, pupping and nursing periods and will manage its vessel</li> </ul>	Marine		Outstanding - In Progress
PCA-04c	PCA	September 2019	<p>Parks Canada recommends that: If shipping, and associated icebreaking activities/ice management activities (as defined by the Proponent in Appendix 12, Information Responses, March 2018), were to occur outside of a clearly defined open water season (not including winter), work with DFO and incorporate Inuit Qaujimanituaqangit, to identify conditions under which these activities could occur.</p>	<p>Baffinland submitted a draft Early Shipping Season – Operational Guide for review on August 23rd, 2019 with the intent to solicit input from Interveners. For a more detailed description of this Guide, please see Baffinland's response to PC-04b. Baffinland remains open to comments on the Guide and will commit to modifications through a post-EA process. For more details regarding Baffinland's intentions to work with DFO and Inuit in relation to the implementation of proposals and commitments, and the effectiveness of proposed mitigation measures, please see Baffinland's response to PC-04a. Should Phase 2 be approved, Baffinland will continue to engage DFO and Parks Canada through the MEWG for the purposes of ensuring our proposed mitigation and monitoring programs are robust, effective, and responsive.</p>	Marine		Outstanding - In Progress

PCA-04d	PCA	September 2019	Parks Canada recommends that: The Proponent consider additional options regarding the feasibility of shipping through Steensby Port.	Baffinland intends to use necessary capital generated by the Phase 2 expansion to support the eventual construction and operation of the southern portion of the Project. The Phase 2 proposal is a desirable and economically feasible option to capital generation for Steensby because it allows for the utilization of several existing infrastructures, notably a fully constructed Port at Milne Inlet and an established transportation corridor to support construction and maintenance of a railway. Baffinland has not assessed for winter shipping as part of the Phase 2 Proposal, as this was previously identified as unfavorable to the community of Pond Inlet. If Baffinland were to consider any future expansions of the Project through the Northern route, required regulatory processes would be followed. It is also noted that this is not being contemplated by Baffinland at this time.	Marine		Outstanding - In Progress
QIA-01	QIA	September 2019	<p>QIA requests the Proponent provide outstanding documents relevant to caribou at least two weeks prior to the November hearing. This should include terms of reference for working groups, calculations of habitat loss (project specific and cumulative), and reassessment of caribou-related impacts (habitat, movement, mortality risk, health).</p> <p>QIA requests the Proponent commit to working with the interested parties to develop IQ and science-based predictions of habitat loss, expected impacts to caribou movements, mortality risk, and health risk, which can be tested through the monitoring program and responded to through mitigations and adaptive management.</p> <p>QIA requests the Proponent commit to a revised AMP that is equally responsive within reasonable time frames to inputs from MEWG, TEWG and whatever Inuit Committee/Inuit Panel is set up.</p> <p>QIA requests the Proponent commit to support a formal harvesters survey.</p> <p>QIA requests the Proponent commit to supporting (pending community support) a regional IQ-based approach for monitoring North Baffin caribou, and local monitoring program for caribou interactions.</p> <p>QIA requests the Proponent commit to working with GN, QIA and HTOs (parties to be identified as appropriate) to conduct an IQ study of caribou habitat use and establish protection areas and other protection measures for caribou in the North Baffin caribou range.</p>	<p>1) Meaningful incorporation of IQ into project assessment, design, mitigations and monitoring: Baffinland agrees that a fulsome review by relevant parties is necessary to develop the terms of reference for the Inuit Advisory Panel (IAP). This commitment is already recognized in the Inuit Qaujimanituqangit (IQ) Management Framework and further outlined in the attached Conceptual Implementation Plan (Appendix O). Baffinland also recognizes the importance of IQ and Inuit perspectives to the adaptive management process and holds those sources of information and values in the same regard as those generated from other empirical sources. Section 1.5 of the draft Adaptive Management Plan recognizes that "...this section will be updated as Baffinland continues to develop its IQ Management Framework, Inuit Advisory Panel, and Culture, Resource and Land Use (CRLU) Monitoring Program." Baffinland plans to consult the QIA on each of the listed initiatives as they are finalized, and this would extend to the Adaptive Management Plan. Baffinland already supports IQ-based monitoring and agrees that Project impacts to caribou could be a community priority to investigate. However, Baffinland continues to state that the communities' monitoring priorities are for them to determine, not Baffinland or the QIA.</p> <p>2) Responsiveness of BIMC to input from working groups: Baffinland already incorporates feedback from the Working Groups. Examples of how Inuit and QIA feedback from the</p>	Wildlife		Resolved

QIA-02	QIA	September 2019	<p>QIA requests the Proponent commit to full assessment of alternatives to the current “dogleg” diversion in combination with QIA and HTOs. This includes proper and full assessment of the alternative route put forward by Pond Inlet and any alternatives to it currently being examined by BIMC. See also TCs #6 and #20.</p> <p>QIA requests the Proponent commit to embankment construction requests as outlined in our detailed TC #2.</p> <p>QIA requests the Proponent commit to conducting a robust science and IQ-based process for identifying high crossing locations once route is finalized, and full avoidance all important caribou crossings, using the best available information on what types of crossings will work best to reduce movement effects to caribou.</p> <p>QIA requests the Proponent commit to develop a strong regional monitoring program to answer questions about how caribou are being affected by the railway.</p> <p>QIA requests the Proponent develop a strong local monitoring program in the immediate vicinity of the railway, to identify high collision locations and trigger additional mitigations when caribou are in the area.</p> <p>QIA requests the Proponent commit to developing conditions jointly with the TEMP and BIMC-proposed Inuit Panel (or other Inuit Committee), if created, that would trigger the company to add or improve crossings once railroad is constructed.</p> <p>QIA requests the Proponent commit to developing clear triggers in collaboration QIA, HTOs and GN to introduce</p>	<p>1. Given the proximity of the alternative “dogleg” alignment currently under consideration (Route 3/Option 3) to the alignment originally proposed by Baffinland, the existing assessments and conclusions remain valid. This is described more fully in an Appendix I to the Rail Alignment Summary Report (Appendix P).</p> <p>2. Based on input provided during the Crossing Selection Workshop from HTO participants representing Pond Inlet, Igloolik, as well as QIA and GN, the following modifications have been proposed for the design of the North Railway to aid in caribou crossing:</p> <ul style="list-style-type: none"> <li>• 30 level crossings to be installed at locations identified by community representatives during the workshop (subject to Transport Canada and Community Acceptance).</li> <li>• A smoother fill material (Type 8 - 6 inches or less in size) will be used along the entire railway embankment (change from Type 12 - 24 inches or less).</li> <li>• A gentler slope (1:2 ratio) will be used for all portions of the railway embankment between 2 and 4 meters (change from 1:1.5).</li> <li>• A gentler slope will be created at the edges of crossings to assure approach from any angle is safe.</li> <li>• 4 additional plate arch culverts will be installed in areas where the railway embankment is high enough to allow an underpass (10 plate arch culverts were already proposed at fish bearing water crossings, which may also serve to allow passage for terrestrial wildlife throughout the year).</li> </ul>	Wildlife		Resolved
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QIA-03	QIA	September 2019	<p>QIA requests the Proponent provide more details on its proposed Culture, Resources, and Land Use Monitoring Program at least two weeks prior to the November hearing, so that the adequacy of the scope and committed-to funding for the life of the Project of an ongoing Inuit data collection system for the Project can be assessed by the Inuit parties and the NIRB. QIA requests the Proponent to commit to increased representativeness in the collection of mapped data, including interviewing more people and from a broader demographic. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body.</p>	<p>Baffinland commits to develop and implement a CRLU Monitoring Program for the life of the Mine (Appendix O). The Program will be submitted to the NIRB 12 months following the issuance of a revised Project Certificate 005. The Program will include a maximum three-year delivery interval, including updating land use and value mapping, and tie into adaptive management planning. The CRLU Monitoring Program will strive to integrate alienation effects as well as future use. Baffinland commits to the development and implementation of an Inuit Advisory Panel, with a Terms of Reference to be developed with the QIA and the North Baffin Communities, and to be submitted to the NIRB within 12 months following the issuance of a revised Project Certificate 005.</p> <p>Baffinland has carefully considered the Tusaqtuvut Report and have used that information to inform a comprehensive updated assessment of food security filed with this submission, which specifically takes into account how culture, resources and land use have an influence on food security. Baffinland had been discussions with the QIA on its request for an updated assessment of Phase 2's relationship to Culture, Resources and Land-Use. Rather than an approach which would update this document and tie the CRLU Monitoring Program to FEIS Addendum effects estimations, Baffinland suggests a different approach. It is important to emphasize that in its approach to monitoring on CRLU, Baffinland is not relying on a finding of non-significance in the context of environmental</p>	Human		Resolved
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QIA-04	QIA	September 2019	<p>QIA requests the Proponent commit to develop more detailed requirements for incorporation of IQ into marine (and terrestrial) environmental management plans moving forward, and work in conjunction with Inuit in development of limits of acceptable change. QIA requests the Proponent commit to incorporating Inuit- and IQ-derived metrics into Early Warning Indicators for the Project. QIA requests the Proponent commit to develop, with Inuit, a more efficient and Inuit-based monitoring plan for Ringed seals.</p>	<p>Both the Marine and Terrestrial Environment Working Groups include the MHTO in their membership, which has been an invaluable source of knowledge for Baffinland in planning and interpreting the results of its monitoring programs. Moving forward the Inuit Advisory Panel (IAP) will play a critical role in formalizing the process by which IQ and Inuit perspectives are integrated into Baffinland's environmental management system, including the development of a better understanding of acceptable limits of change. Baffinland has already started the process of including Inuit in the development of Early Warning Indicators (EWIs) for the Project, including a dedicated session spent with the MHTO. This initiative is being actively worked on through the MEWG and will likely benefit from the future establishment of the IAP.</p> <p>Baffinland commits to developing a ringed seal monitoring plan that incorporates Inuit perspectives into the design, planning and implementation phases.</p>	Human		Resolved
QIA-05	QIA	September 2019	<p>QIA requests the Proponent provide more details on its proposed Culture, Resources, and Land Use Monitoring Program at least two weeks prior to the November hearing, so that the adequacy of the scope and committed-to funding for the life of the Project of an ongoing Inuit data collection system for the Project can be assessed by the Inuit parties and the NIRB. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body. QIA requests the Proponent commit to working with QIA and the Inuit communities to review adequacy of existing - and develop enhanced and independent - Inuit community-based monitoring programs.</p>	<p>Details of the CRLU Monitoring Program and Baffinland's commitments to establishing an Inuit Advisory Panel are provided in response to QIA-03.</p> <p>Baffinland already supports community-based monitoring through the Mary River IIBA (Article 17.8). Should the QIA wish to review the adequacy of this program to include additional terrestrial and marine monitoring programs as proposed in their recommendations, Baffinland suggests this should occur through the mechanisms established in the IIBA, not the NIRB review process.</p>	Human		Resolved

