July 12, 2019
Nunavut Impact Review Board 29
Mitik Street, PO Box 1360
Cambridge Bay, NU, X0B 0C0

Attention: Solomon Amuno
Technical Advisor II
Sent via email: info@nirb.ca

Re: Baffinland Response to Reviewer Comments on the 2018 NIRB Annual Report

Dear Solomon,

Baffinland Iron Mines Corporation (Baffinland) is pleased to provide responses to regulator comments received by the Nunavut Impact Review Board (NIRB) on the 2018 Annual Report for the Mary River Project. Specifically, Baffinland is responding to the NIRB letter dated June 14, 2019 entitled: Opportunity to Address Comments Received Regarding Baffinland Iron Mine Corporation's "Mary River Project 2018 Annual Monitoring Report" and the associated comments received from the following interested parties:

- Qikiqtani Inuit Association (QIA)
- Government of Nunavut (GN)
- Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)
- Fisheries and Oceans Canada (DFO)
- Parks Canada (PC)
- World Wildlife Fund (WWF)

A copy of responses to these comments can be found in Attachment 1.

Comments on the 2018 NIRB Annual Report and the 2018 QIA/Nunavut Water Board (NWB) Annual Report for Operations were also received by Environment and Climate Change Canada (ECCC) on June 24, 2019. Baffinland has provided responses to comments received by ECCC on the NIRB Annual Report in Attachment 1, but will defer responses to comments on the 2018 QIA/NWB Annual Report until comments from all reviewers are received by the NWB on August 6, 2019.

It is noted by Baffinland that several of the comments received by reviewers on the Report echo comments and concerns submitted by interveners and other parties on the Phase 2 Final Environmental Impact Statement (FEIS).

Baffinland has addressed these concerns throughout 2019 both through engagement with reviewers,

the community of Pond Inlet and QIA on the currently approved Project and through the Phase 2 regulatory process. An overview of efforts made by Baffinland to address these comments is provided in the sections that follow:

Enhanced integration of IQ into Baffinland's current environmental monitoring programs:
To address several comments made by QIA in relation to the Phase 2 review Baffinland developed a memo entitled "Inuit Qaujimajatuqangit (IQ) and the Mary River Project Phase 2 Proposal". This memo provides an overview of Baffinland's overall approach to the collection, consideration and use of IQ, provides specific examples of how IQ was used in the Phase 2 Proposal, and in the development of mitigations and monitoring programs for the current Project. This memo was used to support responses provided on the 2018 Annual Report to the NIRB and has been included as Attachment 2 to this submission.

Development of community-based monitoring programs:
In 2018 as part of updates to the Inuit Impact Benefit Agreement (IIBA) for the Mary River Project, Baffinland established the Wildlife Monitoring Program (Article 17.8 of the IIBA). The Wildlife Monitoring Program is a community-based monitoring program, specific to the research interests of the community of Pond Inlet. To that end, Baffinland has provided the MHTO with $205,000.00 in 2019 to conduct community-based monitoring programs, which the MHTO has elected to use to study fish health and narwhal harvesting efforts.

Collection of baseline data for the Southern portion of the Project:
Baffinland notes at this point in time, there are no active programs specifically focused on collecting baseline data near Steensby or for the southern portion of the Project, although some opportunistic baseline data is collected when possible (i.e. seabird data collection through collaborative monitoring programs with ECCC). Baffinland is aware of the need to collect additional baseline monitoring in advance of developing the Southern component of the proposed Project and will consult with the QIA, communities of Hall Beach and Igloolik and the MEWG and TEWG on the development of these baseline studies closer to their initiation.

Increased monitoring for potential effects of the Project on caribou and deeper collaboration with the GN and MHTO on regional monitoring:
Baffinland and the GN are in the process of developing a Memorandum of Understanding (MOU) for regional caribou monitoring. Baffinland also notes that a memo titled 'Energy Protein Model and Population Model Results to Address GN Questions' has been submitted in relation to the Phase 2 review and addresses a scenario where the northern transportation corridor acts as a complete barrier to caribou movement (see Attachment 3). This modelling exercise will help to further refine caribou and vegetation monitoring associated with the current Project and/or Phase 2. Baffinland also committed at the June 18, 2019 TEWG meeting to engage with the GN and the TEWG to develop a tissue sampling program. A draft sampling protocol will be developed for review by the TEWG for the second face to face TEWG meeting of 2019.

Monitoring for ice escort activities:
For 2019, Baffinland has established several monitoring programs that are specifically designed to monitor for potential effects of ice breaking and ice management activities on marine mammals. The

Eclipse Sound acoustic monitoring program, the Ship-Based Observer (SBO) Program and the July marine mammal aerial survey have all been designed with the explicit purpose of monitoring for potential effects related to ice escort operations. Results of these monitoring programs will be shared with the MEWG, QIA and the MHTO in Q1 2020, and may influence development of additional adaptive management measures for vessel traffic in future years, as appropriate.

Baffinland appreciates the meaningful comments submitted by reviewers on the 2018 Annual Report to NIRB and wishes to thank these agencies for their ongoing engagement in the success of the Mary River Project.

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

Sincerely,

Lou Kamermans
Director, Sustainable Development
Baffinland Iron Mines

cc:
Megan Lord-Hoyle, Vice President, Sustainable Development
Genevieve Morinville, Manager ESG, Baffinland Iron Mines

Attachments:

1. Baffinland Response to Reviewer Comments by Agency
2. Inuit Qaujimajatuqangit (IQ) and the Mary River Project – Phase 2 Proposal
3. Memo – Re: Energy-Protein Model and Population Results to Address GN TRC-18
4. Mittimatalik Hunters & Trappers Organization Site Tour Report – August 30-31, 2018

Baffinland

Attachment 1

Baffinland Response to Reviewer Comments by Agency

Baffinland

Responses to Qikiqtani Inuit Association Comments

Baffinland

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		General		
1	QIA made a suggestion in earlier comments on the 2017 NIRB Annual Monitoring Report that Baffinland develop a table of concordance of issues/suggestions raised at TEWG meetings and whether these recommendations have been acted upon, and to what degree.	QIA puts forward this recommendation again as a way of tracking input from the TEWG on an annual basis and recording what was done / what was not done and the rationale. As part of this request, QIA requests that the Proponent also append the review comment sheets used to review the draft minutes to the Working Group minutes.	N/A	To date, Baffinland has captured the input provided by the MEWG by including a copy of the meeting minutes as an Appendix in the Annual Report. A new format for tracking recommendations made by the Working Groups was raised at the June 18/19, 2019 Working Group meetings in Iqaluit, and Baffinland has commited to modifying the format of the meeting minutes to better capture recommendations put forth by the Working Groups and the outcomes of these recommendations. Baffinland will also begin appending a copy of the comments received by Working Group members on draft meeting minutes to the Final meeting minutes, per the request of Working Group members.
2	The Proponent provides an assessment of how its compliance with Project Certificate Conditions changed from 2017 to 2018 but does not indicate the source of these data, or whether others are in agreement. QIA disagrees with Proponent's estimations of condition compliance. The Proponent states that "Overall, Baffinland is in compliance with the required terms and conditions for the Project". This suggests a record of compliance that is unblemished. It may be correct to say that on a day-to-day basis, Baffinland is in compliance with the majority of the required terms and conditions for the Project, but given dust, noise, water quality and quantity, and other exceedences, some of them of a systemic and continuous nature rather than due to occasional upset conditions, the language used by the Proponent is not justified. In addition, QIA suggests that many of the findings of "in compliance" in the document, pages 33 to 443, are matters of opinion and focused on the narrow wording of a NIRB condition, rather than the spirit and intent of the condition.	QIA recommends that the Proponent clarify in the Popular Summary that these data are based on self-assessment. QIA also recommends that in the future, Baffinland be provided more specific guidance by NIRB on how to interpret whether a condition is in compliance, partially compliant, or out of compliance, and that this guidance be focused on the spirit and intent of the condition more so than the narrow wording of the condition. The outcome will be a more easily understandable record of compliance, that focuses on whether the monitoring and management system is protecting the environment and Inuit in the way it was intended. QIA also recommends that NIRB also provides analysis in the NIRB Annual Monitoring Report on whether the Proponent is in compliance with the spirit and intent of the objectives set out through conditions and to standardize langage around compliance, partially compliant, non-compliant, and non-applicable, recognizing that items considered "in progress" by NIRB are often non- compliant or partially compliant, so the "in progress" terminology is not useful. In the interest of transparency NIRB is also requested to include a graphic description of compliance levels of PCC's in it's Annual Report using the same model of figure 4.1 (p.26) in the Proponent's Annual Report, and that the Proponent's Annual Report include a graphic depiction of NIRB's findings from the previous year as well as the Proponent's initial estimations for that year.	Popular Summary Page 4	In future years, Baffinland will clarify within the Popular Summary that the status of compliance is based on a self-assessment, although it is noted that the methodology for assigning the status of compliance is clearly detailed by Baffinland in Section 4 of the Annual Report. As both the NIRB and Baffinland's terminology for the status of compliance with each PC has been updated in Annual Reports since the start of the Project, completing a direct comparison of Baffinland's self-assessment to the NIRBs assessment has not been achievable, however Baffinland will attempt to better capture this in future years.
3	A description is provided of marine environmental monitoring programs including training.The Proponent states, ""[t]he 2018 marine monitoring programs were staffed by engaged and knowledgeable individuals whose insights and contributions continue to strengthen the efficacy of the design and execution of the marine monitoring programs." It is noted that 1610 non training hours were worked on marine monitoring programs by Inuit in 2018. This is equivalent to just under one Full-time Equivalent (FTE). No information is given in the popular summary on terrestrial monitoring training or monitoring programs.	The Popular Summary should be amended to include any Inuit training programs for terrestrial environmental monitoring, and a list of how many Inuit hours were worked on terrestrial monitoring programs. Clarification should also be provided on how Inuit employees strengthened, "the efficacy of the design and execution of the marine monitoring programs"?	Popular Summary Page 8	Information provided in the Popular Summary is intended to provide the reader with a snapshot of the type of information that is further detailed within the report and to highlight some successes achieved by Baffinland throughout the reporting year. In future years, Baffinland will consider adding more information related to Inuit participation in the terrestrial environment monitoring programs and a better description of how inclusion of Inuit participants in the environmental monitoring programs improves the overall design and execution of the program.
4	The 2017 Annual Report provided a brief summary of the destinations for ore shipped from Milne Port, both in the summary and in the main text. This has not been provided for for the 2018 Annual Report.	QIA recommends that the Proponent include a brief summary of where ore was shipped to from Milne Port, and of where these vessels originated prior to visiting Milne Port (i.e. their most recent port of call prior to Milne Inlet). Inuit are interested, especially goven concerns about invasive species.	Popular Summary; see also 3.2.1 Page 9 (see also 19)	In 2018, Baffinland shipped iron ore from Milne Port to markets in Europe, the United Kingdom, Taiwan and Japan. Baffinland will consider including where all vessels called to Port originated from prior to Milne Inlet as part of reporting on PC Condition 89.

Baffinland

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
5	Three primary components are identified for the Project, but this description does not include the shipping lanes and anchorage sites for ships, a fourth major component. This does not appear to be an academic oversight, either. In reality, many of the effects Inuit are most concerned about relate to shipping, and some of the primary effects are encountered along these shipping lanes.	All future Annual Monitoring Reports should identify four major components of the Project, including shipping lanes and anchorage sites as that fourth component. In addition, effects of the Project via this fourth major component must be part of all project-related assessment and monitoring.	1.1 Page 1	In future years, Baffinland will describe shipping along the Northern Shipping Route as a fourth and separate component of the Project for monitoring purposes. Baffinland has presented the Phase 2 Proposal and environmental assessment in this respect.
6	Clarification is required on a permitting item in Table 1.1 - Permit Registry. Department of Fisheries and Oceans - no license to fish for monitoring activities is listed (the NRI Scientific Research Licence that permits similar monitoring activities in terrestrial and freshwater is listed).	Please explain why no licence from DFO will be required to fish as part of monitoring activities.	1.2.2 Page 4-5	Baffinland does not hold a licence to fish under the Fishery (General) Regulations, as the activity is completed by third party expert consultants, which hold the licence to complete the work on Baffinland's behalf. A license to fish for monitoring activities and research is maintained by the respective consultants that are responsible for conducting environmental monitoring onsite.
7	One of the objectives of Baffinland's engagement efforts is to: "Consider traditional and local knowledge as well as scientific expertise in internal decision-making processes". Generally speaking, the internalization of decision-making by the Proponent in relation to Project management is an area of concern to QIA and Inuit moving forward. Many of the forums available to monitor and manage the Project, including groups like the MEWG and TEWG, and all of the community engagement forums, are focused on the provision of refuse-able and re-interpretable advice by parties like QIA and other Inuit organizations to the Proponent. This has created frustration over time and arguably has seen less than optimal monitoring and management conditions.	NIRB, the Proponent, and all parties to the monitoring and management system for the Project should be looking for opportunities to embrace more co-managed and independent monitoring and management systems moving forward with additional stages of the Project. These changes can be incremental or exponential in nature and could require changes to existing management and monitoring systems.	2.2; also 2.5 Page 9; 13	Baffinland continues to seek ways to better incorporate feedback from stakeholders, including community members, the QIA and other regulators into decision making and Project planning. This is an ongoing effort and Baffinland acknowledges room for continuous improvement, however Baffinland firmly disagrees that this has resulted in 'less than optimal monitoring and management conditions'.
8	In Figure 2.1, the Proponent has illustrated its approach to stakeholder engagement as a feedback loop, but has not provided examples of how "Consideration of Feedback, Concerns and Local Knowledge" have been used to develop adaptive management. One of the objectives of Baffinland's engagement efforts is to "enable stakeholders to identify issues and concerns and provide input into the development of appropriate mitigation measures". Another objective is to "[c]onsider traditional and local knowledge as well as scientific expertise in internal decision-making processes." Another objective is to "[f]ocus priorities so that potential adverse effects are mitigated and Project benefits are enhanced." Local Inuit have reported impacts to ringed seals but little to no monitoring is being conducted. This appears contrary to the Proponent's stated objectives.	QIA recommends that the Proponent clearly explain and provide concrete examples of how these sources of information, particularly local Inuit knowledge, have been used to develop adaptive management. QIA recommends the Proponent clearly explain, with examples, how local identification of issues and concerns has provided input into the development of appropriate mitigation measures. QIA recommends the Proponent provide some examples of how traditional and local knowledge have been used in internal decision-making processes. QIA recommends the Proponent describe how potential adverse effects to ringed seals, as reported by local harvesters, will be monitored and mitigated moving forward, and provide a commitment to begin this work in 2019.	2.2 Page 8-9	Examples of how local Inuit knowledge have been incorporated into the Project and used to develop adaptive management were described in the IQ memo provided by Baffinland to the QIA as part of the March 2019 responses to technical comments received on the Phase 2 FEIS Addendum. A copy of the IQ memo has been attached to this submission, and several of the requested examples are provided here: <u>Mitigation:</u> - Reduction of speed of Project vessels from 7-10 knots to a maximum speed of 9 knots to address community concerns about the potential for vessel noise on marine mammals - identification of community-preferred drifting locations for Project vessels near Ragged Island - Committment to restrict to a maximum of three Project-vessels anchored and/or drifting at Ragged Island <u>Monitoring:</u> -Installation of 6 additional dust fall monitor stations in 2018 to address community concerns regarding dust dispersion 1km out from the Tote Road - Expansion of monitoring programs to address community concerns, for example expansion of the Aquatic Invasive Species to Ragged Island and inclusion of additional fish for tissue sampling - Participation of the MHTO in the caribou height-of-land monitoring programs to provide insights on program design, including information on caribou behaviour and how to look for caribou on the North Baffin landscape Marine mammal aerial surveys are planned for July and August 2019. This will include surveying for all marine mammal species in the RSA, including ringed seal, bearded seal, bowhead whale, narwhal, beluga, walrus and polar bear. Monitoring for ringed seal will also be conducted during the 2019 Ship-Based Observer monitoring program off of the MSV Botnica.
9	Exploration programs are ongoing on-site activities, as well as off-site activities, given Baffinland's large exploration claim area in North Baffin. Monitoring the contribution of exploration activities to cumulative effects from the Project is important, but it is unclear whether and how this is being undertaken.	Please provide more information on monitoring and management activities related to exploration programs that are ongoing by Baffinland, in a supplemental filing to the 2018 Annual Report, and in future Annual Reports.	3.1 Page 18	Baffinland submitted a 2018 Annual Report to the NIRB on the Eqe Bay Exploration program on March 31, 2019. The Eqe Bay Annual Report is also available on the Baffinland document portal at: www.baffinland.com.