QIA-06	QIA	September 2019	QIA requests the Proponent commit to full assessment of alternatives to the current "dogleg" diversion in combination with QIA and HTOs. This includes proper and full assessment of the alternative route put forward by Pond Inlet and any alternatives to it currently being examined by BIMC. QIA requests the Proponent commit to providing more information on technical and economic feasibility of multiple alternative rail routes during reconsideration of the rail routing as discussed above. QIA requests the Proponent commit to the inclusion of a discussion on the triggers for modifying crossings so that clear steps on triggers and thresholds are known for when a modification to rail will occur (e.g., HTO formal application, repeated observations, individual observations, etc.) at any and all future rail routing meetings.	Baffinland's approach to the assessment of the alternative "dogleg" alignment is provided in response to QIA-02. An examination of the technical feasibility of the alternative alignments proposed during the Crossing Selection Workshop is provided in the Rail Alignment Summary Report, included as Appendix P. The economic feasibility of the alternative routes was not examined as it was not a criteria for selection by Baffinland. Baffinland has developed a draft Decision Matrix for adding crossings based on land user requests (Appendix P).	Wildlife		Resolved
QIA-07	QIA	September 2019	QIA requests the Proponent commit to including conformity with Inuit wildlife laws and norms as an objective in its terrestrial and marine EMPs, and reporting on Project conformity with Inuit wildlife laws and norms as an element of the enhanced IQenriched monitoring system. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body.	Baffinland confirms that it has reviewed the "Uqausirisimajavut: What we have said. The Inuit view of how oil and gas development could impact our lives" Report and is committed to integrating conformity with Inuit wildlife laws and norms into the objectives of its terrestrial and marine environmental management plans. Reporting will focus on the laws and norms as outlined in the QIA's original technical comment: <ol style="list-style-type: none"> <li>1. Show respect to animals;</li> <li>2. Leave animals alone unless hunting them;</li> <li>3. Animals are to be used, not wasted;</li> <li>4. Each animal has its own habitat; and</li> <li>5. Protect animal habitat.</li> </ol> Baffinland's commitment to the Inuit Advisory Panel is provided in response to QIA-03.	Human		Resolved

QIA-08	QIA	September 2019	<p>QIA requests the Proponent to submit its Food Security Update on the public record for review at least one month prior to the November hearing. QIA requests the Proponent firm up and clarify its commitments to support food security and to contribute to efforts to track food security in the communities affected by its operations, including discussion of what specific supports BIMC is committed to provide in years where marine mammal returns are lower than expected. QIA also requests any mitigations proposed by BIMC for food security are confirmed with QIA and Inuit communities, re: their adequacy. QIA requests the Proponent provide in the Food Security Update a defensible written justification and any relevant evidence that explains the assertion the Phase 2 Proposal is not anticipated to have a negative effect on food security. QIA requests the Proponent commit to develop and fund a CRLU Risk Communication Strategy/Program with Inuit, focused on gathering and dissemination of information to Inuit on the health of the land and country foods. Given gaps in the food security data collection program in place, the NIRB should provide a more detailed Project Certificate Condition related to what food security needs to be collected, analyzed (and by whom), reported and tied to adaptive management triggers in relation to the Mary River Project.</p>	<p>The QIA's September 2019 Recommendations/Requests: QIA requests the Proponent to submit its Food Security Update on the public record for review at least one month prior to the November hearing. The Food Security Assessment is provided as Appendix O. The Proponent is requested to firm up its commitments to support food security and to contribute to efforts to track food security in the communities affected by its operations. QIA also requests that any mitigations proposed by BIMC for food security are confirmed with QIA and Inuit communities, re: their adequacy. Baffinland is proposing a CRLU monitoring program in relation to land use and harvesting. Also, Baffinland proposes to incorporate additional indicators of food security into its annual socio-economic monitoring program. Many of the programs Baffinland plans to deliver through Phase 2, while not intended to address food security specifically, will also have an enabling impact of food security. Baffinland will consult with the QIA and the communities on any other proposed programming that specifically address food security. Given gaps in the food security data collection program in place, the NIRB should provide a more detailed Project Certificate Condition related to what food security needs to be collected, analyzed (and by whom), reported and tied to adaptive management triggers in relation to the Mary River Project. Terms and Conditions 129 and 130 of the Project Certificate</p>	Food Security		Resolved
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QIA-09	QIA	September 2019	<p>Given the lack of community-based monitoring of impacts to vegetation, the NIRB is recommended to develop a Project Certificate Condition related to development of Proponent-funded, independent terrestrial (and marine) monitoring programs in relation to the Project. NIRB is recommended to develop a Project Certificate Condition regarding revegetation standards for reclamation and developing standards based on IQ, including meeting standards for cultural use and addressing community concerns with respect to reestablishing use of these areas. QIA requests the Proponent commit to develop and implement, with Inuit communities, an improved baseline data collection program, including on the ground studies for Culturally Important Vegetation, including impacts of dustfall on vegetation. QIA requests the Proponent commit to, with affected communities, review, update and implement the EPP and the Terrestrial Environment Mitigation and Monitoring Plan to include Culturally Important Vegetation monitoring and re-vegetation research incorporating IQ into these activities.</p>	<p>Baffinland acknowledges that there are gaps in existing vegetation baseline and monitoring programs for the Project which do not incorporate a fulsome IQ-based approach to the study design, methodology, indicators/thresholds or mitigation planning. These programs were designed from a scientific perspective that focused on statistical significance and determination. Baffinland also acknowledges that even though current programs target all vegetation groups, there is no targeted monitoring for culturally valued vegetation based on what is important to Inuit. Baffinland already supports community-based monitoring through the Mary River IIBA (Article 17.8) and agrees project impacts to culturally important vegetation could be a community priority to investigate. However, Baffinland continues to maintain the communities monitoring priorities are for them to determine. Should the QIA wish to review the adequacy of this program to include additional terrestrial and marine monitoring programs as proposed in their recommendations, Baffinland suggests this should occur through the mechanisms established in the IIBA, not the NIRB review process.</p>	Terrestrial		Resolved
QIA-10	QIA	September 2019	<p>QIA requests the Proponent provide the revised CRLU Assessment on the public record for review at least one month prior to the November hearing. QIA requests the Proponent to commit to and adequately fund a CRLU Monitoring Program, with full revisit of the Program on a maximum three-year interval basis, including updating of Inuit use and value mapping, revisiting of FEIS Addendum effects estimations, and ties to the Adaptive Management Plan for any effects that exceed FEIS Addendum estimations. Further information on the CRLU Monitoring Program identified in the Proponent's September 18, 2019, IQ Management Framework document, is necessary. QIA requests the Proponent make a stronger commitment going forward to integrating alienation effects into monitoring as well as the consideration of future use. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body.</p>	<p>Baffinland's intentions towards the CRLU Assessment are provided in response to QIA-03. Details of the CRLU Monitoring Program and Baffinland's commitments to establishing an Inuit Advisory Panel are provided in response to QIA-03.</p>	Human		Resolved

QIA-11	QIA	September 2019	QIA requests the Proponent provide the revised CRLU Assessment document to QIA for review at least one month prior to the November hearing. QIA requests the Proponent to commit to verification work with Inuit on the CRLU Reassessment that demonstrably indicates efforts to gather significance through an Inuit lens. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body. This is relevant because such an Inuit body should be involved in the development of thresholds of acceptable change for future Project effects, to be tied into the monitoring and adaptive management regimes.	Please refer to the response in QIA-03.	Human		Resolved
QIA-12	QIA	September 2019	As of September 23, 2019, QIA considers QIA 12 resolved. Our concerns can hopefully be addressed through the resolution of our other IQ-related technical comments.	Baffinland understands that the QIA considers QIA 12 resolved.	Human		Resolved
QIA-13	QIA	September 2019	Outstanding concerns with respect to monitoring impacts of the project and adaptive management are covered under QIA-01 and 02, above.	Baffinland understands that the QIA considers QIA 13 resolved.	Corporate	Amalgamated	Resolved
QIA-14	QIA	September 2019	This TC is now considered resolved for the purpose of TC resolution tracking. Remaining outstanding QIA concerns with respect to impacts to caribou movement are addressed under QIA-01 and 02, above.	Baffinland understands that the QIA considers QIA 14 resolved.	Wildlife	Amalgamated	Resolved
QIA-15	QIA	September 2019	This TC is now considered resolved for the purpose of TC resolution tracking; remaining outstanding concerns on cumulative effects of rail line and Tote road in close proximity are covered under QIA-01 and 02, above.	Baffinland understands that the QIA considers QIA 15 resolved.	Terrestrial	Amalgamated	Resolved
QIA-16	QIA	September 2019	This TC is now considered resolved for the purpose of TC resolution tracking. Remaining outstanding concerns with respect to monitoring and mitigating impacts to caribou mortality risk are covered under QIA-01 and 02, above.	Baffinland understands that the QIA considers QIA 16 resolved.	Wildlife	Amalgamated	Resolved
QIA-17	QIA	September 2019	Wind turbines were removed from Phase 2 of the project, so this TC is considered resolved.	Baffinland understands that the QIA considers QIA 17 resolved.	Corporate		Resolved
QIA-18	QIA	September 2019	This TRC is resolved.	Baffinland understands that the QIA considers QIA 18 resolved.	Freshwater		Resolved
QIA-19	QIA	September 2019	This TRC is resolved. This item will be ongoing as BIMC and QIA have agreed to review the Draft ICRP through the Commercial Lease Approval process.	Baffinland understands that the QIA considers QIA 19 resolved.	Corporate		Resolved

QIA-20	QIA	September 2019	<p>If the alternative Rail Route is considered, BIMC should provide an update to the assessment of the alternative northern Rail Route that includes the following information, at a minimum: 7. How land and water use by Inuit were factored into the alternative and proposed Rail Route selection. 8. Describe how land use and water use by Inuit will be influenced by both Rail Routes. 9. Animal and human crossings. 10. Provide an update to impact area boundaries, if any. 11. Provide a process for which the Rail Route would be constructed to ensure satisfactory environmental and engineering parameters are accounted for in the alternative northern Rail Route. 12. Provide clear trigger points that would require BIMC to change the proposed alternative route, including discovery of archaeological sites and places of importance, and parameters around permafrost sensitivity and ice lenses, etc.</p>	<p>The requested information is included in the Rail Alignment Summary Report (Appendix P).</p>	Terrestrial		Resolved
QIA-21	QIA	September 2019	<p>QIA requests a commitment by the Proponent to defining triggers for compensation in the new Water Compensation Agreement, that consider Inuit use, IQ, baseline data, and relevant government guidelines for the Project. Baffinland and QIA have scheduled a meeting on October 2, 2019 to discuss the new WCA. QIA requests the Proponent commit to managing changes to water quality by implementing mitigative measures as per an approved adaptive management framework.</p>	<p>Baffinland has engaged the QIA on the topic of the Water Compensation Agreement for the Phase 2 proposal since February 2019 and continues to do so, including a meeting held on October 2, 2019. Implementation of the Water Compensation Agreement, particularly with respect to the integration of IQ, will require a collaborative effort between Baffinland and the QIA to which Baffinland remains fully committed. As a Water Compensation Agreement is required under Section 63 of the Nunavut Waters and Surface Rights Tribunal Act and Article 20 (Part 3) of the Nunavut Land Claims Agreement, Baffinland maintains that a process to establish compensation in respect of Inuit Water Rights exists and will be adhered to outside of the Project Certificate amendment process. As a result, a Term and Condition regarding the Water Compensation Agreement is not warranted.</p>	Freshwater		Resolved

QIA-22	QIA	September 2019	<p>QIA requests commitment to the following path forward which requires: 5. The Proponent to update the Roads Management Plan to have mitigative measures prior to the Water Quality Criteria in the approved Water Licence. 6. The Proponent to monitor and report on the areas of concern identified in the Inspection of the Mine Inlet Tote Road and Associated Borrow Sources Report. 7. <b>NIRB to update Project Certificate Condition No. 179b to:</b> a. Unless otherwise approved by the NIRB, in any given day, the total number of truck transits along the Milne Inlet Tote Road should not exceed an average of 180 truck transits per day until the first deposit of Iron Ore at Milne Port by Rail has occurred. Following that time, unless otherwise approved by NIRB, the number of truck transits should diminish to 0 truck transits per day after 3 years. Following commissioning of the Railway from Milne Port to Mary River, unless otherwise approved by the NIRB, in any given day, the total number of train transits along the Railway should not exceed 20. 8. NIRB add the following Project Certificate Condition: a. Should BIMC not commission the Railway in the first three years following Amendment 2 to the Project Certificate, BIMC shall construct the Tote Road to the design included in Amendment 1. Should this design no longer be valid, the Tote Road shall be designed for its intended uses.</p>	<p>1. Baffinland has utilized triggers for mitigation measures that allow for the evaluation of project related effects associated with the operation and maintenance of the Tote Road. Application of mitigation measure thresholds below water licence criteria, irrespective of background or natural conditions at the project would result in excessive deployment of mitigation measures, particularly during periods of high flow such as freshet, with no merit or positive environmental improvement. Baffinland will seek to adjust water licence criteria through the Amendment to the Type A Water Licence to align with the evaluation of project related impacts to surface water outlined in the Roads Management Plan and associated monitoring programs.</p> <p>It should be noted that with respect to exceedences of the water licence criteria within the Tote Road corridor, ad hoc monitoring of surface water prior to the implementation of the Tote Road Monitoring Program has indicated an overall reduction in exceedences of the Type A Water Licence criteria between 2016 and 2018, despite an increase in ore haul truck transits during this time. This can be largely attributed to the improvements in the operation of the road, upgrades to water crossings, and implementation of mitigation measures.</p> <p>2. Baffinland conducts and reports on the geotechnical condition of project infrastructure biannually in accordance with the Type A Water Licence 2AM-MRY1325, Part D, Item</p>	Terrestrial		Resolved
QIA-23	QIA	September 2019	This TRC is resolved.	Baffinland understands that the QIA considers QIA 23 resolved.	Terrestrial	Deferred	Resolved

QIA-24	QIA	September 2019	At minimum, QIA requests the Proponent commit to developing a plan consistent with BIMC's Adaptive Management Plan for the construction and operation of the Rail Line, to be completed prior to regulatory approvals. See further detail in our Section 2.0 Specific Comment TC #24.	Baffinland's response to QIA's IR#40 referenced TSD 09 (Vegetation Baseline and Impact Assessment) but this should have been TSD 08 (Landforms, Soils, and Permafrost Assessment), Section 2.5.2.3 Risk of Excessive Settlement of Rail Embankment. A bullet list of general mitigation measures to be applied appears on page 14 of TSD 08. With respect to the development of a geotechnical monitoring program for the railway, Baffinland's response to QIA's technical comment 15.4 on the application to amend the water licence stated that a construction phase geotechnical monitoring program for the North Railway will be submitted to the NWB for review in advance of the NWB technical meeting. A draft list of monitoring equipment and locations had been provided in a table presented as Attachment 10 of Baffinland's response to technical comments on the water licence application. The final monitoring plan for the operations phase of the railway will be finalized following completion of the construction monitoring phase, when data collected has been analyzed and final recommendations can be provided. Adaptive management will be incorporated into the rail geotechnical monitoring program, to the extent practical. Baffinland feels this is best addressed through the water licence process.	Corporate	Deferred	Resolved
QIA-25	QIA	September 2019	This TRC is resolved.	Baffinland understands that the QIA considers QIA 25 resolved.	Terrestrial		Resolved

QIA-26	QIA	September 2019	At minimum, QIA requests the Proponent commit to developing a plan consistent with BIMC's Adaptive Management Plan for the construction and operation of the Rail Line, to be completed prior to regulatory approvals. See further detail in our Section 2.0 Specific Comment TC #26.	Geotechnical investigations have been conducted along the length of the railway. With respect to the development of a geotechnical monitoring program for the railway, Baffinland's response to QIA's technical comment 15.4 on the application to amend the water licence stated that a construction phase geotechnical monitoring program for the North Railway will be submitted to the NWB for review in advance of the NWB technical meeting. A draft list of monitoring equipment and locations had been provided in a table presented as Attachment 10 of Baffinland's response to technical comments on the water licence application. The final monitoring plan for the operations phase of the railway will be finalized following completion of the construction monitoring phase, when data collected has been analyzed and final recommendations can be provided. Adaptive management will be incorporated into the rail geotechnical monitoring program, to the extent practical. Baffinland feels this is best addressed through the water licence process.	Corporate	Deferred	Resolved
QIA-27	QIA	September 2019	<b>The BIMC commitment to storing all Potentially Acid Generating rock in the waste rock facility is requested to be enshrined as a Project Certificate Term and Condition. Draft language as follows:</b> All potentially acid generating rock, as defined in the FEIS or as agreed to by the Landowner, shall be transported and stored in the Waste Rock Facility next to Deposit 1.	The deposit of waste, in this case Potentially Acid Generating (PAG) rock, is regulated under the water licence and the ongoing review to amend it is a better forum to address the QIA's recommendation. Baffinland believes a Term and Condition in the Project Certificate is unnecessary and duplicative. Should the NIRB determine a need to include a Term and Condition as proposed, Baffinland requests that the location of the Waste Rock Facility not be presented geographically in relation to Deposit No. 1, should the existing WRF shift course through subsequent updates to the Waste Rock Management Plan, or if additional WRF's are applied for.	Terrestrial		Resolved
QIA-28	QIA	September 2019	This TRC is resolved.	Baffinland understands that the QIA considers QIA 28 resolved.	Freshwater		Resolved
QIA-29	QIA	September 2019	This TRC is resolved.	Baffinland understands that the QIA considers QIA 29 resolved.	Freshwater		Resolved

QIA-30	QIA	September 2019	<b>QIA recommends the following Project Certificate Term and Condition be added:</b> Should BIMC not commission the Railway in the first three years following Amendment 2 to the Project Certificate, BIMC shall construct the Tote Road to the design included in Amendment 1. Should this design no longer be valid, the Tote Road shall be designed for its intended uses.	Baffinland maintains that effective monitoring and mitigation that utilizes adaptive management, such as the framework outlined in the Roads Management Plan, is key to quantifying and minimizing any project related effects on the Tote Road. The Hatch 2013 design of the Tote Road, in combination with subsequent design work such as the Tote Road Earthworks Execution Plan (TREEP), continue to inform upgrades to problematic areas of the Tote Road in consideration of safety, traffic management and environmental impacts. The design of the Tote Road will continue to adapt to meet the demands of the project, and will be informed by ongoing monitoring of the water crossings (Tote Road Monitoring Program), geotechnical stability (geotechnical inspections), and permafrost degradation (Milne Inlet Tote Road and Associated Borrow Source investigations). Additionally, design of the Tote Road will take into account feedback received from land users, such as the location of snow mobile crossings. Based on this, Baffinland does not agree that a Term and Condition associated with the design of the Tote Road is warranted.	Corporate		Resolved
QIA-31	QIA	September 2019	If the Project were to be approved then conditions should be required in the next regulatory phase, i.e. the Water Licence and Commercial Lease, and require approval prior to construction such as: 3. A construction plan that indicates specific monitoring locations and site-specific conditions that would lead to additional monitoring locations. 4. What construction monitoring results would trigger additional monitoring during operations.	Baffinland agrees that these details are required and will be provided through the water licensing and Commercial Lease. Details on construction and operation phase monitoring of the North Railway were provided in Attachment 05 of Baffinland's response to technical comments on the application to amend the water licence. These monitoring programs are currently being incorporated into an update to the Surface Water and Aquatic Ecosystems Management Plan that will be provided to the Nunavut Water Board in advance of the NWB technical meeting on November 12-13, 2019.	Corporate	Deferred	Resolved
QIA-32	QIA	September 2019	This TRC is resolved.	Baffinland understands that the QIA considers QIA-32 resolved	Corporate		Resolved