Baffinland

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
10	In 2018 the Proponent shipped iron ore between July 24 to October 17, using "an ice management vessel (the MSV Botnica) to escort ore carriers at the beginning and end of the shipping season, which served to facilitate safe passage through prevailing ice conditions." Photos of the 2018 shipping (for example at http://www.nirb.ca/portal/dms/script/dms_download.php?fileid=324717, slide 24) show ore vessels travelling along tracks cut by the MSV Botnica through consolidated pack ice. The Proponent does not identify ice breaking or ice management among its planned activities in 2019.	QIA recommends that the Proponent and NIRB describe the extent of ice breaking that has been approved under its existing Project Certificate including the the ERP Addendum or Production Increase. QIA also request that the Proponent provide a detailed description of any 2019 plans for shipping when ice is present.	3.1 Page 18	Operational shipping in 2018, including the use of the MSV Botnica to escort ore carriers at the beginning and end of the shipping season is consistent with shipping season activities described in the FEIS for the ERP, namely shipping between approximately July 15 to October 15. Baffinland plans for the 2019 shipping season are similar to that of 2018, and are anticipated to commence approximately July 15, and will include travel along the Northern shipping route for between 82-86 ore carriers, nine re-supply vessels and 4-5 deliveries of fuel. The MSV Botnica has been procured again by Baffinland for 2019 to provide escort to Project-vessels at the beginning and end of each shipping season. As was done in 2018, Baffinland will not begin shipping until it has been confirmed by the community of Pond Inlet that the floe edge is no longer being used by hunters and that landfast ice has been broken along the corridor.
11	There is no reference to monitoring training as a part of overall training in this section. For many Inuit, non-destructive, on-territory activities such as those which come through working on a monitoring program may be highly attractive. More information is required on the role monitoring plays in total employment, total Inuit employment, annual procurement, and proportion of expenditures on Inuit and total training activities, to get a better sense of monitoring opportunities and the ability of Inuit to take advantage of those opportunities to date.	Please provide more information on: 1. What are annual operating expenditures on monitoring programs; 2. How many Inuit are directly employed as monitors and how many FTEs that work represent; 3. What proportion of FTEs worked on monitoring are Inuit FTEs; 4. What amount of procurement expenditures there are annually on monitoring activities; and 5. What proportion of that monitoring procurement goes to Inuit controlled firms.	3.2.4.1 Page 21-22	Information regarding the proportion of spend on Inuit contractors and Inuit training and employment are provided in the IIBA Quarterly and Annual Reports and are discussed with the QIA via the Employment and Training and Contracting and Procurement Committees.
12	The Proponent states that "[o]ngoing environmental effects studies and baseline data collection will continue to support the construction and operation of the Project as well as for future engineering requirements."	QIA recommends the Proponent clarify what baseline data are being collected, and on what schedule. For example, some baseline data are needed with respect to the southern route and in advance of certain milestones.	3.3 Page 22-23	Some baseline data studies were planned for 2019 to support proposed future developments at the Project, including the development of the Northern Railway (i.e. fish and fish habitat baseline data collection at proposed crossings). There are no current programs that are specifically focused on collecting baseline data near Steensby or for the souther portion of the Project, although some opportunistic baseline data is collected when possible (i.e. seabird data collection through collaborative monitoring programs with ECCC). Baffinland is aware of the need to collect additional baseline monitoring in advance of developing the Souther component of the proposed Project and will consult with the MEWG and TEWG as neccessary.
13	How is the effectiveness of the Project-specific document portal evaluated? Evidence that this is an effective way to communicate, particularly with Inuit, has not been provided.	QIA requests that the Proponent provide more information on use of the document portal including how many external parties access the portal along with the results of any user feedback evaluations conducted (e.g. user surveys). If the portal is not being heavily used additional communication measures should be considered for 2019, especially for effective outreach to Inuit.	4.4 Page 28	The Document Portal is a supplemental source of project documentation to the NIRB and NWB public registries. Baffinland regularly provides the link to individuals requesting files throughout the yeard but does not solicit any formal user feedback. The Document Portal is one of many tools used by Baffinland to engage with Inuit communities and other stakeholders. A list of all engagement activities undertaken with North Baffin communities and other stakeholders in 2018 is included in Section 2 of the NIRB Annual Report. Hard copies of monitoring reports are also shared with the MHTO to supplement what is available on-line.
14	In Table 4.3 - List of Reported Spills and Unauthorized Discharges - 2018, the Proponent states that “[d]uring 2018, thirty-six (36) spills were reported to the Northwest Territories-Nunavut (NT-NU) Spill Line, CIRNAC, NWB and the QIA by the Project. Overall, this represented a frequency decrease of 25 percent when compared to the frequency of reportable spills in 2017. A summary of the 2018 spills reported by the Project are outlined in Table 4.3.” Frequency is only one measure of spills, a decrease in number of spills does not necessarily equate to less damage. Additional details are required to understand the difference between spills in 2017 and 2018.	QIA recommends that the Proponent provide details on how total spill volumes in 2017 and 2018 compare, by discharge type, clarify why the quantity of sediment discharged was not estimated and reported, and explain the term "Non-Compliant Effluent."	4.5.2 Page 30-31	From 2017 to 2018, there was a decrease in the number of spills in all discharge types excluding untreated sewage. The total amount of spills decreased from 48 in 2017 to 36 in 2018. In volume, for sewage (both treated and untreated) the amount of discharge released decreased by 92%. Both the volume of spilt grey water and oils (waste and gear) also saw a decrease from 2017 to 2018 (decrease of 75% and 55% respectively). The volumes and/or quantities for sediment spills were not provided for spills in which volumes and/or quantities could not be accurately estimated based on the data available (i.e. sediment releases). "Non-compliant effluent" is defined as an unauthorized release or discharge of a substance into the environment, in exceedence of project specific parameters outlined under MDMER and/or the terms and conditions of the Type A Water Licence - Amendment No.1, that has the potential to impact the environment.

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
15	The proponent states that, to date, no climate change impacts have been observed through the Project monitoring. QIA finds this statement misleading -- it may be true that no climate change impacts have been detected through Project monitoring, but climate change impacts have been observed more broadly.	QIA recommends that this statement be clarified to state that project-specific monitoring has not detected climate change impacts over the short term; however climate change impacts have been observed through regional monitoring programs. QIA also requests that this statement be revised to include IQ-based observations of climate change the Proponent has collected through its monitoring and engagement programs.	4.6.1 Page 32	Baffinland notes that observations and future concerns related to potential effects of climate change on the environment have been communicated to Baffinland by Inuit community members. The Mary River Inuit Knowledge Study captured a number of comments regarding observed reductions in ice cover: "The ice is different now because of climate change. There is a lot less ice now. It's a huge difference. We didn't have ice this summer or this fall even." "It (ice) used to be so much thicker. Now it is much thinnner. And the floe edge used to be futher down, not it is much closer. It is very different now. I thinhk the water is much warmer now and the ice seems to be thick but it moves. When the weather is clear skies, the ice forms very quickly, and it thinkens very quickly. Nowadays that doesn't seem to happen anymore. The ice doesn't form as thick; it is different now." "I have not noticed too many changes but I do notice that the glacial ice is melting. Most glaciers have decreased in size. As the glaciers melt, rivers tend to flow more. When rivers flow more or over-flows for a period in the spring, it erodes the river banks." Additional information regarding IQ-based observations from climate change have been gathered by Baffinland via regional research and literature reviews. A summary of this information is provided in the Climate Change Assessment that was submitted by Baffinland as part of the Phase 2 FEIS.
16	Project Certificate Condition No. 2 requires "The Proponent shall provide the results of any new or revised assessments and studies done to validate and update climate change impact predictions for the Project and the effects of the Project on climate change in the Local Study Area and Regional Study Area as defined in the Proponent's Final Environmental Impact Statement." The statement from the Proponent suggests that to date, no "new or revised assessments and studies" have been completed. This suggests that the language of the Project Certificate Condition, in any future iteration, needs to be tightened up to include a maximum temporal update interval, so that the timeline betwen "new or revised assessments" related to climate change are conducted on a defined and defensible interval.	QIA recommends the Proponent commit, at a minimum, to no more than a three year interval between updates on climate change assessments as required under Condition #2, and if this commitent is not forthcoming, that NIRB direct the Proponent on this maximum interval.	4.6.1; PCC #2 Page 35	Given the pace at which climate change occurs, it would not be practical or reasonable for Baffinland to complete updates to its climate change assessment every three years. Rather, Baffinland is committed to incorporating climate change considerations into currently foreseeable infrastructure developments associated with the Project and future plans for the Project, as relevant. Furthermore, Baffinland is committed to participating in and supporting regional monitoring for climate change where opportunities for collaboration exist or can be forged. It should also be noted that Condition No. 2 directs Baffinland to provide the results of any new or revised assessments should they be carried out, it does not direct Baffinland to carry out the assessments themselves.
17	The Proponent's Climate Change Strategy indicates that one key pillar is to collect information on climate change and implement comprehensive monitoring and management programs using western science and Inuit Qaujimajatuqangit (IQ). PCC #4 also requires participation of Inuit from affected communities when undertaking climate change studies; the Proponent indicates that this condition is not applicable, presumably because no studies have been initiated. A half-decade after the issuance of the Project Conditions, QIA suggests that the Proponent is out of compiance with PC #4, not that it is "not applicable". These studies should be ongoing. Just because the proponent hasnt' started these studies or engaged Inuit in climate change work, doesn't mean that the requirement is "not applicable". In addition, more information is required on how the Proponent will collect monitoring information using IQ, in relation to the Project in general, and effects of climate change on it, and it on climate change.	QIA recommends that this condition be labelled as "out of compliance", and the urgency with which Baffinland initiates climate change studies be increased accordingly. QIA also recommends the Proponent identify specific data collection programs it has committed to, that use IQ to gather data related to climate change, effects of the Project on climate change, and effects of climate change on the Project, including what sort of observational metrics the Proponent is committed to working with Inuit to collect, the specifics of these data collection programs (timelines, locations, funding), and any other relevant specifics.	4.6.1; PCC #2 and PCC #4 Page 35;39	Baffinland is currently in the process of procuring a third-party firm to develop a robust climate change action plan for the Project. The draft action plan would clearly identify ways to more meaningfully engage local Inuit on climate change and the potential for the Project to contribute to climate change in the area. The current schedule for the development of this strategy has proposed that the Draft Strategy would be sent out to relevant parties in Q4 2019 for comment.
18	For Project Certificate Condition 7, the Proponent has provided 2018 monitoring results for sulphur dioxide and nitrogen oxides. These measurements have been compared to Air Quality Guidelines, but no information has been provided on interannual trends.	QIA recommends that the Proponent provide a summary of the interannual trends in these measurements, incorporating trend graphs as seen elsewhere in the report.	4.6.2; PCC #7 Page 46	Comparison of data from 2017 to 2018 shows that at the Mine and Port Sites, maxiumum SO_2 and NO_2 levels increased. This is consistent with the general upward trend that has been seen year-over-year at the Mine and Port Sites since Project operations commenced. In future years of reporting, Baffinland will include trend graphs to help visualize interannual results for the reader.

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
19	The spirit and intent of PC #10 is listed as the prevention of impacts to air quality from dust dispersion. Because the specific condition language is focused on the issuance of and updating of a Plan related to dust management, the Proponent has listed its actions as "in compliance". However, dust issues have cropped up in relation to the Project on numerous occasions, and continue to do so. Therefore, the Proponent to date has created conditions that put the Project out of compliance with the spirit and intent of the condition, which should be the focus of this report.	QIA recommends that this PC be indicated to be "partially compliant" only.	4.6.2; PCC #10 Page 51-52	Baffinland remains of the opinion that this PC is in-compliance with the requirements of the Terms and Conditions.
20	Re: Dust mitigation: this comment applies to PC Condition 10 (to prevent impacts to air quality from dust dispersion); 50 (to ensure appropriate and responsive adaptive management); 54d (updating the TEMMP with respect to reducing impacts of dustfall (fugitive and total suspended particulates) on caribou forage; and 58c (to mitigate and monitor for impacts to wildlife, specifically with respect to including a description of the extent of dustfall based on measured levels of dustfall (fugitive and finer particles such as TSP) on lichens and blueberries, and ash content of caribou fecal pellets). The proponent reports that dustfall exceeded FEIS predictions at select locations but exceedances decreased in 2018 as compared to 2017. They note "significant progress" in effectively reducing dust generation from crushing and Tote Road traffic. Based on the information provided it is unclear to what extent this decrease is a direct result of mitigation versus weather conditions for 2018. As QIA has noted at TEWG meetings, continued exceedances in dustfall levels are an important concern for QIA. Predicted levels of dustfall were already concerning in terms of potential impacts to use of the areas adjacent to the road and mine by wildlife and people; the exceedances must be addressed. QIA understands that Baffinland has been working on this issue and is planning to try new measures in 2019. QIA has repeatedly requested a clear adaptive management approach to dustfall exceedances—not on a yearly basis, but immediate triggers based on daily observations of dustfall risk. It is not clear from the Annual Report how quickly dustfall exceedances result in actions such as the application of water or other dust control measures, and reduced speed or cessation of traffic on the Tote Road. Based on QIA's review of the Terrestrial Annual report, it appears that dustfall collectors are checked every month. QIA has reviewed the concerns raised in the TEWG re: dust on snow and in water courses in 2018, as well as concerns raised by community members in consultation meetings being held by NIRB for the proposed Phase 2 project. There are important concerns being raised by hunters regarding the impacts of dust deposition on snow and in water courses, and the effects of this dustfall on animals and on the ability of hunters to access their normal hunting areas. BIM discussed a plan to conduct community meetings in the summer/fall to discuss these concerns -- did those happen? And did they inform the development of thresholds and future mitigation? Specific comments with respect to monitoring dustfall impacts on lichens and blueberries are also made below.	In terms of compliance to PC Condition No. 50 re: ensuring appropriate and responsive adaptive management, QIA recommeneds Baffinland be considered non-compliant with respect to immediate responsiveness to observed dust levels. QIA has the following recommendations and requests regarding dust control measures, mitigations, monitoring and adaptive management: 1. Baffinland should include locations of its 6 additional 2018 dustfall samplers on maps (e.g., Map 1 on p. 7 of EDI's Terrestrial Annual report) and provide a rationale for the locations of these samplers (e.g., highest predicted dustfall locations); 2. As per PC Condition 54d (updating the TEMMP with respect to reducing impacts of dustfall), Baffinland should ensure that the TEMMP is updated with the latest dustfall monitoring protocol and that there is a clear link between this monitoring program and measuring impacts on caribou forage. Specific recommendations about improvements to the vegetation monitoring program with respect to monitoring dustfall on caribou forage are made in later QIA comments. 3. QIA recommends that Baffinland develop daily triggers for dust mitigation measures, using clear thresholds for when mitigation measures will be used on a daily basis. Prioritize the development of these measures immediately and share with the TEWG and the AEWG, both of whom have expressed concerns regarding impacts of dust on vegetation, soils and waterways within the PDA and the LSA. QIA recommends that Baffinland use a visual signalling system for drivers and mine workers to alert them of high dust risk and appropriate mitigation measures to take (e.g., reducing speed or avoiding tasks that are known to increase dust levels). 4. Based on monitoring data (dustfall increases in winter over previous years), QIA recommends the use of dust control measures in winter as well as summer. 5. Explore alternatives to dust control using CaCl for stock piles at Milne Port. 6. QIA is recommending that Baffinland develop a community-based monitoring program for impacts to key values; recommendations in relation to this suggestion are made throughout. In response to concerns raised by QIA and HTOs at the TEWG in 2018, QIA recommends developing a dust sampling program based on hunter observations for dustfall on snow and vegetation. Suggest developing indicators based on IQ and observations and including these in the community-based monitoring program. 7. QIA requests that Baffinland share notes from any	Multiple (PCCs #10, 50, 54d, 58c) Page Multiple, espec. 51	1. The additional six dust fall collectors were not included in the 2018 annual monitoring report because they did not collect data at anytime during the 2018 calendar year. They were installed early fall 2018 to ensure they were ready to begin collecting data as early as possible in 2019. The sites were agreed to between Baffinland and QIA, and the actual final locations were identified on the ground with members of the MHTO in an effort to spread the data collection out along the roadway and in areas were topography was such that dust fall would be highest, i.e., in places where there were no hills or cliffs of significant elevation that might act as blocks to decrease the dust fall at a distance of 1 km from the road. These sites, and the data collected will be included in the maps and results presented in the 2019 annual report. 2. The TEMMP is updated with the most recent dust fall monitoring program and protocols. 3. BIM is not planning to develop a signalling program, staff rely on visual observations and perform dust suppression where and as needed. 4. There have been minimal increases in winter, and the magnitude of dust fall in winter continues to be quite low. In 2018 summer dust fall was higher than winter because of a strong decrease in summer dust fall, and only a slight increase in winter dust fall. Dust suppression activities including water and calcium chloride treatment would result in dangerous driving conditions during the winter season. 5. BIM is continually developing new dust suppression alternatives at Milne Port, including ore pad redesign to position fines in the centre and lump ore around the margins, downwind fencing, and proper positioning of the conveyors to minimize drop distances when stock piling. 6. The dust fall monitoring program is robust and provides steady, reliable data. BIM has increased the Project when necessary to respond to changing site conditions and concerns from QIA and the MHTO, including the addition of six additional sites for the 2019 monitoring year. No additional monitoring is required at this time. 7. Please see Appendix B of the 2018 Annual Report to the NIRB. 8. Dust Stop®.