QIA-33	QIA	September 2019	Although there are still concerns regarding the socioeconomic assessment, specifically how Inuit may benefit from the Project, QIA is committed to working with BIMC to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. For example, BIMC and QIA can work to develop a detailed Inuit Training Plan (for Baffinland and contractors) that covers the period between Phase 2 construction and the first three years of operations. This plan should detail the programs that will be offered and how BIMC will maximize the Inuit labour market relative to the projections identified in TSD 26. This has the potential to substantiate BIMC's assessment for Phase 2.	Baffinland appreciates QIA's commitment to working collaboratively to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. Baffinland would like to note that in response to QIA Technical Comments #33-36, the Company did provide a summary of the training programs and plans that are expected to be put in place by its contractors who will be constructing major components of the Phase 2 Proposal, if approved (Baffinland 2019). Baffinland also notes that the relevant training and administration provisions of the IIBA, and the IIBA Implementation Guide, are the overriding documents that will guide the review and approval of training to take place at the Mary River Project. Training plans and programs will be reviewed through the IIBA Employment Committee before being considered final and in use.  Baffinland is confident the level of detail provided in its submission are satisfactory for the purposes of this NIRB-led review, however, Baffinland can commit to the following:  1. Baffinland will work with QIA to develop an updated Inuit Training Plan that covers the period between Phase 2 construction and the first three years of operations. This plan will provide updates on programs that will be offered and how Baffinland intends to maximize Inuit engagement with the Project. This updated plan will be developed within six months of issuance of the Project Certificate.  References:	Socio-economic	Deferred	Resolved
QIA-34	QIA	September 2019	Remaining concerns are covered under QIA-33.	Please refer to Baffinland's response to QIA 33	Socio-economic	Deferred	Resolved
QIA-35	QIA	September 2019	Remaining concerns are covered under QIA-33.	Please refer to Baffinland's response to QIA 33	Socio-economic	Deferred	Resolved
QIA-36	QIA	September 2019	Remaining concerns are covered under QIA-33.	Please refer to Baffinland's response to QIA 33	Socio-economic	Deferred	Resolved

QIA-37	QIA	September 2019	<p>Although there are still concerns regarding the socioeconomic assessment, specifically how Inuit may benefit from the Project, QIA is committed to working with BIMC to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA.</p>	<p>Baffinland appreciates QIA's commitment to working collaboratively to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA.</p> <p>Baffinland would like to reiterate the approach it used for the socio-economic assessment presented in TSD 25 (Socio-Economic Assessment) is both appropriate and comprehensive. The Phase 2 Proposal is an expansion of the Approved Project and has been assessed as such. Baffinland completed stand-alone assessments for each VSEC, supported by new research and analysis where necessary. Baffinland made a point to revisit assessments even when outcomes were expected to be relatively unchanged. The assessment focused on the residual impacts identified with the Approved Project, and Baffinland sought to identify any other potential impacts not identified in the previous assessments that were unique to the Phase 2 Proposal. Baffinland also ensured that the VSEC assessments addressed EIS guideline requirements to ensure concordance.</p> <p>Through its various submissions to NIRB, Baffinland has comprehensively demonstrated how Inuit will benefit from the Project. For greater clarity, Baffinland has prepared a summary table of measures the Company will use to deliver benefits for the Phase 2 Proposal (Appendix O). While a similar summary table was provided to QIA in Baffinland's response to QIA Technical Comment #39 (Baffinland 2019), some additional updates have been made herein. While</p>	Socio-economic	Deferred	Resolved
QIA-38	QIA	September 2019	<p>Although there are still concerns regarding the socioeconomic assessment, specifically how Inuit may benefit from the Project, QIA is committed to working with BIMC to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA.</p>	<p>Baffinland believes the following commitment can address this recommendation/request:</p> <ol style="list-style-type: none"> <li>Baffinland commits to the development of socio-economic monitoring thresholds and actions, in consultation with the Mary River Socio-Economic Monitoring Working Group (SEMWG). Once finalized, these will be reflected in an updated Socio-Economic Monitoring Plan.</li> </ol>	Socio-economic		Resolved

QIA-39	QIA	September 2019	<p>Although there are still concerns regarding the socioeconomic assessment, specifically how Inuit may benefit from the Project, QIA is committed to working with BIMC to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA.</p>	<p>Baffinland appreciates QIA's commitment to working collaboratively to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. However, Baffinland would like to reiterate that through its various submissions to NIRB, the Company has comprehensively demonstrated how Inuit will benefit from the Project and how potential adverse effects will be addressed. For greater clarity and conciseness, Baffinland has prepared:</p> <ol style="list-style-type: none"> <li>1) a summary table of measures the Company will use to deliver benefits for the Phase 2 Proposal (in our response to QIA-37); and</li> <li>2) a summary table of measures the Company will use to mitigate and monitor effects for the Phase 2 Proposal (Appendix O). While similar summary tables were provided to QIA in Baffinland's response to QIA Technical Comment #39 (Baffinland 2019a), some additional updates have been made herein.</li> </ol> <p>Socio-economic issues will continue to be addressed by Baffinland through several documents and management plans, rather than one overarching document. Together, these documents outline how Baffinland will work with Inuit, QIA, the Government of Nunavut, and the Federal Government regarding socio-economic issues and the Phase 2 Proposal. Some of these key documents and management plans include:</p> <ul style="list-style-type: none"> <li>• Mary River Project Inuit Impact and Benefit Agreement (IIBA)</li> </ul>	Socio-economic	Deferred	Resolved
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QIA-40	QIA	September 2019	QIA recommends that the Proponent provide an update on the progress made developing the action plan and a timeline for submission of a full draft for review, at least one month prior to the November hearing.	<p>Baffinland has progressively made efforts towards the operationalization of its Climate Change Strategy (the Strategy) by identifying and implementing necessary next steps (i.e., through the development of actions to support implementation of strategy). Baffinland acknowledges that its existing strategy is a relatively short and high-level document that, although communicates overall environmental and social expectations, and lists a number of activities to support management of measures that mitigate and/or that respond to the Project's potential effects on climate change, the existing Strategy falls short on describing specific actions for implementation. To ensure effective implementation through time, Baffinland has retained the services of a third-party expert to further refine and elaborate on Baffinland's existing Climate Change Strategy. Implementation is a multi-step process, necessitating a deep dive into both internal processes and external opportunities, and can be broken down into two main stages:</p> <p>Stage 1) Development of an elaborated draft strategy, informed by both an external scan and internal baseline review, that provides goals, objectives and priority action areas and approaches, with specific questions and options; and</p> <p>Stage 2) Refinement of the strategy based on external engagement and development of a staged implementation plan.</p> <p>The general schedule for Stage 1 is as follows:</p>	Corporate		Resolved
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QIA-41	QIA	September 2019	<p>QIA recommends that 2018 NIRB monitoring recommendation 2 related to dust management be stringently applied to both the tote road, where crossing adjustments may be required if Phase 2 is approved, and to any future railway development, as these parallel linear developments may have additive or cumulative effects on stream crossing habitats and Arctic char. QIA requests that the Proponent commit to establishing long-term monitoring sites to assess Project impacts on the water quality, sediment deposition, and biota in Phillips Creek. QIA requests that the Proponent commit to conducting further studies at Sheardown Lake to establish the actual depth of annual sediment deposition. QIA requests that the Proponent commit to establishing a meaningful sedimentation threshold based on mortality rates of Arctic char eggs exposed to Project-generated dust sediment.</p>	<p>As described in Baffinland’s response to NIRB’s 2018 Recommendation 2, the Tote Road Monitoring Program is being implemented to assess water quality at select fisheries crossings, areas of recent construction, and areas historically prone to sedimentation events. This program was designed in consultation with QIA throughout 2018 to formalize and improve upon the existing water quality monitoring conducted on the Tote Road. This program will be expanded to include the future railway development, both in proximity to the existing Tote Road Monitoring Program locations and along the rail route deviation from the Tote Road. Baffinland has committed to long-term monitoring of water quality within the Northern Transportation Corridor with the Tote Road Monitoring Program to assess the potential for project-related effects on water quality. Until monitoring of water quality indicates the potential for the Project to have an effect on water quality, the expansion of monitoring to include sediment quality and biota in Phillips Creek is not necessary. As noted in the 2018 Lake Sedimentation Monitoring report, a site-specific bulk density was obtained in 2018 to convert sedimentation rates to deposition thickness. There is no meaningful way to accurately establish a project specific sedimentation threshold based on mortality rates of Arctic char eggs, and no scientific studies are available to rely upon that evaluate the effects of sedimentation on Arctic char eggs. Laboratory research will not necessarily reflect reality in the field, and field-based research on</p>	Freshwater	<p>Baffinland is prepared to adopt a more precautionary moderate risk threshold for lake sedimentation. The current moderate risk threshold for lake sedimentation is 1 mm, adopted from the FEIS. Baffinland will adopt the lake sedimentation rate predicted in the FEIS of 0.54mm, which is about half the current threshold, at the moderate risk level. Exceedance of the 0.54mm 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. Data will be collected and reported in 2021 to characterize sediment grain size.</p>	Partially Resolved
QIA-42	QIA	September 2019	<p>QIA requests a commitment by the Proponent that 2018 NIRB monitoring recommendations regarding Restriction of Fish Passage (8) and Survey and Monitoring of Arctic Char (16), will be stringently applied to both the tote road, where crossing adjustments may be required if Phase 2 is approved, and to any future railway development. QIA requests that the Proponent commit to gathering additional baseline data on fish habitat (e.g., water quality, sediment) and fish use of potential stream crossings prior to any future railway development; conducting monitoring to ensure that fish passage, populations, and habitat quality are maintained; and developing and using non-lethal metrics to monitor Arctic char health over the long term at these stream crossings. QIA requests that BIMC provide information at least two weeks prior to the November</p>	<p>Baffinland has committed to continue to address existing fish passage issues on the Tote Road, and to address fish passage issues on the railway during the design phase, with verification monitoring post-construction. Baffinland has conducted habitat assessments and surveys to determine fish presence/absence and use of habitat in the spring and summer/fall 2019 along the rail and in relation to other associated infrastructure in water. Information collected includes various fish metrics (non-lethal) that provide information on fish abundance and general condition including fork lengths and catch-per-unit-effort. Baffinland committed to fish passage monitoring in its response to technical review comments on the water licence amendment application. Baffinland will evaluate fish passage along the alternative</p>	Freshwater	<p>Baffinland collects and reports data on fish presence, catch per unit effort, and fork length from 30-60 crossing sites along the Tote Road annually. Baffinland commits to adding observations regarding physical condition of fish (e.g., lesions, injuries, activity level). Baffinland and QIA will determine an appropriate approach to analysis and development of a metric for monitoring fish health for the 2022 reporting period. The program will be evaluated every three (3) years to determine if monitoring locations may be reduced due to no observations of project related-impacts.</p>	Resolved

			<p>hearings on how use of the alternative rail line route may affect fish passage.</p>	<p>rail line but this may not be done before the November NWB technical meetings. This can be done before the NWB public hearing; however, this is mainly an issue for the Fisheries Act authorization.</p> <p>There are more streams/drainages requiring a culvert along Route 3 (132) compared with Route 1 (87), however, the catchments are much smaller along Route 3 because most are draining the Km67 hill. In terms of fish presence, there are 11 confirmed fish-bearing streams and 23 probable fish-bearing streams (34 streams that are confirmed or probable fish habitat) compared to only 14 streams along Route 1. Again, however, the probable fish habitat designations are</p>		<p>In conjunction with project stakeholders, Baffinland will develop a Terms of Reference for a Freshwater Environment Working Group (FEWG). Respecting the heightened regulatory oversight in relation to the freshwater environment, the FEWG will meet on an as needed basis to discuss items to be agreed upon by members of the FEWG. In person meetings, if required, will be coordinated with the planning of Marine and Terrestrial Environment Working Group meetings, where possible.</p>	
QIA-43	QIA	September 2019	<p>QIA requests a commitment that the Proponent, in consultation with the MEWG, expand its marine sediment monitoring program to ensure that the potential effects and contributions of alluvial transport and marine sediment redistribution by proposed shipping increases and dock construction (freight and ore dock 2) are understood and to inform adaptive management. QIA recommends that the Proponent revise its Marine Environmental Effects Monitoring Plan prior to the 2020 field season to include changes to its marine monitoring program.</p>	<p>Figures associated with this response are provided in Appendix C.</p> <p>In general, the majority of annual sediment transport in Arctic river systems occurs during freshet (i.e. spring melt), with an additional amount occurring during storm events (i.e. heavy rainfall). The freshet period in the Arctic is relatively short (typically less than one or two months) and is often characterized by diurnal peaks in discharge (Figures 1 through 3 showing freshet event occurring in each of the years between 2016-2018). The sediment characteristics of arctic river systems are often glacially influenced, consisting of fine glacial till, sands, and coarse gravels. In Golder's 2017 MEEMP and AIS Monitoring Report, an increase in fine sediments was reported along the West Transect (extending westward from the existing ore dock towards the mouth of Phillips Creek). Aerial imagery shows a delta extending outwards from the mouth of Phillips Creek approximately 500 m into Milne Inlet and large sand and gravel spits situated on either side of the mouth of Phillips Creek (Figure 4). These features suggest that Phillips Creek plays a role in the geomorphology and sediment transport regime at the head of Milne Inlet. Additional imagery indicates that similar spit like sediment deposits are present both to the east and west of the ore dock along the shoreline at the head of Milne Inlet. These sediment deposits indicate that both longshore and cross shore sediment transport occurs in this environment. The delta extension into Milne Inlet is formed by a balance of freshwater and sediment discharge</p>	Marine	<p>See updated commitments in commitment list to QIA-43, QIA-44 and QIA-45</p>	Resolved

QIA-44	QIA	September 2019	<p>QIA requests that the Proponent commit to monitor the physical and chemical properties of incoming ballast water, treated and untreated, to inform risk assessment and adaptive management (see also TC 45 request that NIRB reconsider Project Certificate Conditions related to ballast water). QIA requests that the Proponent commit to continue gathering seasonal CTD profiles and other data (e.g., wind, current, freshwater runoff) needed to calibrate and verify the hydrodynamic model. QIA requests that the Proponent update and rerun the ballast water dispersal model to assess the physical and chemical effects on the marine environment (including any downslope currents and pooling) of exchange, treatment, or both together to inform mitigation and monitoring prior to the 2020 shipping season.</p>	<p>Baffinland has committed to implementing a pilot ballast water biological monitoring program for ships currently only subject to the D1 standard (open water exchange). This program has been designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017 and will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island.</p> <p>Baffinland has collected new oceanographic data (including CTD profiles at selected locations and time series of water levels, salinity, temperature, wind speed and directions, and currents through the water column) in both 2018 and 2019 open water seasons. Baffinland will continue to collect seasonal CTD profile data in Milne Inlet and Milne Port. We will also continue to collect extended seasonal time series of water level and current (speed and direction) data throughout the water column, as well as conductivity (salinity) and temperature data at mid-depth and in surface waters.</p> <p>In addition to the calibration and validation of the ballast water dispersion model conducted using pre-existing oceanographic data, the 2018 oceanographic dataset has also been used as a basis for comparison with the ballast</p>	Marine	See updated commitments in commitment list to QIA-43, QIA-44 and QIA-45	Resolved
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QIA-45	QIA	September 2019	<p>QIA recommends that NIRB reconsider Project Certificate Conditions related to ballast water and hull fouling (PCCs 86 through 91) and revise them based on the best available information from experts at Fisheries and Oceans Canada, Transport Canada and the MEWG to ensure that they better serve their intended purposes, particularly preventing the introduction of foreign species. QIA requests that prior to any further increase in Project ore shipments, the Proponent commit to monitoring ballast water of Project ore vessels to determine the efficacy of exchange and treatment methods, including the use of both, and to using this and other new information to update the invasive species risk analysis and inform adaptive management designed to prevent invasive species introductions, as required under PCC 88. QIA requests that the Proponent commit to working with the MEWG, Transport Canada and other parties to develop a scientifically defensible monitoring program for assessing the presence and abundance of foreign species on the hulls of Project vessels, determining the efficacy of their antifouling measures, and informing adaptive management to prevent introduction of invasive fouling species at Project ports and anchorages; and revise Section 5.2.2 of the SMWMP accordingly. QIA requests that the Proponent commit to working with the MEWG to consider: a) how best to collect hull fouling species for taxonomic identification; b) expanding AIS monitoring to include monitoring of the ballast water of incoming project vessels at Ragged Island and/or Milne Port</p>	<p>Baffinland has committed to implementing a pilot ballast water biological monitoring program for ships currently only subject to the D1 standard (open water exchange). This program has been designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017 and will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island. Baffinland is committed to working with the MEWG to further refine its ship hull biofouling monitoring program prior to any further increase in Project ore shipments. Any changes in this monitoring program will be reflected in revisions to Section 5.2.2 of the SMWMP. eDNA methods for detection of non-native and/or aquatic invasive species in ballast water is currently still in the research and development stage, and is not practical at this time to explore as a monitoring tool for this purpose. Baffinland has committed to undertaking a pilot study for biological monitoring of ballast water based on guidance and methods provided by DFO specialists - this program will be implemented in 2020. eDNA will be considered as a future monitoring tool option when the science is developed for this type of practical application.</p>	Marine	See updated commitments in commitment list to QIA-43, QIA-44 and QIA-45	Partially Resolved
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QIA-46	QIA	September 2019	<p>QIA requests that the Proponent commit to having thresholds and Early Warning Indicators for noise impacts on marine mammals (as required under the Project Certificate) established prior to any shipping activity under Phase 2. QIA requests that the Proponent commit to developing a formalized process for incorporating IQ and Community Based Monitoring into the Early Warning Indicators and thresholds process, as part of the adaptive management process.</p>	<p>Baffinland will continue to work with members of the Marine Environmental Working Group on the selection of appropriate Early Warning Indicators (EWIs) for noise impacts on marine mammals, for implementation prior to the start of Phase 2 shipping.</p> <p>Baffinland has already started the process of including Inuit in the development of EWIs for the Project, including a dedicated session spent with the MHTO. This initiative is being actively worked on through the MEWG and will likely benefit from the future establishment of the Inuit Advisory Panel (IAP) as part of the Phase 2 proposal. Baffinland views the creation of the IAP to be a critical step to addressing concerns about the integration of IQ and Inuit perspectives into operations and planning at the Project level. The objectives of the IAP will be to incorporate IQ in the development of monitoring programs and interpretation of results, development of management plans, development of Inuit and IQ-derived metrics for Early Warning Indicators, and development and implementation of adaptive management strategies, as needed.</p>	Marine		Resolved
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QIA-47	QIA	September 2019	<p>No actions needed if community representatives are satisfied with the Proponent's Draft Communication Protocol for Shipping. The Proponent is requested to provide evidence re: community satisfaction on the public record at least two weeks prior to the November hearing. QIA requests that the "[s]ummary of Shipping mitigation and management measures implemented throughout the shipping season" (s. 4.3, p. 8) include information on non-compliance events (e.g., vessel speeds, vessel locations, salinity of ballast water).</p>	<p>As noted by QIA, Baffinland provided a detailed Draft Communication Protocol as part of the Phase 2 submission. The communication protocol is considered a live document, and will be updated on an annual basis, as needed, based on feedback about the effectiveness of the communication system received by MHTO during annual pre- and end-of-season shipping meetings. Additional communication tools or frequencies may also be adjusted ad hoc throughout the shipping season to address real-time concerns, which would again be captured in annual updates to the protocol as needed.</p> <p>The 2019 shipping season summary (Appendix N) includes a report of non-compliance events.</p> <p>Baffinland notes that there are multiple channels used by Baffinland to engage and solicit the perspectives of the MHTO, the Hamlet of Pond Inlet, community members and hunters, and QIA representatives to communicate Baffinland's shipping schedule and vessel traffic management approaches prior to and during the shipping season. Some examples of these engagement efforts include:</p> <p>1) Organizing pre- and post-shipping meetings held in Pond Inlet between Baffinland, the MHTO, and Hamlet of Pond Inlet, where Baffinland presents an overview of shipping activities and mitigation measures, and accordingly provides an opportunity for community members to ask questions and discuss potential issues. In 2019 a Baffinland-led pre-season shipping meeting was held June 25 in Pond Inlet as</p>	marine	<p>Baffinland commit to working with community organizations and community members to address any issues arising with respect to sea ice use and potential inference from shipping activity</p>	Resolved
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QIA-48	QIA	September 2019	<p>QIA requests that the Proponent develop a standard set of terminology and quantitative definitions of ice conditions and processes, with Inuktitut terminology as available, to ensure consistency in reporting. As part of this process, QIA recommends that the Proponent provide additional quantitative information on the operational definition for the presence (or conversely absence) of landfast ice, particularly whether all ice must no longer be fast to shore along the Northern Shipping Route.</p> <p>QIA requests that the Proponent provide quantitative, repeatable information on how dates for various sea ice process (including "fast ice" as used in the Enfotech memo) are defined and measured.</p>	<p>Baffinland agrees with the QIA on the need to develop and adopt harmonized definitions and terminology in matters relating to Project shipping. As such, Baffinland will ensure there is a consistent description of ice conditions amongst its relevant management plans and standards of practice and that these terms are translated to Inuktitut for use more generally.</p> <p>It is noted that the Project relies on different resources, including visual observations locally, as well as publicly available information, primarily from the Canadian Ice Service (CIS). CIS publishes numerous products reflecting the observations collected by remote sensing (satellite) to determine, among other things:</p> <ul style="list-style-type: none"> <li>• The presence and concentration of ice</li> <li>• The stage of development (thickness and age) of the ice</li> <li>• The onset of fast ice (defined for purposes here as a consolidated, unbroken coverage of ice attached to the shore, or spanning the breadth of an inlet (for example)</li> <li>• The breaking up of fast ice (when consolidated coverage begins to decay and detach from the shore, develop cracks, or melt pools)</li> </ul> <p>Dates for all such events will always be variable and undefined except by reasonable forecasting. Baffinland commits to providing dates and information on the conditions under which the shipping season was opened and closed each season in its Annual Report to NIRB.</p>	Marine	<p>Baffinland commits to include a checklist of information with regard to Inuit use of sea ice in its various forms (not just use of the floe edge) in the start and close of shipping season determinants report committed to DFO in relation to DFO 3.2.1 NEW.</p>	Resolved
QIA-49	QIA	September 2019	<p>See above re: TC 46 and formalized role of IQ/Community-based monitoring as a path forward.</p>	<p>Baffinland has committed to the creation of an Inuit Advisory Panel (IAP) as part of the Phase 2 proposal. Baffinland views the creation of the IAP to be a critical step to addressing concerns about the integration of IQ and Inuit perspectives into operations and planning at the Project level. The objectives of the IAP will be to incorporate IQ in the development of monitoring programs and interpretation of results, development of management plans, development of Inuit and IQ-derived metrics for Early Warning Indicators, and development and implementation of adaptive management strategies, as needed.</p> <p>Baffinland already supports community-based wildlife monitoring through the IIBA and agrees project impacts to marine mammals could be a community priority to investigate. However, Baffinland continues to maintain the communities monitoring priorities are for them to determine, not Baffinland or the QIA.</p>	Human		Resolved