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		7. QIA requests that Baffinland share notes from any community consultation work done in relation to dust monitoring. 8. QIA requests that Baffinland list which newly GN approved dust suppressants will be tested on the Tote Road in 2019.		
21	The Proponent states that "noise and vibration were not raised as concerns during 2018 consultation activities (Appendix B)." QIA notes that noise has been raised by community members in relation to the existing operations in both the NIRB 2019 Community Sessions for the Phase 2 Project Proposal (NIRB document 190507-08MN053-Phase 2 Community Information Sessions Summary Report) and in QIA's 2019 IQ Study in Pond Inlet. This suggests strong concern about the format in which information was collected by the Proponent during 2018 consultation activities; for an issue with such prevalent public concerns as noise not to have been captured in those sessions suggests issues about how input was collected more than the absence of noise as an issue of concern to Inuit.	QIA recommends that Baffinland consider revisiting its community data collection programs related to the Project for 2019, in consultation with groups like QIA and the affected Inuit communities; and report on any revisions to its 2019 community input data collection program structure and methods in the next Annual Report.	4.6.2 (sic) Page 55	Baffinland approaches stakeholder engagement as an ongoing and iterative process throughout the life of the Project. As the QIA rightly notes, given that the concerns related to noise were raised by community members in early 2019, additional emphasis on these concerns will continue to be raised by Baffinland while conducting community consultation to determine with community members how potentially negative effects related to noise and subsequent impacts on wildlife and communities can better be managed and reduced in future years.
22	The spirit and intent- the objective - of PC #14(b) is to "mitigate potential impacts of noise to wildlife and people during project operations". Given onging concerns raised by affected communities about noise, QIA suggests that this objective is not currently being met, as suggested by the Proponent.	This should be revised, at most, to be only "partially compliant", and the Proponent should commit to more data collection and engagement of affected communities on outstanding noise issues, at the mine, at the port, in the shipping lanes, and along the terrestrial transportation route.	4.6.2 (sic); PCC #14(b) Page 62	Baffinland recognizes that ongoing concerns related to potential effects of noise as a result of the Project have been raised by community members, however, Baffinland has taken adaptive management measures, including the implementation of noise reduction rules in and around living quarters and ensuring that all mobile equipment is equipped with mufflers and are well-maintained to reduce noise effects of the Project per the requirements of the Term and Condition. Baffinland therefore remains of the position that it is in-compliance with PC Condition No. 14(b).
23	QIA notes that no data are provided on PC Condition 14(b) related to mitigating noise and vibration impacts to wildlife. Baffinland's Air Qualty and Noise Abatement Management Plan suggests a level of 40 dBA at 1.5 km from the mine site. It would appear that these measurements are only taken at the Mine Site and Milne Port, so no data are available on noise from the Tote Road. Data provided on average noise level within the sampling period (table 4.10 on p. 59) are at or higher than 40 dBA; however, these measurements are apparently taken in accommodation rooms for a 12 hour period. It is not clear whether noise monitoring stations have been set up in relation to the requirement to ensure that noise is not impacting wildlife. Evidence that the AQNAMP has been implemented has not been provided.	QIA recommends that Baffinland: 1. Provide data showing noise levels for all three project components in relation to the thresholds for wildlife impacts provided in the AQNAMP; 2. include a discussion of how noise from the project, particularly use of the Tote road, may be impacting wildlife and whether adaptive management measures are needed. 3. Develop a community-based monitoring program for impacts to key values; recommendations in relation to this suggestion are made throughout this document. In relation to noise, QIA recommends that the community-based monitoring program include considerations regarding the impact of noise on wildlife in the PDA, LSA and RSA, including with respect to mine operations, traffic on the Tote road, activity at Milne Port, and aircraft within the project area.	4.6.2 (sic); PCC #14(b) Page 62	Baffinland recognizes concerns related to potential effects of noise as a result of the Project on wildlife. Noise and vibration levels around the Projects are measured at the Project accomodations, select heavy equipment and work areas. Baffinland will continue to monitor these parameters as the Project develops to ensure changing conditions are understood. Wildlife are observed on the Project site for signs of disturbance. It is rare that wildlife show signs of disturbance and signtings of caribou and other animals observed near the PDA support this. Community-based monitoring must be driven by community priorities. Baffinland already supports community-based monitoring efforts through the Wildlife Monitoring Fund and is supportive of, and committed to providing this fund to monitor whatever is of greatest interest to the community.
24	The Proponent refers to a mapping exercise with the MHTO regarding important travel routes.	The Proponent is requested to provide a copy of this mapping exercise and any relevant additional documentation to NIRB for the public record.	4.6.2 (sic); PCC #15 Page 63	MHTO Site Visit (August 2018) Report in English in Inuktitut, as well as follow up presentation to MHTO from September 18, 2018 has been included as Attachment 4 to this submission.
25	The Proponent shall ensure that the water related infrastructure or facilities that are designed and constructed, including the modification of culverts, diversion of watercourses, and diversion of runoff into watercourses along the railway, access roads, port sites, the Milne Inlet Tote Road, and other areas of the Project site, are consistent with those proposed in the FEIS and FEIS Addendum in terms of type, location, and scope and that the requirements of all relevant regulatory authorities are satisfied advance of constructing those facilities. QIA disagrees with the Proponents assessment of in compliance of PC Condition 16 as the impact of operating the Tote Road in its current state has never been assessed as per the FEIS or FEIS Addendum as the Tote Road has not been built to the presented designs as approved in the FEIS Addendum.	QIA recommends compliance with PC Condition 16 be considered non-compliant until Baffinland build the Tote Road as designed or provide a satisfactory assessment showing that operating the road in its current state is demonstrably not creating adverse impacts greater than the designed built road would be likely to create.	4.6.3; PCC #16 Page 67	Baffinland recognizes that the historical Tote Road presents challenges for construction and potential impacts to surrounding areas, however, it manages them diligently. Historically approved design drawings are used to continually improve and remediate areas needing improvement. The Road Maintenance department works throughout the year to improve the safety of the road, water crossing effectiveness and erosion stability. The effectiveness of construction and water crossing installation is assesed at strategic locations, defined in the Roads Managment Plan, through weekly water quality monitoring inititatives.

Baffinland

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
		Terrestrial		
1	The Proponent identifies no significant concerns by community members about effects of the Project on aesthetics and local topography. It is unknown whether community members were actively engaged in discussion about the full Project buildout change to the local topography and aesthetics, including use of appropriate visual mockups from different viewpoints of mining effects on the landscape (including before and after images), both with the current degree of change and what the area will look like after the current mine plan is completed. There is a difference between passively canvassing a community about concerns, and asking about how changes to the land from mining are perceived, using actual before, current and (planned) after mining imagery. There is no point in simply asking after each year whether the change to date is a problem; people need to weigh in on planned changes into the future BEFORE they occur, in order for there to be opportunities to avoid or mitigate undesirable changes in the future.	The Proponent is requested to identify whether and what visuals it used in it engagement of affected communities about aesthetic changes. If visuals have not been used, QIA requests that they be used in 2019 in a dedicated fashion, in order for the spirit and intent of this Condition to be met. In addition, the utility of aesthetic assessment is lowered without having defined visual quality objectives relevant to the primary observers - in this case Inuit. It is strongly recommended that the Proponent work with Inuit in 2019 to identify Inuit Visual Quality Objectives.	4.6.4; PCC #27 Page 91	Several different tools were used by Baffinland, including visual aids, to support discussions with Inuit in 2018. These include pictures, videos and a 3-D model and cover all components of the Project, which offer opportunities for commmunity members to better visualize infrastructure and activities. Baffinland will continue to rely on visual aids and other means of providing enhanced understanding of the project for the life of mine.
2	The objective of PCC #28 is "To ensure that permafrost integrity is maintained". The specific requirement includes for the Proponent to monitor the effects of the Project on the permafrost along the railway and all other Project affected areas, and implement effective preventative measures to ensure that the integrity of permafrost is maintained. We read this Condition as including the Project's Tote Road and any other surface transport locations, and indeed the Proponent indicates that "project's activities have led to localized permafrost degradation issues along the Tote Road and Mine Haul Road". We agree that this makes the PCC only partially compliant, as noted by the Proponent. However, the primary monitoring activity discussed is bi-annual geotechnical inspections that do not mention (and therefore, we can only assume, do not include) any professional inspections for mine or tote roads. Given these are the areas showing the greatest impacts so far, this is problematic.	QIA recommends that the Proponent: 1. provide maps and tables indicating the location and degreee of "localized" permafrost degradation, 2. indicate how and how often this is being assessed along the Mine and Tote Roads, and 3. commit to include Mine and Tote Road inspections in future bi-annual geotechnical investigations, and report the results in this report and to the TEWG. It is critical to better understand the degree and rate of permafrost impacts, in order to better manage them.	4.6.4; PCC #28 Page 92	Baffinland recognizes permafrost degradation and working with permafrost to be a challenging aspect of the Project. Baffinland does evaluate potential permafrost degradation associated with water and waste retention facilities, including the Mine and Tote Road. All water and waste infrastructure including bridge crossings on the Tote Road are evaluated by a stamped Nunavut engineer bi-annually. Historically, Baffinland has also brought in external expert advice for borrow pits and to asses specific problematic areas. Permafrost stability investigations are also incorporated into designs and construction assesments. Further assessment of the roadway geotechnical condition and stability is being planned for August 2019 in order to identify further remedial measures and mitigation. As part of the August 2019 site visit with CIRNAC, the quality of the soil spoils materials will be assessed to confirm their suitability as backfill, in addition to identifying the required mitigations for ensuring successful placement of materials.
3	For invasive plants, the avoidance method relies on all equipment and supplies being inspected by the Suppliers prior to being offloaded at Baffinland's Milne Port. Service agreements and contracts have a clause stating "all equipment delivered to the site must be free and clear of soils that may contain seeds of invasive species."	It is QIA's opinion that relying on suppliers to avoid transportation of invasive plants onto the site is inherently risky. QIA recommends that compliance with this requirement needs to be audited periodically (at a minimum, yearly) by a third party auditor.	4.6.5; PCC #32 Page 101	Mitigation for the potential introduction of invasive species vis-a-vis equipment being brought to site is two-fold. Firstly, as noted by CIRNAC, Baffinland contractually requires contractors to ensure that equipment and supplies brought to the Project sites are clean and free of soils that could contain plant seeds not naturally occurring in the area. Secondly, Baffinland staff conduct equipment inspection upon arrival to verify supplier compliance with these requirements. If upon investigation it is determined that equipment has not been cleaned prior to delivery to Site, Baffinland would follow-up with the contractor directly. Given that Project monioring has not identified potentially invasive vegetation species as a concern to date, a third party audit is not warranted at this time.

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
4	PC Condition No. 33 refers to facilitating monitoring, specifically towards including relevant monitoring and management plans within the Environmental Management System and Terrestrial Environmental Management and Monitoring Plan (TEMMP). Under this condition, Baffinland reports that the TEMMP includes vegetation monitoring consisting of the following components (QIA has provided an assessment of each): 1. Vegetation abundance and composition: QIA assesses this as in-compliance but has comments specific to the vegetation monitoring program, particularly with respect to monitoring lichen abundance, in a further comment below; 2. Vegetation health: QIA assesses this as non-compliant based on the fact that no dustfall or metals monitoring of vegetation and soils occurred in 2018, despite the consistent exceedances in dustfall levels, previous concerns regarding metals in vegetation, and no method currently in place to determine how metals are affecting wildlife, as organ tissue has not been tested; further information on this topic is provided in another comment below; 3. Culturally-valued vegetation: QIA assesses this as non-compliant based on the lack of monitoring for culturally important vegetation abundance and quality; 4. Exotic invasive vegetation QIA assesses this as in-compliance, with a recommendation for improvement methods to avoid the introduction of invasive plants from outside equipment; as per our comment above and the adjacent recommendations. 5. Natural revegetation: QIA assesses this as in-compliance and notes efforts to be undertaken in 2019 to develop a reclamation working group; 6. Dustfall: QIA notes that dustfall is being measured and appears to be in-compliance; however, the effects of dustfall on vegetation are not being fully assessed.	QIA recommends that the assessment of compliance for PC Condition No. 33 be changed to partially-compliant overall, based on the assessment of each component of this condition, or out of compliance for items 2 and 3 and incompliance for the others. Further recommendations are provided in individual comments below. QIA recommends that Baffinland develop a community-based monitoring program for impacts to key values; recommendations in relation to this suggestion are made throughout this document. For monitoring of culturally important plants, QIA recommends that this monitoring program be reconsidered in light of the current dustfall levels and high community concerns, and that community-based monitoring of culturally important plants be undertaken in future years. For monitoring of invasive plants, QIA requests that the proponent include training for all employees working for Baffinland on the appropriate reporting mechanism for sightings of invasive plants—something similar to the wildlife monitoring log used to record sighting of wildlife. All surveys conducted within the project area should include incidental monitoring of invasive plants.	4.6.5; PCC #33 Page 102	The requirements of PC Condition No. 33 are as follows: The Proponent shall include relevant Monitoring and Management Plans within its Environmental Management System, Terrestrial Environmental Management and Monitoring Plan (TEMMP. As described in the methods section of PC No. 33, the TEMMP includes a description of monitoring and management plans for vegetation health, vegetation abundance and composition, culturally-valued vegetation, exotic invasive vegetation and natural revegetation and dustfall. A description of the key indicators for each of these monitoring programs and the frequency of the monitoring programs has been described in the TEMMP. Baffinland therefore remains of the position that PC No. 33 is in-compliance.
5	PC Condition No. 34 refers to the requirement to monitor metal concentrations in both soils and vegetation at varying distances from the PDA to compare metal concentrations in soil and vegetation between near (impacted) and far (control) sites, and determining if metal concentrations in soil and vegetation exceed CCME and relevant available thresholds in the literature. Baffinland notes that no monitoring of metal concentrations in soils and vegetation was conducted in 2018. In 2017, sampling was conducted in relation to three project components (Milne Port, Tote Road, Mine site) at varying distances from the PDA (0-100 m; 101-1000m; >1000m) Sampling was planned for every three to five years, between late July and early August. A few comments on this approach: 1. Given that high dustfall exceedances have occurred in the last few years, QIA would have expected Baffinland to assess metal concentrations in soils and vegetation. Dustfall is one of the key concerns expressed by community members and members of the TEWG. It is imperative that these measurements be taken every year until dustfall levels are under the specified thresholds. 2. Assuming that samples are taken only within established vegetation abundance plots, this approach would seem to undersample vegetation in impacted areas. These concerns have been raised before at TEWG meetings (specifically, June 5 2018 TEWG meeting). Dust is very visible to community members and hunters and there are deep concerns being expressed about the potential impacts of dust, observed far from the mine site based on prevailing winds, on the values of importance to community members.	As per comments made at 2018 TEWG meetings, QIA is recommending that Baffinland take a much more robust approach to monitoring metal deposition in vegetation and soils, including the following: 1. Increased sampling effort for metals in vegetation and soils at areas of high dustfall -- QIA suggests aligning these with sampling locations with all dustfall monitoring sites along the road, close to the mine, and close to Milne Port. Sampling should be done every year under dustfall levels have been lowered to below 50 g/m2/year at every site (this level is considered the threshold between moderate and high TSP deposition levels; TEMMP 2016, p. 105). Consider aligning monitoring locations for metals in vegetation and soils with areas that are also monitored for lichen abundance (see recommendation on lichens, below). 2. Development of a community-based monitoring approach to dustfall, including developing a trigger that would require Baffinland to conduct monitoring for metal concentrations at sites of concern identified by community members. 3. Explore the current approach to establishing thresholds for metals in vegetation and soil to see if it is sufficient -- use best available literature regarding the combined effects of multiple metals and the types of contaminants that may be concentrated up the food chain to provide a reasonable estimate of risk to wildlife and people from the deposition rates that are being observed within the LSA and further afield. QIA notes that the First Nations Food, Nutrition and Environment Study (FNFNES) has created a contaminants baseline database which could be a useful starting point for these efforts.	4.6.5; PCC #34 Page 103	1. The vegetation and soil base metals monitoring program is robust and sufficient to provide reliable data on metal concentrations in vegetation and soil in the Project area. There is no need to increase sampling effort, based on the power analysis that was performed in 2015 (refer to the 2015 Terrestrial Environment Annual Monitoring Report). The 50 g/m²/year is a categorical limit to illustrate high dust fall areas that are within the PDA — an area within which all vegetation was expected to be cleared in the environmental assessment. That value is not a dust suppression target. Metals monitoring sites are in areas where lichen was present and, where possible, close to dust fall monitoring sites and vegetation abundance monitoring sites. Lichen abundance is low across the Project area and there were several dust fall monitoring sites where it was not found in sufficient abundance for collection. Similarly, the abundance of lichen in the vicinity of vegetation abundance monitoring sites was considered during metals monitoring to not potentially influence the vegetation abundance monitoring program. Future metals monitoring will continue to assess the relative presence of lichen close to dust fall and vegetation abundance monitoring sites. 2. Community-based monitoring must be driven by community priorities. Baffinland already supports community-based monitoring efforts through the Wildlife Monitoring Fund and is supportive of, and committed to providing this fund to monitor whatever is of greatest interest to the community. 3. Thresholds established for the vegetation and soil base metals monitoring program are sufficient to monitor changes to vegetation health where the main objectives are to: • Monitor metal concentrations in vegetation and soil, particularly caribou forage (i.e., lichen), near Project infrastructure; and • Determine if metal concentrations in vegetation and soil exceed available CCME and relevant threshold levels provided in the literature for vegetation. A risk assessment of contaminants to wildlife and humans is out of scope for the vegetation and soil base metals monitoring program.