QIA-50	QIA	September 2019	QIA requests that the Proponent provide information on 2018 (and 2019) vessel transits during the spring shoulder season, showing their routes in relation to observed ice conditions. QIA requests the Proponent formally commit to not having vessels go into North Water Polynya (Pikialasorsuaq), subject to vessel safety.	<p>All 2018 Project vessel transits during both early (spring) and late shoulder seasons were included as maps in Appendix A '2018 Daily Ship Traffic Maps with Ice Coverage during Shoulder Seasons' of the Icebreaker Effects Assessment (Golder 2019). Similar maps showing the 2019 vessel transit/routes are forthcoming (as shipping is still ongoing) and will be submitted to QIA and all other MEWG members as part of the 2019 Ship-based Observer Report and also in Baffinland's Annual Report to NIRB.</p> <p>Baffinland formally commits to not having vessels go into the North Water Polynya (Pikialasorsuaq), subject to vessel safety. This commitment will be recognized in the Shipping and Marine Wildlife Management Plan and the Standing Instructions to Masters.</p> <p>Reference: Golder Associates Ltd. 2019. Assessment of Icebreaking Operations during Shipping Shoulder Seasons on Marine Biophysical Valued Ecosystem Components (VECs). Submitted to Baffinland Iron Mines Corp. Report No. 1663724-102-R-Rev1-30000. 17 May 2019. 343 p. Submitted to the NIRB on May 13, 2019</p>	Marine	Baffinland formally commits to not having vessels go into the North Water Polynya (Pikialasorsuaq), subject to vessel safety. This commitment will be recognized in the Shipping and Marine Wildlife Management Plan and the Standing Instructions to Masters.	Resolved
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QIA-51	QIA	September 2019	<p>QIA requests that, at least two weeks prior to the Public Hearing, the Proponent provide a tabular summary of the aerial survey-derived density data used in the supplementary icebreaking assessment to estimate the number of animals impacted by icebreaker transits. This summary should include which of the three survey reports were used for each species, for each month, and report the variability in the estimates (confidence intervals, coefficient of variation for the estimates, the range of densities per strata, etc.). QIA requests that the Proponent commit to releasing the report from the 2015 aerial surveys, so it is available on the Public Registry, at least a month prior to the November hearing. If the report is still in draft format, QIA requests that the Proponent commit to having it released for review by the MEWG and subsequent posting to the Public Registry. QIA requests that the Proponent commit to revise the assessment of the proportion of Eclipse Sound narwhals that are assumed to exhibit avoidance of the icebreaking noise source per icebreaker transit using the most recent abundance data for the summer stock, and use that information for adaptive management. QIA requests that the Proponent provide information on how the presence of pack ice east of the floe edge would affect the noise modeling results in the floe edge drifting scenarios. QIA requests that the Proponent provide a more detailed summary of narwhal catch data that puts harvests into the necessary context, summarizing annual harvests linked to moderating factors such as quota</p>	<p>Table 1 (Appendix C) provides a tabular summary of the aerial survey-derived density data used in the supplementary icebreaking assessment to estimate the number of animals impacted by icebreaker transits, and includes information on which of the survey reports were used for each species, for each month, and variability estimates for the density estimates.</p> <p>The draft 2015 aerial survey report (titled 'Marine Mammal Aerial Surveys in Eclipse Sound, Milne Inlet and Pond Inlet, 01 August-17 September 2015, dated 14 March 2016) was provided as Appendix N6 in the 2015 Annual Report to the NIRB and has been available on the NIRB public registry since March 31, 2016 for review by the QIA or any other interested parties. Comments on Appendix N6 of the 2015 Annual Report to the NIRB were submitted by both the QIA and DFO following the NIRB's correspondence to Parties on August 3, 2016 entitled: Opportunity to Address Comments Received Regarding Baffinland Iron ore Mine Corporation's "Mary River Project 2015 Annual Monitoring Report". Baffinland provided subsequent responses to these comments on August 24, 2016.</p> <p>Consistent with several previous communications to the MEWG, the report was never finalized due to the number of deficiencies identified in the survey design and data analysis, which were described in the peer review conducted by Golder Associates (Golder 2017).</p> <p>Revising the icebreaking assessment using the most recent narwhal abundance data (Marcoux et al. 2019) would not</p>	Marine	<p>Baffinland commits to provide a supplementary submission that documents actual vessel noise signatures as recorded during PAM, a comparison with the modelled noise outputs used in the assessment, and a discussion on how any differences, if they exist, affect the impact assessment or inform opportunities for mitigation and adaptive management.</p> <p>Baffinland notes that QIA has requested the details to be shared prior to a Public Hearing. Baffinland will endeavor to meet the requested timeline, but this should not be viewed as a barrier to moving forward with a Public Hearing.</p>	Resolved
QIA-52	QIA	September 2019	<p>QIA recommends that prior to Project shipping in Canadian waters via any alternative to the nominal routes identified in the FEIS (Southern Route: Steensby Inlet-Foxe Basin-Hudson Strait-Davis Strait- Labrador Sea) and ERP EIS (Northern Route: Milne Inlet-Eclipse Sound-Pond Inlet-Baffin Bay-Davis Strait- Labrador Sea) the Proponent be required to complete, for public review, a comprehensive environmental effects assessment, including potential cumulative and transboundary effects, of proposed shipping along the alternative route(s). QIA recommends that NIRB include a Project Certificate Condition that requires the Proponent to report the routing and timing of all Project vessel transits in relation to sea ice.</p>	<p>Per our clarification letter provided Sept. 20, 2019 to the NIRB, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N).</p>	Marine		Resolved

QIA-53	QIA	September 2019	QIA recommends that NIRB establish a new Project Certificate Condition to ensure that “prior to the onset of ore shipments by Project vessels from Steensby Port, BIMC complete a cumulative impact assessment of approved, existing, and reasonably foreseeable Project shipping that integrates the impacts of all shipping-related Project activities on all VECs and VSECs, in the context of other human activities, natural stressors such as climate change, and developments, and considering all interactions.” QIA requests that the Proponent commit, prior to Phase 2 shipping, to identifying and implementing mitigation and adaptive management measures to prevent shipping-related impacts to marine mammals, including polar bears, in ecologically important areas outside the RSA.	Baffinland has already undertaken a cumulative impact assessment for Phase 2 Shipping, which included taking into account approved, existing and reasonably foreseeable shipping activities. This assessment was comprehensive and employed appropriate and standard methodology for cumulative effects which took into account human activities, natural stressors and climate change considerations. In addition, in response to concerns raised at the Technical Session, this assessment was updated by way of a memorandum dated August 23, 2019, filed with the NIRB, entitled “Mary River Project – Phase 2 Proposal – Revised Addendum to Technical Supporting Document 27 – Cumulative Effects Assessment.” Section 4.0 of that memorandum provided an update to the marine mammal’s cumulative effects assessment contained in TSD 27 taking into account the cumulative effects of marine shipping. Baffinland’s position is therefore that a comprehensive cumulative effects assessment has already been undertaken, using appropriate and accepted methodology, and no further cumulative effects assessment is required. With respect to the QIA’s request that Baffinland commit to mitigation and adaptive management measures to prevent shipping-related impacts to marine mammals outside the RSA, Baffinland does not feel this is required given that vessel management within the RSA allows for effective and comprehensive mitigation of effects in areas of Inuit traditional land use and harvesting and within the area where incremental effects have the greatest potential to	Marine		Resolved
TC-01	TC	September 2019	TC recommends, should the project be approved to proceed, that the Proponent contact TC’s NPP Office prior to the submittal of any information to confirm regulatory requirements under the CNWA.	Noted. Baffinland will contact Transport Canada’s NPP Office prior to the submittal of any information to confirm regulatory requirements under the CNWA, should the project be approved to proceed.	Marine	Baffinland will contact Transport Canada’s NPP Office prior to the submittal of any information to confirm regulatory requirements under the CNWA, should the project be approved to proceed.	Resolved