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
6	Project Certificate Condition No. 35 requires that BIM will undertake monitoring of baseline metal levels in organ tissue from caribou harvested within the LSA. In practice, no monitoring of metals in organ tissue from caribou harvested within the LSA has been conducted to date. The report states that few to no caribou are being harvested, particularly by people travelling through the Mary River Project site. From the information provided, it is not clear whether enough effort has been made to initiate this sampling program. The monitoring method is not currently in place to allow the proponent to move forward with this requirement; the summary states that a suitable sampling protocol has yet to be developed in coordination of GN and the local HTOs through discussions with the TEWG. Though harvesting is currently low, there is a gap in the readiness of the proponent to acquire samples from harvesters and it is not clear whether NO harvesting has occurred within the LSA or if it is just low. This is an important difficiency that needs to be addressed.	The status of this condition should be revised to non-compliant. QIA suggests that the proponent should develop the monitoring approach and bring it to the working group for evaluation as soon as possible to bring this requirement back into compliance, and certainly in calendar 2019. The Proponent is also requested to identify how it proposes to move forward with organ tissue sampling protocols in 2019. Coordinating the acquisition of organ material with improved community-based monitoring of caribou within the PDA, LSA, and RSA is highly recommended.	4.6.5; PCC #35 Page 105	Baffinland will engage with the GN and the TEWG to develop a tissue sampling program to comply with this PCC. Baffinland commits to putting together a draft sampling protocol for review by the TEWG for the next face to face meeting.
7	Regarding the overall approach for vegetation monitoring, the methods presented in the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP; Appendix B) describe 8 transects randomly situated within the Mine Site, Milne Inlet and Tote Road within the moist to dry non-tussock graminoid /dwarf shrub habitat type, at distance classes of 30 m, 100 m, 750 m and 1200 m from the edge of the PDA, with control sites located approximately 20 km from the PDA to the north and south of the RSA and outside of the ZOI. Based on the Terrestrial Annual Report for 2018, the number of transects was increased in 2016 to 15, and the number of reference sites was increased to 6. Monitoring for caribou forage focuses on lichen abundance. Lichen measurements are included in the broader vegetation abundance sampling program; includes 15 transects, 66 sites, and 151 plots. Six transects radiate out from the Mine site, five transects from the Tote Road, and four transects from Milne Port. Sample sites located at 30, 100, 750 and 1,200 m from the PDA. Each sample site includes 1-2 open plots and one closed plot. Percent plant cover by plant group using the point quadrat method. Includes deciduous shrubs, evergreen shrubs, forbs, graminoids, moss, lichen, and standing dead litter. Data are analysed for total percent ground cover, total percent canopy cover, and percent cover by plant group. The results show a decline in total percent ground cover between 2014 and subsequent monitoring years, with differences consistent across all distance classes. Declines in lichen occurred from 2014 to 2015, 2016, 2017, with a slight increase in 2018. Data on lichen load by sampling site for each year is not provided; however, the report states that "a detailed examination of changes in ground cover for the major plant groups were also consistent across all distance classes in the Project area." The conclusion is that the significant variation in percent ground cover year over year is due to climatic changes, with the proposed explanation that 2015 was a high plant growth year, which led to higher standing dead litter in the canopy layer, and subsequently higher ground litter, which obscured moss and lichen during ground measurements. Lichen measurements are currently one of the key metrics for determining potential impacts to caribou from the mine, during this low population cycle period. Given the low abundance of lichen in any of the plots (less than 3% on average), it seems unfortunate that these plots are the main source of data for monitoring changes in lichen abundance. Beyond measuring lichen loads through percent cover, there is also the potential to develop a community-based monitoring approach to lichen abundance, using a parallel data collection method that is based on IQ rather than simply measuring abundance.	1. The Proponent is requested to update the methodology in the TEMMP to be consistent with the approach currently used. 2. The Proponent is requested to provide the power analysis summary for the increased sampling effort in the TEMMP. 3. The Proponent is requested to clarify whether all 15 transects are located within the moist to dry non-tussock graminoid /dwarf shrub habitat type; clarify how many reference transects are used (6?) and that they are within the same habitat type. 4. The Proponent is requested to identify whether there any climatic evidence to support the conclusion that 2015 was a large plant growth year. Also, whether the climate variable can be added to the analysis to determine whether there is a relationship between climatic factors (e.g., rainfall) and plant growth trends? 5. QIA recommends that the proponent provide details on how the lichen abundance varied with distance from the mine and other components, as this is the key metric for measuring potential impacts to caribou from the mine. 6. The key question of interest with respect to caribou is the variation in lichen loads. Lichen loads are small within all of the plots measured; this is worth additional discussion at the TEWG. Would it be worth adding additional plots targeting areas with higher lichen loads, so that variation in lichen loads can be more easily understood from the perspective of potential impacts to caribou? 7. QIA is recommending that Baffinland develop a community-based monitoring program for impacts to key values; recommendations in relation to this concept are made throughout this document. With respect to lichen, QIA recommends the development of a parallel community-based approach to monitoring lichen loads within the project area, using an approach that draws on IQ and provides a better picture of how lichen loads and quality may be changing in relation to mine development and activity. This approach should include dust deposition on lichen, lichen abundance, and possibly other qualities (level of moisture in lichen) that are important from an IQ perspective.	4.6.5; PCC #36 Page 106	1. The TEMMP is updated with the most recent methods and protocols for vegetation monitoring programs. 2. This information is provided in the 2014 Annual Terrestrial Monitoring Report, Section 3 Vegetation, 3.1.1.1 Analytical Methods with results of the power analysis presented in Section 3.1.2.3 Power Analysis. 3. All vegetation abundance monitoring sites (including reference sites) are in the moist to dry non-tussock graminoid/dwarf shrub habitat type. There are six reference sites. 4. Baffinland will consider incorporating a relative comparison of climatic factors (i.e., rainfall) to future monitoring results where practical and available data exists should it be required as part of trends monitoring for vegetation abundance and as it relates to potential Project effects. 5. Vegetation abundance monitoring does not analyze data among Project components (i.e., Mine Site vs. Milne Port vs. Tote Road), because baseline studies determined that there was no statistical difference in plant group composition among focal area (refer to the 2016 Terrestrial Environment Annual Monitoring Report, Section 3, 3.1.2.2 Composition by Plant Group). Rather, vegetation abundance monitoring analyzes plant cover and composition at varying distance classes from the PDA across the Project area. 6. Based on assessment from the vegetation abundance and vegetation and soil base metals monitoring programs a thorough investigation of lichen abundance and distribution in the Project area has been completed. These programs target key habitats for caribou forage (i.e., moist to dry non-tussock graminoid/dwarf shrub habitat type). Areas of higher lichen loads do not currently exist within the Project area. 7. Baffinland looks forward to continued engagement with the QIA and communities to determine i) community interest in conducting a parallel vegetation monitoring program to the existing program, and ii) what specific sites and issues are of concern, that are not addressed by the existing monitoring program.