TC-02	TC	September 2019	<p>Transport Canada is of the opinion that one random sample of the tanks is sufficient to verify compliance in only one circumstance; if the vessel takes on ballast water in one location and also carries out the exchange in similar waters on the open ocean. This usually means that one tank is exchanged after another until all exchanges are completed in the shortest possible distance from each other. However, if a vessel takes on ballast water from more than one location, and either treats it using a system or carries out exchange using a long exchange zone, Transport Canada recommends at least four tanks be sampled. Additionally, if ballast water is taken up in two different locations, Transport Canada again recommends that four tanks be sampled at each location, for a total of eight samples.</p>	<p>Baffinland wishes to once again emphasize that current ballast water sampling by Baffinland remains a voluntary measure that exceeds federal and international guidelines for ballast water management, including those mandated by Transport Canada.</p> <p>Baffinland has developed a comprehensive, stand-alone Ballast Water Management Plan for the Project. The BWMP includes a Standard Operating Procedure that provides detailed instructions for salinity testing of ballast water tank on carriers calling at Milne Port, including directives for accessing on-board ballast tanks, selecting ballast tanks for testing, equipment set-up and deployment, detailed sampling and data entry procedures, guidance on instrument calibration, maintenance and storage, and reporting requirements. Salinity and temperature testing is conducted on all vessels prior to being authorized by the port captain to discharge in Milne Port. It is also noted that all vessels calling to Milne Port are required to operate in accordance with Transport Canada's Ballast Water Control and Management Regulations (Regulations; SOR/2011-237) pursuant to the Canada Shipping Act, 2001 (S.C. 2001, c. 26) and the International Maritime Organization's International Convention for the Control and Management of Ship's Ballast Water and Sediment (IMO 2017). Additional measures that Baffinland has put into place that exceed regulatory and industry standards include</p> <ul style="list-style-type: none"> <li>• The requirement for all vessels calling on Milne Port that treat their ballast under the D-2 Standard to also perform a</li> </ul>	Marine	<p>Transport Canada appreciates the efforts by BIM to ensure current regulations are followed with respect to their plans for ballast water management. Given the learning curve associated with use of ballast water treatment systems, for Phase 2, Transport Canada (TC) in consultation with Fisheries and Oceans Canada (DFO), recommends, in conjunction with present sampling and testing protocols being proposed/adopted [NTD - will be summarized in complete package] by BIM, that BIM implement a ballast water compliance sampling plan based on a risk-based targeting methodology to be developed in consultation with DFO and TC.</p> <p>Such a risk-based methodology should be applied to evaluate the risk of all vessel ballast water management (D1, D2) with subsequent salinity and D-2 biological compliance sampling conducted on vessels identified as high or very high risk. The respective risk-based methodology and associated ballast water compliance sampling plan will be developed in consultation with DFO and TC following completion of DFO's Project-specific sampling conducted on a subset of vessels calling to Milne Port. The risk-based methodology and associated ballast water compliance sampling plan should include a consideration of other compliance initiatives or research being undertaken elsewhere by TC relative to implementation of the D-2 standard.</p>	Resolved
TC-03	TC	September 2019	<p>Considering the deep drafts of a vessel, prevailing ice conditions, and limited hydrography and surveying of the NWP, combined with the availability of ice breakers, search and rescue and environmental response challenges, TC recommends a more detailed effects assessment be undertaken, including an assessment of the likelihood of a spill to occur and the ability to respond to a spill should an accident occur.</p>	<p>Per our clarification letter provided Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)</p>	Accidents	n/a	Resolved
TC-04	TC	September 2019	<p>TC recommends that the Proponent provide a consistent definition of "open water season" throughout all of its documentation and that the Proponent clarify whether the supply and transfer of fuel is also being considered for the amended shipping season of July 1st to November 15th or whether it will remain limited to mid-July to mid-October.</p>	<p>For the purposes of shoulder season vessel traffic management, Baffinland considers uninterrupted transits through ice concentrations of 3/10 or less as the open water shipping season. This will be considered in any relevant management plans or operating procedures.</p> <p>The supply and transfer of fuel is being considered for the amended shipping season, July 1 to November 15.</p>	Marine	<p>Baffinland will ensure there is a consistent description of ice conditions amongst its relevant management plans and standards of practice and that these terms are translated to Inuktitut for use more generally. Baffinland commits to providing dates and information on the conditions under which the shipping season was opened and closed each season in its Annual Report to NIRB.</p>	Resolved

TC-05	TC	September 2019	TC recommends that the SSRP, Page 30 and 31, Alert Procedures/Notification Table and Page 71 of Appendix 1 - Contacts Directory be updated to include the following and remove any reference to particular TC contact information:• The master of a vessel in waters under Canadian jurisdiction must report any discharge or anticipated discharge from the vessel to a marine safety inspector or a marine communications and traffic services officer (NORDREG in case of the Arctic). Reporting procedures should adhere to part 3 of Vessel Pollution and Dangerous Chemicals Regulations <a href="https://laws-lois.justice.gc.ca/PDF/SOR-2012-69.pdf">https://laws-lois.justice.gc.ca/PDF/SOR-2012-69.pdf</a> .	Baffinland will make the recommended change to the SSRP.	Marine	Baffinland will make the recommended change from TC-05 to the SSRP.	Resolved
TC-06	TC	September 2019	TC recommends that the Proponent demonstrate its ability to maintain its preparedness and have the capacity to respond to a spill during fuel transfer at the oil handling facility in the event that there is also a spill from a transiting vessel along the shipping route at the same time.	Baffinland will update the SSRP to designate additional Tier 2 response equipment at Milne Port to enable a dual response as proposed by Transport Canada.	Accidents	Baffinland will update the SSRP to designate additional Tier 2 response equipment at Milne Port to enable a dual response as proposed by Transport Canada.	Resolved
TC-07	TC	September 2019	TC recommends that the use of lifeboats should be avoided and not included as part of the spill response equipment.	Baffinland agrees that the use of lifeboats should be avoided and will be removed as part of the spill response equipment on pages 88 and 103 of the SSRP.	Accidents	Baffinland agrees that the use of lifeboats should be avoided and will be removed as part of the spill response equipment on pages 88 and 103 of the SSRP.	Resolved
TC-08	TC	September 2019	TC recommends that the SSRP be updated to remove reference to the use of oil-water separation.	Baffinland will update the SSRP to make it clear no oil discharge is permitted in Arctic waters per the ASSPPR.	Accidents	Baffinland will update the SSRP to make it clear no oil discharge is permitted in Arctic waters per the ASSPPR.	Resolved
TC-09	TC	September 2019	TC recommends that the SSRP fully account for all potential locations of spills in its response planning, including the alternative route that has been proposed by the Proponent via Navy Board Inlet and the North West Passage.	Per our clarification letter provided Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)	Accidents	n/a	Resolved