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
8	In the initial discussion of the PC conditions related to the terrestrial environment, the proponent describes stakeholder feedback and states that "communities were initially very concerned that the railway would interrupt the typical northward movement of caribou into the North Baffin Region, though through the review process the communities seem to be becoming more comfortable with the idea that the caribou would acclimatize to the railway over time." This statement is currently unsubstantiated and is not upheld by IQ work completed in Pond Inlet and currently ongoing in Hall Beach and Igloolik, nor does it reflect comments made in IQ workshops, community consultations, and by MHTO members sitting on the TEWG.	As this statement is misleading and affects the tone of the entire section, QIA recommends removal of this statement. If Baffinland feels this is an accurate reflection of what they have heard from community engagement, please provide all references pointing to where this statement is substantiated, as well as any references which do not substantiate this comment.	4.6.7 Page 139	The 2018 report will not be updated, but Baffinland will remove this statement from future publications, unless it can be better substantiated.
9	The report states that "Baffinland is increasing its focus on inclusion of community-based monitoring into all aspects of the programs." At this time, inclusion of community members in ongoing monitoring programs is incidental: there is little in the way of meaningful community-based monitoring that could be used to change mine operations or policies. Though some terrestrial monitoring programs do involve community members, including community member in science-based monitoring does not equate to community-based monitoring. On p. 142 in relation to the TEWG input, the report states that Baffinland "has put a strong emphasis on continuing existing and developing more diverse community-based monitoring initiatives." There is a requirement to use both IQ and science in decision making about environmental impacts of the Mary River mine. For some VECs (caribou in particular), the lack of long-term scientific data means that IQ is the preferred knowledge stream for assessing potential impacts from the mine and associated infrastructure on caribou and values of importance to caribou.	QIA has the following questions about Inuit involvement in monitoring that must be answered prior to making full recommendations about whether and what additional Inuit involvment in monitoring is required: *How many terrestrial monitoring programs involved Inuit technicians or community members? *How many days were Inuit technicians or community members involved in monitoring? *What was the nature of their involvement in the monitoring work? *What are the current barriers to involvement of community members in monitoring? *Use of both IQ and science is noted as important in the FEIS and the TEMMP. Is this requirement being fulfilled at the moment; what proportion of monitoring exercises include detailed scientific data collection and what proportion include detailed IQ data collection (and what proportion includes detailed data collection of both types of knowledge)? QIA recommends the proponent take the following actions to improve how community-based monitoring is being integrated into the adaptive management process: *Develop a parallel community-based monitoring effort to look at interactions between key values of importance to QIA and the mine components within the PDA and broader LSA and RSA (see recommendations specific to tissue sampling for caribou health and caribou interactions with the mine components). *Develop a decision tree that shows how scientific information and observations gathered by community-based monitoring program will be used in parallel to inform the need for additional mitigations and / or other adaptive management considerations.	4.6.7 Page 139-142	Baffinland works to embed and incorporate IQ into their terrestrial monitoring programs. A significant amount of the programs, including the caribou height of land, vegetation studies, dust monitoring and raptor monitoring, have all involved inuit technicians and Inuit community member participants at various points throughout the lift of the Project. Technicians would assist in the daily monitoring activities working directly with monitoring program leads, sharing their traditional knowledge during the program. Community-based monitoring must be driven by community priorities. Baffinland already supports community-based monitoring efforts through the Wildlife Monitoring Fund and is supportive of, and committed to providing this fund to monitor whatever is of greatest interest to the community.
10	Table 4.18 summarizes the impact evaluation related to each of the monitoring programs for the terrestrial environment (Height of land monitoring, snow track and snow bank monitoring, incidental observations, GN regional aerial surveys) -- they state that the impact evaluation is within FEIS predictions. This is not accurate; in fact there is insufficient information to evaluate these components due to the fact that there are no caribou in the project area.	Revise the Impact Evaluation to state that there is insufficient information to address whether habitat loss within the project footprint and indirect habitat loss due to sensory disturbances is affecting caribou; there is also insufficient information to determine whether the project infrastructure and the Tote road act as a barrier to the movement of caribou. Explain why this is the case.	4.6.7 Page 139	The 2018 report will not be updated, but it is noted that these statements are substantiated by the information provided in the PC conditions that follow the impact evaluation table (4.18), namely PC 49 through 64 and in the Terrestrial Environment Annual Monitoring Report.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
11	Re: PC condition No. 50 (develop and implement project-specific monitoring for the terrestrial environment) and PC condition No. 51 (coordinating monitoring efforts, particularly regional and/or community-based monitoring initiatives that raise issues or produce information pertinent to mitigating Project-induced impacts, particularly wrt caribou): there is currently a lack of community-based monitoring efforts. In particular, PCC # 51 does not list any community-based monitoring initiatives. A community-based monitoring effort that is designed by Inuit and based on IQ may be able to provide evidence for project effects before caribou increase in numbers (e.g., by looking at impacts to early caribou forage, lichen quality, and other environmental indicators that may be used to assess whether caribou will be returning to a site or not).	QIA recommends that Baffinland work with Inuit to develop a community-based monitoring program for impacts to key values; recommendations in relation to this suggestion are made throughout this document. In this instance, QIA is recommending that Baffinland explore approaches to directly support the development of parallel community-based monitoring efforts to ensure that IQ can be better integrated into adaptive management and mitigations. See earlier recommendations re: terrestrial monitoring and recommendation below specific to caribou monitoring; similar approaches should be considered for aquatic and marine monitoring as well.	4.6.7; PCC # 50 - 51 Page 143-144	Baffinland recognizes the importance and value of integrating IQ and science into environmental effects monitoring programs for the Project. To that end, monitoring programs have continued to evolve as knowledge is shared and feedback on unanticipated effects are provided. It is important to Baffinland that all parties participate in a collaborative manner (particularly through representation in the TEWG) to ensure that no information-sharing opportunities are missed. Community-based monitoring must be driven by community priorities. Baffinland already supports community-based monitoring efforts through the Wildlife Monitoring Fund and is supportive of, and committed to providing this fund to monitor whatever is of greatest interest to the community.
12	PCC #52 is not in compliance. The Proponent does states that deterrent options were considered in 2013 by the TEWG. However, the Proponent has not provided evidence that they have met the requirements of the PCC to "initiate design, and develop the timeline to test and implement means of deterring caribou from pits and other hazardous areas."	PCC #52 should be identified as out of compliance. QIA requests the Proponent to reinitiate the topic at the TEWG in calendar 2019, bringing in updated information after 6 years of additional study at other mines in the north facing caribou protection issues, especially in light of increased mining activities and transportation activities and modes proposed in relation to the Production Expansion and Mary River Phase 2.	4.6.7; PCC # 52 Page 145	Baffinland previously prepared a caribou deterrence review, which was presented at the TEWG on May 21, 2013 (a meeting at which the QIA participated). At that time, it was noted that there would be no "pit" for at least the first 10 years of mining. Meadowbank, the only other operating mine in Nunavut, does not, nor does not need to use deterrence (caribou in pits have never been a problem). It was suggested within the TEWG that this be considered a "step-wise" mitigation to be addressed if animal and pit conflict ever occurs. Baffinland is open to reinitiating the topic of caribou deterrence within the TEWG, if desired.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
13	This comment is specific to the proponent's approach for local level monitoring for caribou interactions with the mine site and other components. The monitoring program covers a number of PC conditions, including No. 53 (mitigate impacts to caribou from Project-related traffic), No. 54 (update the TEMMP based on monitoring for caribou); No. 58 (mitigate and monitoring for impacts to wildlife, specifically related to operations with an emphasis on calving and post-calving caribou behaviour and displacements (if any), and caribou responses to and crossing of the railway, the Milne Inlet Tote Road and associated access roads/trails). BIM's caribou monitoring program is designed to look for behavioural responses at the local level to mine activity and infrastructure, including the mine itself, Tote Road, and Milne Inlet Camp and Port. Currently monitoring focuses on Height of Land (HOL) and snow track surveys. There are 24 HOL stations, selected based on the highest point possible (Map 5 in 2018 Mary River Terrestrial Environment Annual Monitoring Report shows viewshed mapping for each point). Project components (e.g., the road, camp or deposit) are visible from each station. Stations are selected based on their location along the road, gain in height (i.e., improved view) and accesibility during spring conditions. Stations 1-16 are generally accessible by foot under good condictions, stations 17-24 require helicopter support. Observations are made with one spotting scope and 1-2 sets of binoculars; observations made continuously for 20-46 minutes by scanning the viewable landsape. If any observations are made, a set of required data is taken. In 2018, all 24 HOL stations were visited at least once (Table 1 from 2018 Mary River Terrestrial Environmental Annual Monitoring Report, p. vii). A total of 18.3 hrs of surveys were conducted at these stations in early June (caribou calving) with an EDI biologist and up to two BIM staff. 15 stations were visited twice. No caribou were observed during any of these surveys. Figure 37, p. 80 of the 2018 Mary River Project Terrestrial Environment Annual Monitoring Report summarizes HOL survey results from 2013-2018. No caribou have been observed during this time period except in 2013. Surveying for 2018 was done only in one season (June), which may limit the detectibility; nonetheless, caribou have not been seen in the vicinity of the project for 5 years and this aligns with both regional surveying data from the Government of Nunavut and IQ from Inuit knowledge holders. The survey coverage of each HOL station varied from 5 km2 to 22 km2. A total of 227 km2 were surveyed within the viewshed area. Concerns with current survey effort: *Very limited in terms of seasonal coverage, with surveying only being done in June. Recommend that the timing of these HOL surveys be coordinated with IQ of when caribou are expected to be in the area. *It is not currently clear how the data will be analysed if there is a sighting -- a) how many sightings would be required to make any determination of how the road / road traffic is affecting caribou? b) What is the data analysis pathway from a caribou sighting to an additional mitigation? Please summarize. *Five years of data collection with no results suggests that the approach is not currently very helpful for answering the question about how caribou are affected by the road (sensory disturbances, avoidance of calving habitat, and the barrier effect of the road). *HOL surveys would be useful if there were caribou to observe, but since there are none and there are not likely to be any for at least the next five years based on what we know of the populations and when they are likely to increase again, this monitoring effort should be reconsidered. *Given the level of traffic and noise associated with the road, there is a real concern that caribou would avoid the area if their numbers increase, so this continues to be an important issue that	QIA requests that the Proponent share any and all records of opportunistic helicopter-based caribou sightings (exploration, raptor monitoring, etc.) as well as other sightings reported by staff. QIA recommends changes to local scale terrestrial monitoring program for caribou, including for consideration: *HOL surveys are useful for monitoring caribou behaviour but not for detection of caribou when they are at very low levels. *Given the need for helicopter support anyway for the HOL surveys, consider redesigning the local monitoring effort as an aerial survey to collect both visual sightings and tracks (in winter), provided local Inuit support is given to this approach. Conduct 4 times per year, along transects that run along the road (number of transects to be determined based on sightability and height of flights). Use standard methods for selecting timing of transects (suggest 24-48 hrs post snowfall). Use these data to trigger HOL surveys and survey locations if caribou are observed. The Proponent is also recommended to explore the use of drones as an alternative to helicopter surveys, and report back on its investigations to the TEWG and in next years' Annual Report. *Develop a decision pathway that could be used to trigger HOL surveys. The decision pathway should include a) community-based monitoring effort; b) Government of Nunavut regional monitoring designed to show interaction of caribou with the RSA and PDA; c) local level aerial surveys conducted by BIM. *Require BIM to contribute to all levels of monitoring until HOL surveys are triggered as a useful monitoring approach for looking at caribou behaviour in response to the mine infrastructure. *Design a community-based monitoring component: suggest an annual survey of hunters with an incentive to participate (e.g., provision of gas); include IQ-based indicators of caribou health (e.g., back fat) and movement patterns. Coordinate this effort with testing of organ meat for contaminants. Broadly, development of a community-based monitoring effort to look at impacts from the mine on values of importance, including caribou and the resources that are important to them, should be done in collaboration with the HTOs and QIA. *Suggest redesign of regional surveys to include radio collars -- at low population levels and low group sizes, more collars are likely needed to monitor group movements and analyse in relation to the mine; would require an analysis specific to Baffin Island barren ground caribou to determine the required number. For mainland caribou, the number of collars needed as a percentage of the total herd varies by herd but is quite low (see Rettie 2017); for boreal caribou, recommendation from BC is 5% of the total population (BCIP 2011). Based on the characteristics of Baffin Island caribou, the number is probably somewhere in between. Focus on enough collars to detect caribou groups in annual surveys more easily. QIA recommends that Baffinland include funding for caribou collars in their annual budgets and provide this funding to GN	4.6.7; PCC # 53-58 Page 146-150; 156-164	1. All records of opportunistic caribou sightings (helicopter or otherwise) are documented in the incidental observation sections of the annual terrestrial monitoring reports. 2. It is likely that there is no survey suitable for detecting caribou when they are at such low levels. The intent of the HOL survey is to not detect all caribou – rather have a focused effort near the calving season to determine if there may be caribou calving near project activities. The HOL survey effectively surveys areas near project activities. 3. Aerial surveys for caribou at mining projects have been discontinued in Nunavut, mostly by the Government of Nunavut's request. The last research permit that an aerial survey was conducted for caribou on the Mary River Project restricted helicopter flights at an elevation too high to classify caribou, thus making the survey uninformative, and likely resulted in missed caribou observations. The aerial surveys were discontinued. Given that this is the first suggestion from the QIA to conduct aerial surveys, regardless of their input into the TEMMP and annual monitoring reports, all during times of low caribou abundance, the topic and need for Baffinland to conduct independent aerial surveys requires further discussion if the QIA feels the return on data is worth the extra disturbance created by low level flights. Additionally, winter helicopter surveys are not possible as there is no helicopter on site during the winter, however, Baffinland is open to further discussion on caribou monitoring methods with the communities and through the TEWG. 4. Baffinland will consider the decision pathway when coducting Height-of-Land survey 5. Acknowledged. Baffinland's commitment to community-based monitoring and supporting GN regional-level surveys have been addressed on numerous occasions. 6. Baffinland appreciates the QIA's suggested path forward on a hunter harvest survey. It will be important to decide how that monitoring effort would inform on potential project effects and mitigation. 7. If the community and the Government of Nunavut support a collaring study, then BIMC will support a collaring study — as Baffinland did for the GN's 2008–2011 collaring program. BIMC also recognizes that there are arguments suggesting that animals at such low density and numbers should not be harassed by capture efforts and collaring. Baffinland recognizes that not all in the community may support direct disturbance to caribou at current numbers. Perhaps this is a study that would best be initiated when caribou are at higher density and clearly in a population recovery stage. 8. Baffinland welcomes the QIA's input on IQ-based indicators of impacts to caribou behaviour that have not been addressed through Baffinland's IQ engagement sessions.

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		collars in their annual budgets and provide this funding to GN for their use in monitoring work. *Once HOL surveys recommence, consider redesigning the monitoring effort to include IQ-based indicators of impacts to caribou behavior.		
14	Snowbank height management compliance has improved, however, it has yet to come close to 100%. In future years, snow bank height compliance should be a criteria against which overall compliance to PC #53 will be measured; this would put this PC into the "partially compliant" realm at present.	Given concerns raised by Inuit about the potential for wind to build up snowbanks on the Tote Road as to make them impassable to caribou, and given the possibility of a future where the Tote Road and railroad may act as two consecutive raised barriers with high snow build up, QIA recommends that the Proponent's goal should be to be as close to 100% compliant with snowbank height compliance as possible moving forward. A commitment in this regard, as well as an indication of what additional resources the Proponent is willing to commit to this endeavour, is requested. QIA also recommends engagement of the TEWG in 2019 in developing snow bank height compliance monitoring and track study intervals.	4.6.7; PCC #53 Page 149	Snow bank height compliance has been improving at the Project since the creation and annual review of the Snow Management Plan. The Snow Management Plan provides guidance and instruction in order to mitigate identified snow storage issues. A common practice on the Tote Road is to feather out the snow banks so that further snow does not have an opportunity to accumulate. Although blizzards and inclement weather do occur, Baffinland works diligently with heavy machinery to manage snow on the Tote Road and associated banks and to date has had no reports of caribou avoidance or hinderance.
15	It is QIA's understanding that the objective of PCC #54 is not merely to update the TEMMP, but to proactively monitor and gather information related to caribou in order to make sure that Project physical works and activities are having the least impact possible on caribou. Future objective statements should reflect this. Presently, both 54 d(ii) and f are arguably out of compliance. Items discussed at the TEWG such as video surveillance and an early warning system have not been implemented. Actions relevant to PCC 54 requirements must be enacted moving forward for this measure to be in compliance. In addition, the difficulties raised by the Proponent in conducting a comprehensive hunter harvest survey does not absolve them of the requirement to be in compliance with this condition. There are a variety of strategies that can be used, including partnering with GN, QIA and/or the communities on such a survey, that need to be examined in more detail and implemented by the Proponent. Labeling a condition as "in compliance" when the Proponent readily admits it has not yet completed all of the required actions, regardless of the rationale for why it has not been able to do so, does not seem appropriate.	QIA recommends that the status of compliance be revised to "partially compliant". QIA recommends that NIRB update the objective of the condition to reflect more than an exercise of updating the TEMMP but rather to make sure that Project physical works and activities are having the least impact possible on caribou. QIA reccommends the Proponent to work with the TEWG to implement actions identified (video surveillance, early warning system etc.) to meet the requirementsof PCC 54 D QIA recommends the Proponent to complete requirement f by seeking partnerhships with GN, QIA and communities to develop and implement surveys or equivalent instruments.	4.6.7; PCC # 54 Page 151-152	1. Baffinland remains of the position that it is in compliance with Project Condition No. 54 as the requirements of the Term and Condition are clearly being met. 2. Baffinland has been working with the TEWG since 2012 to implement actions on all terrestrial environment mitigation actions. Video surveillance along the proposed southern rail route were considered through discussions with the TEWG, but a formal commitment to implement was never made. Whatever method and technology is best suited, necessary and practical to implement appropriate mitigation or management of project activities is always a consideration. At this time, it is unclear what video surveillance of the Tote Road would achieve in regards to terrestrial mitigation. 3. Baffinland agrees with the QIA's suggestion of completing a harvest study in partnership with the GN and QIA. Baffinland also recognizes the precedent set in previous harvest studies on Baffin Island that were completed either by the Baffin Inuit Organization (e.g., Pattimore 1986 Baffin region wildlife harvesting study: five-year summary report 1980–1984) and by the GN's Wildlife co-management partner, the Nunavut Wildlife Management Board (e.g., Priest and Usher 2004 Nunavut Wildlife Harvest Study). To that end, Baffinland has raised this discussion and this Project Condition at several TEWG meetings to determine the parties' interest in partnership and seeking guidance for objectives of the harvest monitoring program to address the intent of the condition. Discussions have not resulted in any definitive determination for the need for a program as elaborate as the above-mentioned studies. Regardless, Baffinland does record information in a hunter/harvester log by travellers through site that choose to share information on harvest or other wildlife sightings. Those results are presented in annual reports and have seemingly provided an indication of caribou occurrence in the broader region surrounding the Project site using local knowledge as the key source of information.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
16	As noted, the proponent is not currently monitoring wolves due to low numbers. There is an important element here related to wolves -- estimating the available (glacio-fluvial materials) esker habitat within the Regional Study AReа / PDA and identifying such habitat as ecologically sensitive. There is no update on this and it is not clear whether this work was ever done. It also remains unclear to QIA whether the Proponent has ever met PCC 55c - Developing “wolf indices” for presence/abundance of wolves (by conducting studies) to set a pre-construction baseline.	QIA is requesting an update on this element of the regional scale monitoring for wolves, and suggests integrating wolf sightings and track surveying for wolves into a community-based monitoring program as well as quarterly aerial surveys of the LSA/RSA, as suggested above for caribou. QIA also requests the Proponent identify whether, when and how it completed the work required under PCC 55c, and to provide any relevant "wolf indices" it has adopted. Given there are planning actions that can be completed in relation to this PCC that have not been completed yet, we recommend this PCC be relabeled as "partially compliant".	4.6.7; PCC #55 Page 153	During baseline studies, one wolf den was identified within the Mary River RSA; due to insufficient sample size, a monitoring program investigating variability in den occupancy was not feasible, so this program was put on hold. However, Baffinland is open to re-visiting this monitoring plan when wolves are found in adequate numbers and interacting with the Project, based on feedback from participants in the TEWG, community feedback and other regional monitoring (if available). Details on the wolf den survey can be found in the 2014 Terrestrial Environment Annual Report.
17	Throughout the annual report, there are numerous references on the proposed establishment of a Mine Closure Working Group.	QIA recommends the development of IQ-based standards for reclamation as part of mine closure work, including identification of IQ-based desired end land uses, required land reclamation and restoration activities required to get the land and waters back to a condition where they support those desired end land uses, and plans for how Inuit will be involved in mine closure planning, implementation, monitoring (toward end land use and characteristics targets), and adaptive management in case closure objectives are not being met.	4.6.7 Page 154	From Section 5.2.5.4 of the ICRP," *The role of this Mine Closure Working Group will be to facilitate the integration of community representation and technical expertise by drawing on Inuit knowledge, arctic experience for similar mining operations, and discussion of alternative uses for decommissioned facilities into the reclamation options for various Project components."* Baffinland welcomes QIA feedback on the development of the Mine Closure Working Group (MCWG), it's participants, and the desired outcomes of the working group. Baffinland renews it's request for a meeting with QIA to review the draft Terms of Reference for the MCWG, which would provide an opportunity to solicit feedback from QIA on the integration of IQ into the Working Group structure.
18	It is unclear whether the Interim Closure and Reclamation Plan provides a detailed strategy for the recovery of terrestrial widlife habitat in a progressive manner that is consistent with the Nunavut Wildlife Act. A review of the ICRP found that page 181 of 388 is the only reference to this PCC #55 requirement, and the reader is referred on to Section 9.5 of the ICRP as the relevant section to review. However, while PCC #56 is focused on decision-making, planning and mitigation identification and implementation, Section 9.5 of the ICRP is focused on monitoring and reporting. These are very different expectations.	The Proponent is asked to provide more detail on how the ICRP provides a detailed strategy for the recovery of terrestrial wildlife habitat in a progressive manner that is consistent wit hthe Nunavut Wildlife Act, including identifying what elements of the NWA it is focused on being consistent with, and specific strategic and tactical commitments under the ICRP that embody this progressive approach. If this cannot be shown, QIA is of the opinion this PCC would be out of compliance.	4.6.7; PCC # 56 Page 155	Baffinland commits through the ICRP to progressively reclaim components and/or decommission facilities that no longer serve a purpose, in a manner consistent with the objectives and criteria outlined. In particular, closure activities will promote natural revegetation and facilitate the desired wildlife movement. This is consistent with Section 1(3) of the Nunavut Wildlife Act which states "The following conservation principals apply under this Act: ... (d) the restoration and revitalization of depleted populations of wildlife and their habitat". Further understanding of the project impacts to caribou as a result of the project will need to be integrated into the progressive reclamation planning and will be addressed by the Mine Closure Working Group and the Terrestrial Environment Working Group

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
19	Re: Terrestrial wildlife and Habitat reporting. QIA has reviewed the 2018 Mary River Terrestrial Annual Monitoring Report and this document (the Baffinland Annual Monitoring Report). QIA notes that there are 8 requirements under this PC Condition (No. 57) and generally agrees with the summaries provided by the proponent, with the exception of those listed below: 57b. involvement of Inuit in monitoring program: QIA has asked a question already about how many Inuit were involved in each monitoring; please provide a summary or point us to this information if it is has been summarized elsehwere. 57c. Explanation of annual results relative to the scale of natural variability in the VECs in the region, as described in the baseline report: this has been done for birds, but the lack of caribou and wolf observations makes this requirement difficult. Are there other indicators that could be explored in terms of changes wrt to natural variability (e.g., increases in Arctic fox; changes in lichen loads)? 57f. Summary of the chronology and level of mine activities (e.g., vehicle frequency and type) -- these data are included in the 2018 Terrestrial environmental annual monitoring report, which summarizes mine traffic activity as a correlate to dustfall measures. All non-haul vehicle traffic on the Tote Road is recorded by Baffinland security; trucks hauling ore is tracked by Mine Operations Dispatch. The average daily total vehicle transits (haul and other) on the Tote road in 2018 was 256.8 vehicle transits / day. These results have important implications in terms of the levels of dust on the Tote Road at specific monitoring stations, and, from a terrestrial perspective, the impacts of these dust loads on soils, plants, and animals. QIA notes that vehicle traffic is expected to increase substantially in the immediate term if the Phase 2 project is approved. With dust levels already in exceedance of predicted levels, the mitigation measures for dust need to be reexamined. Further recommendations on monitoring dust and its impacts to terrestrial values is included elsewhere.	QIA recommends that Baffinland include a summary of Inuit involvement in monitoring programs to date, summarize the nature of involvement (including an analysis of the gap between current involvement and true application of IQ in adaptive management) and conduct an assessment of the barriers to Inuit involvement. The recommendation to develop a parallel community-based monitoring program may address the current low levels of participation. Re: reporting on the range of natural variability, QIA recommends that Baffinland consider developing Range of Natural Variation data for other indicators (Arctic fox, lichen) in the absence of data on wolves and caribou. Re: traffic levels and mitigating dust, QIA recommends the development of an improved mitigation plan for dust levels and improved monitoring of terrestrial impacts of the observed exceedances. This is particularly important given that vehicle traffic levels are expected to increase in the short term if the Phase 2 project is approved.	4.6.7; PCC #57 Page 156	1. See response to the similarly worded request QIA-8 (General). 2. It is unclear to Baffinland what range of variability the QIA is requesting. Detailed information on lichen abundance based on current monitoring is provided in the Terrestrial Environment Annual Monitoring Reports. Arctic Fox baseline characteristics were described in the FEIS baseline documents based on information available. Arctic Fox are not an indicator for Project effects monitoring. 3. Baffinland welcomes the QIA's suggestions for an improved mitigation plan for dust levels and improved monitoring for impacts that are not addressed in the current monitoring program.
20	As in previous years, actual traffic on the Tote Road was much higher than projected. See Figures 4.9 and 4.10. on pp. 159-160.	Overall, QIA remains highly concerned, as in our 2018 comments, at the high level of exceedences of predicted traffic along the Tote Road. QIA requests clarification of the data presented in Figures 4.9 and 4.10. Specific questions: 1. Is the observed increase in traffic because of the increase to 6.0 mtpa or does the projected amount provided in Figure 4.9 include the higher production rate. 2. Figure 4.10 compares traffic levels to previous years -- the average has increased. How many days are over the projected daily levels shown in Figure 4.9? What is the variation in time of day? Are there periods of time when the traffic is continuous? What is the daily maximum? In Figure 4.10, is the min and max the daily total or the monthly average?	4.6.7; PCC #57 Page 159	1. The observed traffic increase is associated with the 6.0 mtpa increase. The projected traffic was developed as part of the original project design and does not include the higher production rate. Increase in traffic over the years from 2015 through 2018 is associated with the increase in ore haul traffic as the mine operations were first brought online, and then when ore shipping was increased to 6.0 mtpa. Traffic on the Tote Road is restricted to ore haul and necessary personnel and equipment movement to decrease, wherever possible, the number of vehicles present on the Tote Road. 2. Traffic on the Tote Road is continuous (no time variation throughout the day) as ore hauling is a 24 hour per day activitiy. In 2018 the total number of days that the haul and non-haul traffic traffic exceeded the projected value of 182 was 318 days. However, this projection did not account for the 6.0 mtpa increase in haul traffic, which was identified in the Production Increase Application as increasing to 236 (note this does not include support vehicle transits). The daily maximum was 362 total transits. A figure displaying daily traffic in 2018 is found in the 2018 Terrestrial Annual Monitoring Report. In Figure 4.10, following the removal of outliers (which are very small values that occur on days when due to inclement weather the road was closed), the minimum value is 126, the maxium value was 362, and the mean is 256.8 vehicle transits per day.
21	Re: PC Condition 58b: provide a detailed analysis of wildlife responses to operations with an emphasis on calving and post-calving caribou behaviour and displacements (if any) and caribou responses to and crossing of the railway, the Milne Inlet Tote Road, and associated access roads/trails: The proponent notes that this requirement is addressed in the terrestrial environment annual monitoring program through height-of-land surveys, snow bank height management and monitoring and snow track surveys. QIA has commented already on the current efficacy of HOL and snow track surveys. Regarding the potential for a barrier effect of the road and the need for ongoing snow bank monitoring, QIA notes that the road continues to be deeply concerning in terms of the potential barrier effect to caribou once they do return to the area. Despite the lack of caribou interacting with the road, QIA notes that the road may prevent caribou from moving into feeding grounds to the east of the road. Community members from Pond Inlet have expressed concerns that this effect is likely and that caribou are already less common in areas of high activity (e.g., near Milne Port).	QIA recommends that snowbank monitoring must continue (see our previous comment on this) despite the current lack of animals, and that efforts to stabilize the road in previous years must be evaluated to determine if a barrier has been created in areas where the road bed was raised by up to 10 m. Previous road improvements have raised road bed by 10 m in some areas. Where has this happened and are there any implications for crossing the road? (p. 14 of EDI Terrestrial Annual Report).	4.6.7; PCC #58 Page 161	Snowbank monitorng will continue to occur to provide more data to evaluate animal crossings and the tote road. To date caribou interactions with the Project are rare and any that have occurred have not shown signs of avoidance or disturbance. There are many locations along the tote road that allow for unimpeded caribou passage. If and when berms exist on the tote road they are constructed below height and spacing requirements.