TC-10	TC	September 2019	<p>TC recommends that the potential conflicts between trains and caribou be considered in the execution of safe railway operations. Similarly, the NIRB might want to consider the effect of train whistling, and the location and design of wildlife crossings as part of the review process, and when formulating terms and conditions to mitigate these effects, as established between the Proponent and any affected groups.</p>	<p>Potential conflicts between trains and caribou have already been considered in the execution of safe railway operations. A response regarding train whistling has already been provided in the January 2019 Advance Technical Comment Responses to Transport Canada’s technical comment #10, as follows: “Unnecessary use of the whistle is prohibited as per Rule 14 of Canadian Rail Operating Rules (CROR) which reduces the potential impact of train whistling on wildlife. Train whistles are expected to be infrequent and short in duration and are not expected to contribute substantially to noise related effects.” (Baffinland Iron Mines Corporation 2019a)</p> <p>A complete list of caribou protection measures related to the railway are provided in Section 3.3.2 of the revised TEMMP (Baffinland Iron Mines Corporation 2019b).</p> <p>References  Baffinland Iron Mines Corporation. 2019a. Advance Technical Comment Responses Phase 2 Proposal - Mary River Project.  Baffinland Iron Mines Corporation. 2019b. Terrestrial environment mitigation and monitoring plan BAF-PH1-830-P16-0027, rev 4.1. 154 pp.</p>	Terrestrial	n/a	Resolved
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WWF-FWS 0	WWF	September 2019	<p>WWF recommends that with respect to annual reporting, the NIRB analyze parties' comments, undertake its own independent analysis and interpretation of Baffinland's monitoring results, provide direction to Baffinland in the design of and subsequent alterations to its monitoring programs, and provide results of its own interpretation of impacts and effectiveness of mitigation strategies.</p> <p>Given the obvious holes in monitoring and data collection and the subsequently weak and uninformed basis from which its impact predictions are based, WWF recommends that no increase to through put beyond the current operation at 6 Mtpa be approved until such time as Baffinland has appropriate thresholds and indicators in place to inform adequate monitoring programs, and until such time as the same have been accepted by NIRB and intervenors and have proven able to render adequate monitoring information.</p> <p>WWF recommends that under no scenario the project be permitted to haul beyond 6 Mtpa of ore with trucks on the current road given that the option to increase production and rely on haul trucks without railroad construction has not been adequately assessed during the Phase 2 proposal.</p>	<p>Baffinland would like to respond to WWF's recommendation that no shipping or ore haulage occur above 6Mtpa, and make it clear that both requests are unsubstantiated. Baffinland's marine monitoring programs are robust for reasons explained to WWF regularly in response to annual monitoring report comments. Furthermore, Baffinland is committed to the development of Early Warning Indicators but must reiterate this is not a conventional undertaking and all members of the MEWG are expected to provide meaningful input. To date WWF has not provided such meaningful input, however, Baffinland encourages their future involvement in the process. As Phase 2 levels of shipping are not expected to occur before 2022 Baffinland is confident that Early Warning Indicators will be developed by that time based on a rigorous investigation of IQ and Inuit perspectives, scientific literature, and the expert opinions of MEWG members.</p> <p>With respect to ore haulage above 6Mtpa, The Phase 2 FEIS Addendum did accurately define and assess short term haulage of 12 Mtpa of ore along the southern half of the Northern Transportation Corridor. This activity was considered in assessments interactions tables, and assessed as necessary based on the level of assigned interaction. The surface water and landforms technical supporting documents each concluded elevated trucking represented a minor interaction and did not provide further assessment. The atmospheric, terrestrial wildlife, and exposure potential assessments, however, assigned the activity greater</p>	Corporate		Outstanding
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WWF-FWS 01	WWF	September 2019	<p>WWF recommends that as part of the reconsideration of the Mary River Project Certificate, the NIRB include a Monitoring Framework to be appended to the Certificate for review and comment by parties. We also recommend that the NIRB include a timeline for the finalization of the Framework within the Appendix itself, to ensure parties are able to track the development and participate at relevant stages. Given the absence of adequate (comparable, integrated, consistent) results from project monitoring, the inability to measure or interpret impacts and trends from that data, and proposed mitigation measures that cannot therefore be related to observed impacts, current predictions about impacts from Phase 2 are not supported by any empirical evidence related to the current operations and monitoring programs. WWF therefore recommends, given this uncertainty with regard to current operations and limited understanding of impacts, no further mine throughput and transport beyond the approved 6 Mtpa be approved until such time as these critical aspects of the adaptive management framework are implemented and are informing the current level of activity.</p>	<p>The NIRB has already initiated the development of the Mary River Monitoring Framework for attachment to Project Certificate 005, circulating a draft Appendix A Framework for public comment in 2017. Baffinland supports this initiative and will continue to participate in the development process following the completion of the Phase 2 reconsideration process.</p> <p>Please see Baffinland's response to WWF-01 regarding the lack of substantiation in WWF's recommendation to not increase throughput above 6Mtpa.</p> <p>Summary of Baffinland's Approach to Monitoring Baffinland has a comprehensive monitoring program that includes indicators for all of the VECs and VSECs that were identified in consultation with Project stakeholders throughout the Environmental Assessment process. Annual reporting includes several reports, not limited to: The Terrestrial Environment Annual Monitoring Report; the Marine Environment Effects and Aquatic Invasive Species Monitoring Report; the Ore Dock Construction Monitoring Report; the NWB/QIA Annual Report; the NIRB Annual Report; Marine Mammal Monitoring Reports (e.g. Bruce Head Monitoring Report). This approach is consistent with the draft Post-Environmental Assessment Monitoring Plan put forth by the NIRB.</p> <p>A description of Baffinland monitoring programs and approach are outlined in the publicly available Management and Monitoring Plans for the Project. Specifically, with respect to monitoring of the marine environment,</p>	Corporate		Not directed towards Baffinland
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WWF-FWS 03	WWF	September 2019	<p>WWF recommends that the NIRB revise conditions relating to the working groups, taking into consideration any revised Terms of Reference filed by working group members, and that revised terms and conditions be issued to reflect a more responsive role for the NIRB, a requirement that Baffinland integrate advice received with unanimous support from members, and provide rationale for not integrating the same into its plans and programs. The NIRB should have ultimate authority to make decisions where Baffinland does not agree with advice from working groups. Revision should also clarify a requirement that working group discussions, debates, and recommendations be filed publicly with the NIRB. While the working groups can and should provide advice and oversight of monitoring programs and plans for the project, the ultimate responsibility for ensuring Baffinland's monitoring programs are mitigating significant impacts rests with the NIRB. Through an amendment to the Project Certificate, this must be clarified via revisions to the existing Terms and Conditions 49 and 77, as well as any others deemed necessary by the NIRB.</p>	<p>Baffinland notes that in recent Terrestrial and Marine Working Group meetings (June 20 and 21, 2019, Iqaluit) the functionality of the Working Groups and updates to the Terms of References were discussed. It was noted by WWF and other members during these meetings that they had observed improved changes to the functioning of the Working Groups. Notwithstanding, proposed changes to the ToR's have been ongoing throughout the summer 2019, with drafts available to the NIRB for review. In response to recommendations made by several Working Group members to date, Baffinland has submitted proposed revisions to the ToRs in Appendix O of this submission that reflect a more consensus-based approach to decision making that more clearly identifies how recommendations are identified, supported, communicated, and tracked. Regardless of Baffinland, or any Working Group members, suggested revisions to the ToR's, the NIRB will always remain in the Working Groups activities and to will continue to be provide direction to Baffinland as it deems appropriate through the annual monitoring and reporting process.</p> <p>For a greater understanding of how the Terrestrial and Marine Environment Groups function and the scope of monitoring programs and reports they provide input on please see Baffinalnds response to MHTO-7d.</p>	Corporate		Outstanding
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WWF-FWS 04	WWF	September 2019	The limited assessment provided within Baffinland's FEIS Addendum and supporting documentation is not adequate to support shipping additional ore via the Northern Transportation Corridor. Should any shipping through the northern route be allowed to proceed by the NIRB, and/or is approved by the responsible Ministers, it is WWF's recommendation that the shipping route, including portions of Tallirutiup Imanga and critical habitat at Pikialasorsuaq, as well as species outside of Canada's waters that depend on areas inside the Nunavut Settlement Area, and all Project related shipping activities, be subject to the development of a strategic Marine Spatial Planning exercise. See final submission for full response.	Based on discussions between Baffinland and Parks Canada, Baffinland's shipping operations within the RSA are consistent with the proposed zoning outlined in Parks Canada's Draft Zoning Map for Tallirutiup Imanga National Marine Conservation Area (TINMCA), as presented to communities during their Spring 2019 consultation activities. For example, consistent with recommendation included in the draft Zoning Map for TINMCA, Baffinland has also identified Tremblay Sound and Koluktoo Bay as restricted areas within the RSA (characterized by Parks Canada as Zone A areas). It is further noted that the self-imposed and voluntary mitigations (i.e. speed restrictions) Baffinland has applied in Zone B areas of the TINMCA exceed all regulatory requirements for vessel management and are demonstrably more conservative than mitigations taken by any other vessel travelling in the area, including Federal and Territorial procured-vessels (Appendix M). Other seasonal feature considerations to be addressed in the draft Interim Management Plan for TINMCA is the floe edge, polynyas and sea ice. Through the Phase 2 Assessment, Baffinland has clearly demonstrated an understanding of the importance of these areas both from an ecological and community perspective, implementing commitments to: <ul style="list-style-type: none"> <li>• keep vessels 40km away from the most easterly point of the floe edge at the start of the shipping season;</li> <li>• eliminating winter shipping through the Northern corridor based on community feedback regarding the importance of</li> </ul>	Marine	Baffinland commits to take part in a Marine Spatial Planning exercise, should an appropriate regional body lead the initiative.	Resolved - Outstanding issue not directed towards Baffinland
WWF-FWS 04	WWF	September 2019	There is inadequate baseline information and consideration of impacts from shipping via Navy Board Inlet and through the Northwest Passage to even consider routing through these options. As such, the NIRB's assessment of the Phase 2 proposal should not include any alternative routings proposed by Baffinland at this time. Should Baffinland desire to ship via a western routing, WWF recommends that an application for amendment to the current Project Certificate be filed with the Board. Considering information currently before us, we do not support the inclusion of westward passage of vessels or Navy Board Inlet routing for any Project ships within the present assessment.	Per our clarification letter provided to NIRB and MHTO on Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)	Marine		Resolved

WWF-FWS 04	WWF	September 2019	<p>WWF recommends that the NIRB require Baffinland to utilize lighter distillate fuels (i.e. non-HFO, non-IFO) in its own and contracted shipping vessels, including its ore carriers calling to port in Nunavut. Furthermore, we recommend that Baffinland only contract ships for work in Nunavut waters if they are fitted with double hulled fuel tanks to protect the waterways and marine species living here from a potentially disastrous spill of HFO/IFO.</p>	<p><b>Use of lighter distillate fuels</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 scrubbers. Further to this, the IMO is contemplating a ban on Heavy Fuel Oil (HFO) in the Arctic, subject to an ongoing investigation by the federal government given the potential consequences to northern economies. Baffinland is participating in this investigation and will comply with any regulatory outcomes.</p> <p>Use of double hulled fuel tanks All vessels loading at Milne comply with the latest construction standards, including MARPOL Annex 12 A that deals specifically with fuel space locations within large commercial vessels. Those standards have evolved to include specific tank protection measures reducing the possibility of spills, and also limiting the potential volume of releases to the extent reasonably possible.</p> <p>Furthermore, BIM has established operating procedures beyond regulation within the RSA to further mitigate and reduce risks associated with events that might give rise to accidental releases. Such measures include traffic management (no passing zones, speed restrictions, traffic simulations, etc) and has vessel selection criteria through Rightship that considers not only the navigational safety of the operation, but also considers the traditional use of the</p>	Accidents		Outstanding
WWF-FWS 07	WWF	September 2019	<p>WWF recommends that Baffinland be required to develop and implement adequate indicators and thresholds as well as robust monitoring plans to gain useful information about the regional caribou herd, and that no increase to mine throughput or transport beyond 6 Mtpa is approved until such time as it has evidence to support the current assertion of no impact and to support projections of no significant impacts with a 12 Mtpa development scenario WWF recommends that the NIRB set specific monitoring requirements for Baffinland to acquire accurate data about caribou abundance, distribution, and responses to the currently approved activities.</p>	<p>Currently, the available data (from the GN) on caribou density and abundance on North Baffin Island is inadequate to develop a robust definitive study of quantifiable Project impacts on caribou, which is why IQ was the primary source of data used to determine Project impacts on caribou. However, Baffinland recognizes the value in contributing to regional monitoring, and has been contributing to GN-led studies since 2009. Baffinland is also in the process of developing an MOU with the GN to support caribou research in the North Baffin region, with the goal of addressing some of the gaps identified here.</p>	Wildlife		Outstanding

WWF-FWS 08	WWF	September 2019	<p>Existing Term and Condition 3 requires that Baffinland provide within its Annual Reporting, results of any emissions calculations conducted to determine the level of sulphur dioxide (SO2) emissions, NOX emissions and GHG generated by the Project using fuel consumption or other relevant criteria as a basis.</p> <p>WWF recommends that Baffinland be required to demonstrate how it has decreased its GHG and black carbon emissions annually. Similarly, existing Conditions 4, 8, and 9 require the use of various methods to measure and report on emissions - in the example of Condition 4, Baffinland is required to undertake continuous monitoring at port sites to capture ship generated SO2 and NO2 emissions at the Port, and to continue this for several seasons to determine that emissions are at acceptable levels.</p> <p>WWF recommends that Baffinland be required to demonstrate annual improvements above and beyond federal targets for these emissions. Specifically, the objective of Condition 9 is to "Provide feedback on the Project's emissions." These conditions should be revised to require additional measures and steps from Baffinland to demonstrate improvement over predicted values and emissions targets.</p>	<p>Baffinland recognizes the importance of managing our greenhouse gas emissions, including black carbon. As committed to during the review, Baffinland is developing a comprehensive Climate Change Strategy, which is explained further below. A critical component of this strategy will relate to the marine environment, where important developments are occurring at the international level that our world class fleet of vessels and ship contractors are poised to comply with, including the 2020 Sulphur Cap and a potential ban on Heavy Fuel Oil in the Arctic. For more detailed discussion of Baffinland's Climate Change Strategy please see the response to QIA-40, and for a more detailed discussion of Baffinland's shipping contractors and their commitment to emissions management please see the response to ECCC-FC4.</p> <p>Baffinland does not believe revisions to existing terms and conditions 3, 4, 8, and 9 are required. Baffinland is already committed to the development of a comprehensive Climate Change Strategy and has initiated work to this end. The Strategy will satisfy the objectives of the terms and conditions in questions, as well as WWF's recommendation for Baffinland to demonstrate our efforts to reduce greenhouse gas emissions year over year.</p>	Atmospheric	<p>Baffinland commits to tracking and reporting annually GHG emissions for its operations, and upon evaluation of existing data, subsequently pursue efforts to set multi-year energy use and GHG emissions targets, that aim to ensure continual performance improvements over time, and achieve alignment with industry best practice, in the next draft of the Climate Action Plan.</p>	Outstanding
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