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Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
22	Re: PC Condition 58c: a description of the extent of dustfall based on measured levels of dustfall (fugitive and finer particles such as TSP) on blueberries and lichens, and ash content of caribou fecal pellets), the proponent provides a summary of the dustfall monitoring conducted to date. QIA has provided comments above on better approaches for monitoring the potential impacts of dust, particularly in terms of a community-based monitoring approach for dust levels of lichen and blueberries, and the need for ongoing monitoring of metals in lichen and blueberries at least until dustfall exceedances are no longer an issue.	QIA has recommended actions for Baffinland under previous comments, above.	4.6.7; PCC #58 Page 161	Comment acknowledged.
23	Re: PC Condition 58d: Demonstrate and describe how the monitoring results, including the railway, road traffic, air traffic and dustfall contribute to cumulative effects of the Project, the proponent reports that this requirement is covered through annual reporting of the size of the Project footprint, dustfall, road traffice and helicopter overlights. QIA does not see an effort to provide a cumulative effects assessment for all of these impacts on key values of importance to Inuit communiities. The size of the physical disturbance area is not enough to establish direct and indirect effects of the changes caused by these physical disturbances and sensory disturbances, among other factors, on wildlife, which is the intent of the Condition.	QIA recommends strongly that more effort needs to be made by Baffinland to assess the cumulative effects of all of these components on valued components of importance to Inuit communities. At a minimum, QIA would like to request a yearly summary of the area directly impacted by the mine and mine components, and the extent of the indirect effects, in terms of dustfall and noise, on rendering habitat within the LSA unsuitable for wildlife. QIA requests an evaluation of the risk of habitat loss to caribou due to the Tote road creating a movement barrier to caribou moving from west to east. Overall, further discussion is required on what the scope of the cumulative effects assessment required in 58(d) is; this needs NIRB's direct input as well as dedicated discussions at the TEWG level.	4.6.7; PCC #58 Page 161	This information is presented in the Terrestrial Environment Annual Monitoring Report and in the annual report to NIRB. Baffinland welcomes QIA's suggestions for reporting impacts that are not included in those reports. Baffinland also notes that a memo titled 'Energy Protein Model and Population Model Results to Address GN Questions' have been submitted in relation to the Phase 2 review and addresses a scenario where the northern transportation corridor acts as a complete barrier to caribou movement.
24	Re: PC Condition No. 59: to mitigate aircraft disturbance to wildlife and Inuit harvesting, the proponent describes their requirement for helicopter pilots to complete a flight log to track flight data, reason for flights, and explanations for flights of lower altitudes, when requirement. This approach has faciliated a high level of compliance in that as long as lower elevation flights are justified by the pilots, they are considered compliant. Low level flights will have potential disturbance impacts regardless of whether the flight was justified and should not be considered "compliant." This has been an ongoing concern of the TEWG.	QIA recommends that future reporting by the Proponent includes two types of compliance records: 1. a record of what % of flights did not go below the conditioned level except (excluding take off and landing) during the sensitive time period (overall compliance); and 2. a record of what % of flights did not go below the conditioned level OR had a proper pilot justification (justified compliance). The former number is more relevant to effects assessment on vulnerable receptors, and will be lower than the latter. Both need to be understood.	4.6.7; PCC #59 Page 166	This information has already been provided in the results section of PCC #59, and also in the Helicopter Overflights section of the 2018 Terrestrial Environment Annual Monitoring Report.
25	The Proponent notes that, "Effects to birds were not raised in 2018 consultation activities (Appendix B)". It is QIA's understanding that community members have raised issues related to birds such as Snow Goose foraging, impacts of iron dust, etc. Most recently those issues were raised at the 2019 monitoring workshop in Pond Inlet. QIA is also concerned that roadside waterfowl surveys are not completed every year.	QIA recommends that the Proponent work with the TEWG and communities to identify and address community concerns for birds. QIA recommends that roadside waterfowl surveys are undertaken every year.	4.6.8 Page 176	After 2014, the roadside waterfowl surveys were discontinued based on discussions with the TEWG. The TEMMP is considered a living document, and it will continue to be revised throughout the life of the Project in response to feedback from the Terrestrial Environment Working Group (TEWG), Nunavut Impact Review Board (NIRB) and other relevant parties. There has been no expressed interest in continuing with the roadside waterfowl surveys by the TEWG since 2014.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
26	It is QIA's understanding that there have been limited monitoring and mitigation programs developed and implemented for marine migratory birds. This lack of action is not in compliance with PCC #73 and #74. QIA does not understand, how supporting the East Bay Island Migratory Bird research (2018) is considered mitigation -- it just says regional studies were conducted by ECCC on the influence of climate change and resource development on arctic marine birds, particularly eiders. It is not clear to QIA what studies are presently being completed by ECCC versus the Proponent. QIA requires clarity on whether there is an agreement with ECCC that stand alone songbird and shorebird monitoring was unlikely to yield results -- so Baffinland is just completing 20 plots every five years as a contribution to regional monitroing efforts. Did they contribute to 20 this year? QIA is also concerned that several monitoring programs have been discontined such as shoreline surveys (only two years were ever conducted).	QIA recommends the Proponent work with TEWG, QIA, GN , and Communities to identify and develop mitigations for marine migratory birds. QIA requests that the Proponent share any ECCC monitoring programs and data they are aware of/know to be available on the status of marine birds QIA strongly recommends that the Proponent return to/ start implementing the following: *Annual Shoreline surveys (inclduing the Milne area which has not been completed since 2013) *Annual Staging Waterfowl and Waterbird surveys for monitoring seabird migration and wintering (not completed since 2015 at Milne Inlet) *Collection and analysis of trend data for marine birds in Milne Inlet	4.6.8; PCC # 73; PCC # 74 Page 190-198	In lieu of site-specific monitoring, Baffinland supports regional research projects lead by ECCC - CWS, which examine the potential interactions between marine shipping and seabirds and seaducks (i.e. eiders), however, the data and results of these projects are reported separately by CWS. Baffinland has also committed to supporting the ECCC-CWS PRISM plot program every five years to contribute to regional monitoring of tundra breeding birds. As stated, in 2018, Baffinland supported CWS in conducting 14 PRISM plots in the vicinity of Mary River, as well as an additional 24 plots on North Baffin Island. The shoreline survey work was discontinued after 2013 since nesting birds were at too low a density to warrant further surveys or monitoring, and that most nesting activity of shoreline nesting birds was completed before the ice clears the inlet. The TEMMP is considered a living document, and it will continue to be revised throughout the life of the Project in response to feedback from the Terrestrial Environment Working Group (TEWG), Nunavut Impact Review Board (NIRB) and other relevant parties.
27	Small mammal abundance monitoring was conducted in 2018 but the report states that no small mammals were captured in 2018.	QIA recommends the Proponent reconsider its small mammal monitoring program structure - the lack of capture suggests that the nature of the program and the level of effort are wanting.	4.6.8 Page 194	Baffinland disagrees with this statement. Lack of capture during the small mammal program is more likely due to low small mammal abundance in 2018 and a documented ~3 year lemming cycle, not from lack of trapping effort.
		Marine		
1	Project Certificate Condition No. 1 speaks to monitoring the relative sea levels and storm surges at both port sites, Milne and Steensby, to provide information on the effects climate change might be having at both port locations. The proponent states they have not installed measuring equipment at Steensby because it is not yet developed as a port facility for the Project. That is not relevant to meeting the spirit and intent of the condition ,which is to track change over time at both port facilities. You can't track change over time unless you install measuring devices in advance and keep them in place and measure from them on a regular basis. This condition is at best only in partial compliance. The Steensby Port facility is reasonably foreseeable, and the condition must be met. More concrete and full time commitments are required for cumulative climate change effects assessment, not just when activities start up. This is about effects of climate change, not just project-specific effects. The report also states that trends in the water level cannot be evaluated without an assessment of site-specific land uplift/subsidence rates. The Proponent "is considering conducting a desktop review in 2019 of local relative sea level at the site and regional and site-specific (as available) geodetic elevation data." Given the potential longevity of the Project and predicted effects of climate change on sea level, understanding these trends will be important for adaptive management.	QIA recommends that PPC #1 be considered only partially compliant until the proper equipment is in place at both permitted Port facilities. QIA recommends that the Proponent install tidal gauge equipment and start monitoring as per Condition 1 at Steensby Inlet, effective immediately (for purposes both of baseline and trend over time data collection and promoting Inuit travel safety). QIA also recommends that the Proponent start to gather all data needed to support trend analyses, and encourages the Proponent to work in collaboration with government and or academic experts in doing this.	4.6.1; PCC #1 Page 33 and 34	There are no current programs that are specifically focused on collecting baseline data near Steensby or for the southern portion of the Project, although some opportunistic baseline data is collected when possible (i.e. seabird data collection through collaborative monitoring programs with ECCC). Baffinland is aware of the need to collect additional baseline monitoring in advance of developing the Southern component of the proposed Project, including monitoring of tide levels and storm surge events.
2	Project Certificate Condition 5 encourages the Proponent "to ensure that weather-related information for the various Project sites is readily accessible to the public on a continual basis throughout the life of the Project." The report states that this information is being provided on the Baffinland website (www.baffinland.com) and on www.weathernetwork.com for the Mary River Project Site, but does not mention Milne Port. Weather information from both the mine site and Milne Port was available on the weathernetwork site but could not be located on the Baffinland site.	QIA recommends that a fuller description of what information is available and where be provided in the Results section of this Project Certificate Condition.	4.6.1; PCC #5 Page 40	Weather-related information is available on the Baffinland website at www.baffinland.com. Information for both Mary River and Milne Port is made available, however the user must click the drop-down option where Mary River is displayed to view the Milne Port weather information.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
3	Project Certificate Condition 13, encourages the Proponent to work with Fisheries and Oceans Canada (DFO) at the regulatory phase and to take a precautionary approach when selecting the overpressure threshold to be applied to explosives use for the protection of fish and aquatic life (see also PCCs 14a, 44, 48, 116, 117, 118). The Proponent has been following the DFO blasting guideline of 100 kPa overpressure when working in or near water (Wright and Hopky 1998). Reviews by Cott et al. (2003) and Godard et al. (2008) have found significant evidence that the 100 kPa threshold does not provide sufficient protection for various life stages of fish. They have recommended that instantaneous pressure changes not exceed 50 kPa. The higher threshold was not a problem in 2016 - 2018 due to lack of active construction but this may change in the future.	QIA recommends that DFO revisit the 1998 guidelines and update them based on new research to ensure they are suitably precautionary for aquatic biota, and in place prior to any future blasting for the Mary River Project in or near water. QIA further recommends the Proponent voluntarily adopt the 50 kPa overpressure threshold for any aquatic or near water blasting works, and that NIRB consider the evidence for this lower threshold when conditioning any proposed Project amendments.	4.6.3; PCC # 13 Page 57 (see also 61, 126, 136, 298, 299, 300)	Baffinland acknowledges the importance of appropriate and safe vibration limits to minimize impacts to aquatic biota and the surrounding environment. Baffinland will continue to implement the best management practices set forth by the DFO Guidelines for Use of Explosives In or Near Canadian Fisheries Waters. If the IPC threshold set forth by the DFO Guidelines change in the future, all necessary precautions shall be taken to safely handle the explosives and to minimize impacts to aquatic biota on site.
4	The Proponent shall develop and implement effective measures to ensure that effluent from project-related facilities and/or activities, including sewage treatment plants, ore stockpiles, and mine pit, satisfies all discharge criteria requirement established by the relevant regulatory agencies prior to being discharged into the receiving environment. QIA disagrees with the Proponent's assessment of partial compliance as discharge criteria have been exceeded. Baffinland has exceeded water quality criteria at locations MS-01, MS-08, and MS-MRY-6.The exceedance at MS- 08 is of concern as the Wastewater Treatment Pond at the Waste Rock Facility (WRF) was operating close to and exceeded the discharge criteria. The exceedance at MS-MRY-6 is of concern for two reasons: 1) the severity of the exceedance may be misrepresented as the report does not include the quantity of non-compliant effluent discharged, stating discharge ceased once results were received from the lab, 2) there were no duplicates used to verify a possible lab error. Baffinland stated the exceedance was due to the metals' removal media needing replacement but did not provide the assessment that brought them to this conclusion.	QIA recommends compliance with PC Condition 17 be considered non-compliant. It is recommended that a procedure for adaptive management be provided by Baffinland for the operation of water treatment plants, including thresholds based on monitoring data that if exceeded would trigger mitigative actions to ensure effluent is below required discharge criteria. Adaptive management should have monitored thresholds, that if exceeded have specific triggers to result in predetermined actions.	4.6.3; PCC #17 Page 69	Baffinland will continue to monitor required parameters at frequencies that are compliant with MDMER and the terms and conditions of the Type A Water Licence. Circumstances around the exceedances documented in 2018 are fully discussed in the 2018 QIA & NWB Annual Report for Operations, submitted to the QIA, NWB and INAC on March 31, 2019. Baffinland is in the process of developing a Adaptive Management Plan, which will be a standalone document. The document will focus on implementing management actions based on the current understanding. It will provide a framework in which management actions are adapted based on what is learned. Its implementation will be consistent, but will not necessarily include specific thresholds to all management plans. These monitored thresholds will need to be housed in the specific management plans and procedures.
5	The Proponent shall ensure that it develops and implements adequate monitoring and maintenance procedures to ensure that the culverts and other conduits that may be prone to blockage do not significantly hinder or alter the natural flow of water from areas associated with the proposed mine. In addition, the Proponent shall monitor, document and report the withdrawal rates for water removed and utilized for all domestic and industrial purposes. QIA disagrees with the Proponent's assessment of compliance. Baffinland indicates they exceeded water withdrawal limits at numerous locations including domestic potable water from Camp Lake as well as several dust suppression sources along the Tote Road. Baffinland indicates these exceedances may be due to documentation errors and will continue to work to improve yet has not provided verifiable actions. Though the PC Condition only requires the Proponent to monitor, document and report, exceeding regulatory requirements should not be supported with a in compliance.	QIA recommends compliance with PC Condition 19 be considered partially compliant. QIA requests the Department of Fisheries and Ocean report from Baffinland 2018d. Not having verifiable actions does not lead to targeted improvement. It is recommended that adaptive management measures be requested to ensure Baffinland is taking the necessary precautions to prevent over withdrawal in the future. Adaptive management should include an easy to follow that logs withdrawal rates versus regulatory allowance where the minimum threshold should be the regulatory allowance that triggers stopping withdrawal from the regulated source. Adaptive management should have monitored thresholds, that if exceeded have specific triggers to result in predetermined actions.	4.6.3; PCC #19 Page 73	During 2018, water was withdrawn from approved sources and used at Milne Port, the Mine Site and along the Tote Road for Project activities under the authorization of the Type 'A' Licence. Under Table 3 of the Type 'A' Water Licence, source specific water withdrawal limits are specified for both domestic and industrial purposes for each approved water source. Although the total daily water withdrawal limit for Camp Lake (367.5 m3/day) was not exceeded in 2018, there were four incidents where the daily water volume withdrawn for domestic purposes exceeded Camp Lake's domestic daily water withdrawal limit (300 m3/day). These four incidents, detailed in Table 4.1 of the 2018 QIA-NWB Annual Report, are believed to be a result of the mis-categorization of water volumes withdrawn for industrial purposes. No other water withdrawal incidents or exceedances for domestic and industrial water uses were noted in 2018. Baffinland is committed to adaptive management, and understand that there are improvements to be made. Baffinland is committed to working with QIA to prevent similar incidents from re-occurring, and plans to improve the documentation and categorization of water volumes withdrawn to support Project activities. As requested, Baffinland will be providing the Department of Fisheries and Ocean report from 2018d to QIA.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
6	Under Project Certificate Condition 21, measures for dustfall monitoring were to be designed to facilitate comparison with existing guidelines and potentially with thresholds to be established using studies of Arctic char egg survival and/or other studies recommended by the Terrestrial Environmental Working Group (TEWG). Sedimentation rates at Sheardown Lake NW have been elevated relative to the mine baseline period since the winter of 2015 (Baffinland 2019a, s. 3.1.2, p. 10). Adverse effects on fish egg survival have been documented for a sediment accumulation thickness exceeding about 1 mm during the egg incubation period (Fudge and Bodaly 1984; Greig et al. 2006). This 1 mm figure is being used as the effects threshold for sediment on char eggs but it is not based on char eggs or on local sediment. In 2017-2018, the Proponent collected sediment from Sheardown Lake for dry bulk density testing and estimated that sediment accumulation thickness during char egg incubation/larval pre-emergence period at Sheardown Lake NW was well below the threshold effect level of 1 mm of sediment deposition (Baffinland 2019a). However, dry bulk density may not be as pertinent to egg survival as the sediment grain size, since sandy soils usually have higher bulk densities (1.3–1.7 g/cm3) than fine silts and clays (1.1 – 1.6 g/cm3), which have smaller but more numerous pore spaces (http://soilquality.org.au/factsheets/bulk-density-measurement) and are more likely to block pores in the eggs causing smothering. Fine sediment (silt) can cause egg mortality at thicknesses of <1 mm, and at 1 mm can effectively smother salmonid eggs causing high mortality (Lapointe et al. 2004; Louhi et al. 2008). For Atlantic Salmon (Salmo salar) variations of only a few percent of silt content can strongly degrade survival to emergence. Higher silt loadings (>0.5%) are detrimental to survival for all substrate mixtures, except those that are very sparse in sands (<5%) (Lapointe et al. 2004). In simulated in situ Coho Salmon (Oncorhynchus kisutch) redds, only10% fine sediment (<0.5mm) in the lower pocket of the redd (i.e., deeper in the gravel) was required to decrease survival from 100 to 5% (Meyer 2003). The sensitivity of Arctic char eggs to further increases in dustfall, and thereby sedimentation, remains uncertain. Better information is needed on the effects of local sediment deposition on survival of Arctic char eggs and larvae.	QIA recommends that the Proponent conduct laboratory or in situ studies to establish a meaningful sedimentation threshold based on mortality rates of Arctic char eggs exposed to project-generated dust sediment.	s. 4.6.5 (PCC 21) Page 79 - 80	Baffinland acknowledges the QIA's concerns with regards to Project-generated dust sediment. Note that although the sedimentation rates at Sheardown Lake NW under ice were elevated relative to the mine baseline period since the winter of 2015, those over the 2018 open-water period were within the range of the mine baseline and operational phases. Furthermore, sedimentation rates have not shown a consistent increase from 2014-2015 to 2017-2018, and therefore overall still remain within the range observed among typical Canadian arctic lakes that have not been influenced by anthropogenic activities. There is thus no strong argument for currently pursuing laboratory or in situ studies in absence of directional increases in sedimentation rates exceeding naturally-observed conditions. Furthermore, the implementation of the Aquatic Effects Monitoring Plan (AEMP), which comprises various components, collectively aims to monitor potential effects stemming from dust generation using a variety of methods, and therefore allows to track potential changes in water quality over time (including total suspended solids), through both the Core Receiving Environment Monitoring Program (CREMP) and the Lake Sedimentation Monitoring Program. Baffinland reconfirms its demonstrated openness in expanding and /or modifying its programs when deemed necessary to further evaluate project-related effects. For example, the 2018 program was updated in Sheardown Lake NW to better evaluate the density of sediment collected as part of the Lake Sedimentation Monitoring Program. Monitoring will continue through the implementation of the AEMP, the results of which are presented annually to intervenors for comment. Inherent to this process, Baffinland will continue to evaluate and improve the effectiveness of the AEMP. As indicated in the 2018 Annual Report to the NIRB, Baffinland plans to submit a revised Revision 2 of the AEMP to the Nunavut Water Board in 2019 for review and final approval. In parallel, Baffinland is actively working in reducing the dust generated from its activities, thereby also focusing part of its efforts at the source. This includes the application of dust suppressants along the tote road and the associated testing of new products for dust reduction, as discussed during the recent Terrestrial Working Group Meeting held on June 20, 2019 in Iqaluit. In addition, Baffinland is actively considering and/or implementing new methods for reducing dust generation through reengineering of equipment designs to minimize dust generation during ore transfers. Baffinland will continue to work with the QIA to address concerns associated with dustfall and associated potential impacts on aquatic environments.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
7	The Proponent shall ensure that the scope of the Aquatic Effects Monitoring Plan (AEMP) includes, at a minimum: a) Monitoring of non-point sources of discharge, selection of appropriate reference sites, measures to ensure the collection of adequate baseline data and the mechanisms proposed to monitor and treat runoff, and sample sediments b) Measures for dustfall monitoring designed as follows: i. To establish a pre-trucking baseline and collect data during Project operation for comparison ii. To facilitate comparison with existing guidelines and potentially with thresholds to be established using studies of Arctic char egg survival and/or other studies recommended by the Terrestrial Environment Working Group (TEWG) iii. To assess the seasonal deposition (rates, quantities) and chemical composition of dust entering aquatic systems along representative distance transects at right angles to the Tote Road and radiating outward from Milne Port and the Mine Site. Further assessment required. Requires the assessment of the Lake Sedimentation Monitoring Program and Dustfall Monitoring Program to confirm compliance. Baffinland omits pertinent information indicating these are provided in alternative reports.	QIA will review the updated plan as part of the ongoing regulatory processes for the Mary River Project.	4.6.4; PCC #21 Page 79	The AEMP focuses on the key potential impacts to freshwater environment valued ecosystems components, as identified in the Final Environmental Impact Statement and Addendum for the Early Revenue Phase. The freshwater VECs include water quantity, sediment quality, and freshwater biota and fish habitat. The AEMP has been structured to serve as an overarching 'umbrella' that conceptually provides an opportunity to integrate results of individually monitored but related aquatic monitoring programs. The 2018 study reports are provided in Appendix E.9 of the 2018 QIA-NWB Annual Report and include: -Core Receiving Environment Monitoring Program (CREMP), provides a basis for the evaluation of any mine-related influences on water quality, sediment quality and/or biota (including phytoplankton, benthic invertebrates and/or fish) within aquatic environments located near the Mine Site. The 2018 study report is provided as Appendix E.9.1. -Lake Sedimentation Monitoring Program evaluates baseline and Project-influenced lake sedimentation rates at Sheardown Lake NW. The 2018 study report is provided as Appendix E.9.2. -Hydrometric Monitoring Program assesses flow in several streams and rivers near Project sites and supports the AEMP. The 2018 study report is provided in Appendix E.9.3. - Dustfall Monitoring Program evaluates dustfall rates in proximity to the Tote Road, Milne Port and Mine Site. The 2018 study forms part of the 2018 Terrestrial Environment Annual Monitoring Report, available on Baffinland's Document Portal. - Environmental Effects Monitoring (EEM) Program, as required under the MDMER. The first biological EEM study for the Project, Phase 1, was conducted in August 2017 and submitted to ECCC during January 2018. The next biological EEM study for the Project, Phase 2, is scheduled for August 2020. Baffinland has incoporated several recommendations provided by Minnow Environmental Inc. (2016) and comments from the Freshwater Workshop held in 2017, and as part of the Phase 2 submission of the AEMP in 2019. In addition, Baffinland continues to work to address QIA's concerns regarding the management and monitoring of the Tote Road.
8	In 2018, also related to Project Certificate Condition 21 (see also PCC 10), monitoring at MIlne Port and along the Tote Road showed that dustfall continued to exceed FEIS predictions at select locations, despite application of calcium chloride dust suppressant (Table 4.6, p. 43; see also EDI 2019, p. 9-32). While exceedances decreased in 2018 as compared to 2017, in spite of increased traffic, due in part due to wetter weather, the amount of dust entering aquatic receiving environments directly, as dustfall, and in runoff from surrounding areas is unknown. No information was found on how the increased dustfall and applications of calcium carbonate dust suppressant may be affecting aquatic sedimentation rates and aquatic biota along the Tote Road and in Phillips Creek, which drains into Milne Inlet. Data are needed to properly assess the potential impacts of this dustfall and for comparison with sedimentation thresholds. Adaptive management measures for monitoring effects of increased dustfall, as required under PCC 10, have not been identified for affected aquatic environments.	QIA recommends that pursuant to NIRB 2018 Monitoring Recommendation 2, the Proponent "implement long-term monitoring programs for dustfall and specifically assess potential sediment deposition, impacts on water quality, impacts to biota at fish-bearing streams and lakes along the tote road (including at Phillips Creek), and in the marine environment downstream of the creek outlet".	4.6.5; PCC #21, (also 10) Page 79 - 89	Baffinland continues to work with the QIA to address concerns associated with dustfall and associated potential impacts on aquatic environments. As indicated in response to QIA #6, Baffinland is actively working in reducing the dust generated from its activities, thereby also focusing part of its efforts at the source. Baffinland will continue to work with QIA in the ongoing development and evaluation of the Tote Road Monitoring Program. Baffinland will also continue implementing the freshwater AEMP, the results of which are presented annually to intervenors for comment, and Baffinland will continue to evaluate and improve the effectiveness of the AEMP. As indicated in the 2018 Annual Report to the NIRB, Baffinland plans to submit a revised Revision 2 of the AEMP to the Nunavut Water Board in 2019 for review and final approval. Baffinland will also continue with the monitoring of the environment through the implementation of the Marine Environmental Effects Monitoring Program (MEEMP), which has also been designed to monitor potential project-related effects stemming from dust, for example.
9	The Proponent shall develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater within the Project area. Baffinland's report states they do not have enough information to determine their impacts.	QIA requests the Proponent provide its reasoning why a farfield southwest location to understand transport extent downgradient from the landfill has not been included based on preliminary results from 2017 and 2018. QIA recommends additional groundwater sampling wells be used further downgradient to enhance understanding of groundwater transport of analytes.	4.6.4; PCC #23 Page 82	Baffinland continues to evaluate the ground water monitoring network at the Mary River Landfill. The initial project focus was to develop a consistent methodology that could be repeated annually, with repeatable results. Long term monitoring will look to evaluate trends in ground water concentrations and determine ground water flow rates, directions and dispersion characteristics in an atypical hydrogeologic environment with discontinuous aquifers consisting of sheet flow across permafrost.

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
10	The Proponent shall monitor as required the relevant parameters of the effluent generated from Project activities and facilities and shall carry out treatment if necessary, to ensure that discharge conditions are met at all times. QIA disagrees with the Proponent's assessment of partial compliance as discharge criteria have been exceeded. Baffinland has exceeded water quality criteria at locations MS-01, MS-08, and MS-MRY-6. The exceedance at MS- 08 is of concern as the Wastewater Treatment Pond at the Waste Rock Facility (WRF) was operating close to and exceeded the discharge criteria. The exceedance at MS-MRY-6 is of concern for two reasons: 1) the severity of the exceedance may be misrepresented as the report does not include the quantity of non-compliant effluent discharged, stating discharge ceased once results were received from the lab, 2) there were no duplicates used to verify a possible lab error. Baffinland has stated that the exceedance was due to the metal's removal media needing replacement but did not provide the assessment that brought them to this conclusion. Consistent with Baffinland's approach to the historical exceedance at the WRF, Baffinland has not identified the issue yet is proceeding as if the concern is low.	QIA recommends compliance with PC Condition 24 be considered non-compliant as discharge conditions have been exceeded. It is recommended that a procedure for adaptive management be provided by Baffinland for the operation of water treatment plants, including thresholds based on monitoring data that if exceeded would trigger mitigative actions to ensure effluent is below required discharge criteria. Adaptive management should have monitored thresholds, that if exceeded have specific triggers to result in predetermined actions.	4.6.4; PCC #24 Page 84	Baffinland will continue to monitor required parameters at frequencies that are compliant with MDMER and the terms and conditions of the Type A Water Licence. Circumstances around the exceedances documented at the Waste Rock Facility in 2018 are fully discussed in the 2018 QIA & NWB Annual Report for Operations, submitted to the QIA, NWB and INAC on March 31, 2019. Baffinland is in the process of developing a Adaptive Management Plan, which will be a standalone document. The document will focuses on implementing management actions based on the current understanding. It will provide a framework in which management actions are adapted based on what is learned. Its implementation will be consistent, but will not necessarily include specific thresholds to all management plans. These monitored thresholds will need to be housed in the specific management plans and procedures.
11	The Proponent shall undertake additional geotechnical investigations to identify sensitive landforms, modify engineering design for Project infrastructure, develop and implement preventative and/or mitigation and monitoring measures to minimize the impacts of the Project's activities and infrastructure on sensitive landforms. QIA disagrees with the Proponent's assessment of in compliance as the Tote Road has not been built to design. The Proponent has indicated structures were inspected for conformance with the design basis. In the case of the Tote Road, this may only be true for water crossings included in the Tote Road Earthworks Execution Plan (TREEP). To ARKTIS' knowledge, no other as-builts are available nor has the Tote Road been built to the approved design.	QIA recommends compliance with PC Condition 25 be considered non-compliant until Baffinland build the Tote Road as designed or provide a satisfactory assessment showing that operating the road in its current state is demonstrably not creating adverse impacts greater than the designed built road would be likely to create.	4.6.4; PCC #25 Page 87	Roads and water crossings are inspected regularly for signs of degradation and maintenance requirements. Periodic visual inspections are conducted on the Project road network by trained personnel and occur at regular intervals following heavy precipitation events and construction activities. The Project road network will be continually inspected over the life of the Project. Road safety, stability and erosion are several of the main factors that will be investigated during the routine inspections. Post construction monitoring for changes to Project roads, is also conducted by both the Road Maintenance department and the Professional Geotechnical Engineer, to confirm conformity of the road change to the applicable design criteria laid out in the Project's current Civil Design Criteria document (Hatch, 2013) and any supporting engineering drawings (e.g. IFCs). Recommendations made by the Professional Geotechnical Engineer are documented in the biannual geotechnical reports submitted to the NWB, 60 days following each geotechnical inspection (Part D, Item 18; Part I, Item 13). Recommendations made by the Professional Geotechnical Engineer are also used by Baffinland to determine and prioritize any necessary corrective actions and future upgrades to the Project roadnetwork. To fulfil this requirement, geotechnical inspections of Project sites were conducted in July and October 2018. Reports for the geotechnical inspections were submitted to the NWB within 60 days of each inspection. Copies of the 2018 geotechnical inspection reports are provided in Appendix C.2 of the QIA & NWB Annual Report for Operations.
12	The Proponent shall develop and implement a comprehensive erosion management plan to prevent or minimize the effects of destabilization and erosion that may occur due to the Project's construction and operation. QIA disagrees with the Proponent's assessment of in compliance for PC Condition 26. At the time of submission, the updated erosion management plan considered to be the Surface Water and Aquatic Ecosystem Management Plan does not include adaptive management that would be required to be "comprehensive", as required by the PC condition.	QIA recommends compliance with PC Condition 26 be considered partially compliant due to the lack of adaptive management. Mitigative actions are well detailed however, it is recommended that monitored thresholds and related triggers to implement mitigative measures are detailed. For example, if cracking in the Tote Road is observed, there should be a trigger to implement a corrective action.	4.6.4; PCC #26 Page 89	Baffinland is in the process of developing an Adaptive Management Plan, which will be a standalone document. The document will focus on implementing management actions based on the current understanding. It will provide a framework in which management actions are adapted based on what is learned. Its implementation will be consistent, but will not necessarily include specific thresholds to all management plans. These monitored thresholds will need to be housed in the specific management plans and procedures. In regard to the example 'if cracking in the Tote Road is observed, there should be a trigger to implement a corrective action' - this type of observation would be identified through routine inspections for signs of degradation and maintenance requirements along the Tote Road. Periodic visual inspections by trained personnel occur at regular intervals following heavy precipitation events and construction activities.
13	Once project facilities are constructed, the Proponent shall provide copies of the as-built drawings and design to the appropriate regulatory authorities. QIA disagrees with the Proponent's assessment of in compliance, as as-builts have been inconsistently provided by Baffinland. Currently, the as-builts associated with the Crusher Pad expansion are outstanding.	QIA recommends compliance with the PC Condition 29 be considered non-compliant. QIA has continued to express concerns with the lack of as-builts that were completed for the Project during construction and continues to work with Baffinland on this topic. Baffinland to provide the as-built drawing and design for the Crusher Pad expansion including sedimentation pond and surrounding ditching.	4.6.4; PCC #29 Page 94	Baffinland continues to submit as-built reports in accordance with the Type A Water Licence 2AM-MRY1325. As-Builts for the Crusher Pad expansion and ditching were submitted with the QIA/NWB Annual Report for operations in Appendix C.1.1. As-Built documentaiton for the Crusher Pond expansion completed in 2018 is pending final survey by the engineering consultant, to be completed in summer 2019.

Baffinland

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
14	Under Project Certificate Condition 42 , a minimum 30-metre naturally-vegetated buffer is to be maintained between the mining operation and adjacent water bodies to mitigate impacts of runoff into freshwater aquatic habitat. During internal inspections in 2018 the Proponent found instances where the 30 m buffer was not maintained and responsible departments were actioned to address these issues.	QIA recommends compliance with PC Condition 42 be deemed partially compliant for 2018. QIA also recommends that the Proponent continue efforts to educate planners and workers regarding their need to respect the 30 m buffer, continue to enforce the 30 m buffer zone, and provide an annual summary that follows year to year trends in the number of instances the 30 m buffer was not respected and the severity and type of infringement.	4.6.7; PCC #42 Page 123-124	Baffinland acknowledges the QIA's concerns with regards to maintaining a 30-metre buffer between the mining operation and adjacent waterbodies, except where authorized under the Type A Water Licence and by other relevant regulators (e.g., Fisheries and Oceans Canada). Note that because of the internal inspection process implemented at the Mary River site, site personnel were able to identify and subsequently notify those responsible for implementing corrective actions for the temporary infringement. This demonstrates Baffinland's commitment to maintaining appropriate setbacks adjacent to water bodies. Baffinland personnel will continue to monitor all new Project developments to ensure the 30-m buffer condition is adhered to, and will continue to report on the success of the implementation as part of annual reporting requirements to the NIRB.
15	The objective of Project Certificate Condition 45 (see also 47) is to mitigate impacts to freshwater aquatic habitats. The Proponent is required to adhere to the No-Net-Loss principle. To meet this requirement it has upgraded Tote Road crossings, and is required to conduct annual monitoring to ensure fish passage at the Tote Road crossing is not impeded (see also Appendix E, NIRB Recommendation 10). Issues with fish passage and/or habitat were observed at 11 fish bearing water crossings during fish use assessments in late June-early July 2018. These issues were caused by physical obstructions such as cobble piles (crossings CV-111 and BG-29), perching of culverts that limited upstream access (CV-255, CV-129, CV-114, CV-106, CV-104, BG-50, BG-24), and/or high exit flow velocities that appeared to limit upstream access (CV-129, CV-111, CV-99, BG-24, CV-255, and BG-01) (Baffinland 2018c). Soon after the assessment the physical obstructions were addressed (CV-111 and BG-29) and rocky ramps were installed at the downstream end of CV-114 and CV-106 culverts and the upstream of end of CV-104. Five other crossings were actively worked on in 2018 and work is planned to continue in 2019. In the 2017 BIMC Annual Report to NIRB (Table 4.16, p. 114) only 5 culverts were identified as perched, "with a degree of perching worse than previous years", and this exceeded impact predictions, whereas 7 perched in 2018 was described as “within FEIS impact predictions”. QIA recognizes that the Proponent is working to remove barriers to fish passage but is concerned by the number of culverts each year that are perched, obstructed, or damaged.	QIA recommends that the Proponent continue to correct fish passage problems and take an increasingly proactive approach to preventing culvert damage, blockages, and undercutting that obstruct fish passage.	4.6.7; PCC #45 and #47) Page 127-129 (see also 134, 135)	As reported in Baffinland (2018), Baffinland plans to continue the implementation of surface water improvements as outlined in the Tote Road Earthworks Execution Plan (TREEP; Golder 2017) throughout 2019 to address outstanding fish passage concerns identified at water crossings during the 2019 assessments. Some of the concerns were addressed in 2018, and the tote road monitoring program, similar to previous years, will continue in 2019. A scope of work will be developed from the 2019 monitoring program to address new fish passage issues that are determined in 2020. Baffinland Iron Mines Corporation (Baffinland). 2018. Mary River Project Early Revenue Phase - Tote Road Upgrades, Fish Habitat Monitoring 2018 Annual Report. Prepared by Baffinland for Fisheries and Oceans Canada. December 31, 2019. Golder Associates Limited (Golder). 2017. Tote Road Earthworks Execution Plan and Design Report. Report No. 1667708, Rev. 0. Issued April 2017 by Golder Associates Limited.
16	Under Project Certificate Condition 46 (see also Hydrology and Geology PCC 17 and Ground and Surface Water PCC 24), the Proponent is required to ensure that runoff from its facilities meets discharge requirements. In 2018, despite testing prior to release , exceedances of applicable discharge criteria occurred during a release of treated sewage, a release of treated effluent from the Wastewater Treatment Plant (WWTP), and a release of treated effluent from the Oily Water Treatment System (OWTS). Testing prior to release is intended to prevent the release of water effluent that exceeds discharge guidelines but it did not.	QIA recommends that PCC 46 be deemed partially compliant for 2018. QIA also recommends that the Proponent adjust its testing and release protocols to prevent similar exceedances in 2019.	4.6.7; PCC #46, also see 17, 24 Page 130-133 (see also 69-71, and 84-86)	Baffinland will continue to monitor required parameters at frequencies that are compliant with MDMER and the terms and conditions of the Type A Water Licence. Circumstances around exceedances in 2018 are fully discussed in the 2018 QIA & NWB Annual Report for Operations, submitted to the QIA, NWB and INAC on March 31, 2019.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
17	The Core Receiving Environment Monitoring Program (CREMP) involves water and sediment quality monitoring (PCC No. 20 and 21, s. 4.6.4) and aquatic biota monitoring (including phytoplankton, benthic invertebrates, and fish) in Mine Sites lakes and streams, particularly Arctic char (PCC 48a, 4.6.4). The results of the 2018 CREMP indicated some mine-related influences on water and sediment quality of a few of the mine primary receiver systems, but no ecologically significant, adverse, mine-related effects to biota were identified in any of the Mine Site waterbodies based on comparisons to applicable reference conditions or baseline data. This includes: Camp Lake and mine-exposed tributaries, Sheardown Lake and tributaries 1, 9 and 12; and Mary River and Mary Lake (Minnow Environmental Inc. 2019). Minnow Environmental Inc. (2019, p. 183) has recommended the Proponent consider updating the AEMP sediment quality benchmarks to reflect not only baseline data, but also reference lake data; and harmonize the lake sediment quality and benthic invertebrate monitoring stations, focusing only on littoral habitat, to improve the ability of the program to evaluate mine related effects to biota and potentially allow linkages to be assessed between sediment metal concentrations and benthic endpoints.	QIA recommends that the Proponent clarify how these changes recommended by Minnow Environmental Inc. (2019, p. 183) might affect the assessment benchmarks and interpretation of impacts.	4.6.6; PCC 20, 21, also see 48a Page 137-138 (see also 77-80)	The update of the sediment quality benchmarks is part of a holistic update to the Core Receiving Environment Monitoring Program (CREMP) to reflect not only baseline data, but also reference lake data; and harmonize the lake sediment quality and benthic invertebrate monitoring stations, focusing only on littoral habitat, to improve the ability of the program to evaluate mine related effects to biota and potentially allow linkages to be assessed between sediment metal concentrations and benthic endpoints. The update will allow Baffinland to effectively evaluate receiving environments, understanding and using lessons learned and data from the current operational program. New thresholds would be justified and discussed with regulators as revisions 2 of the CREMP is reviewed.
18	For Project Certificate Condition No. 48a, the need to conduct additional surveys for the presence of Arctic char in freshwater bodies and ongoing monitoring of Arctic char health in watersheds near the mine, Tote Road, and Milne Inlet Port has been identified. Marine work at the Port and freshwater work in the vicinity of the mine were described but extent of freshwater work along the Tote Road in 2018 is unclear. Data have not been found on the level of sampling effort at each stream crossing, the catch per unit of sampling effort, catch composition (species, number, size), or fish health. These parameters may be important for monitoring the effects of crossings and potential future development on presence, movements, and health.	QIA recommends that the Proponent provide results of its past and ongoing observations and electrofishing at streams along the Tote Road, including data on parameters that may act as early warning indicators of changes in fish use and/or health such as sampling effort, numbers (seen or caught), catch per unit effort, catch composition, and fish condition.	4.6.7; PCC #48a Page 137-138	Baffinland will continue to work with QIA in the ongoing development and evaluation of the Tote Road Monitoring Program. As part of the 2019 Tote Road Monitoring Program reporting efforts, Baffinland will consider the inclusion of data on parameters that may act as early warning indicators of changes in fish use, however the current study metrics obtain study objectives effetively.
19	The objective of Project Certificate Condition 76 is to mitigate potential impacts to the marine environment (see also PCC 113). To meet this condition the Proponent has developed a marine environmental effects monitoring program (MEEMP) to evaluate changes to marine habitat and organisms. In 2018 changes to the methods used for monitoring included, for example: 1) use of benthic infaunal sampling in lieu of macroflora and epifauna video surveys as biological effect indicators for the MEEMP; 2) use of shellfish weight at length relationships as indicators of fish conditions for environmental effects monitoring (EEM), and shellfish tissue sampling and body burden analysis for EEM; 3) use of a permanent or semi-permanent plot system on the ocean bottom to monitor epiflora and epifauna using drop-down video; 4) extending the duration of the fish sampling program during the shipping season; 5) reducing the sampling intensity for hydrocarbons in sediment; and 6) the addition of two new sampling stations related to the proposed Phase 2 ore dock. These changes are generally positive and reflect monitoring advice. In its review of the 2018 MEEMP draft report, QIA offered advice on these programs, including in particular: 1) age determination ofHiatella arctica to improve the interpretation of shellfish condition, growth rates, and contaminant uptake; 2) reconsideration of the use of Fukui traps, which accounted for most of the fish sampling effort but caught few fish. Bergshoeff et a l. (2018, 2019) offer advice on how the improve catch efficiency of these traps. If no explanation can be found in the sampling methodology (e.g., differences in location, depth, bait, check frequency, etc.), alternative static sampling methods should be considered and tested against the Fukui traps; and 3) the addition of a short sampling station transect running offshore from the proposed ore dock and freight dock. QIA is encouraged that the Proponent is sending biological samples to experts for confirmation or identifications, but remains concerned by the number of taxa collected in 2018 that were not identified to species. The reduction in the sediment sampling is a concern given the CCME guideline exceedances of two polycyclic aromatic hydrocarbons (PAH) (acenaphthylene and dibenz(a,h)anthracene).	QIA recommends that the Proponent and MEWG: 1) consider Hiatella arctica age determination; 2) reconsider the use of Fukui traps; 3) further increase fishing effort; 4) add a short sampling station transect extending offshore form the proposed Phase 2 ore dock; 5) further improve its species identifications, possibly through the use of DNA barcoding; and 6) attempt to identify the source of the PAH exceedances.	4.6.10; PCC #76 Page 202-207 (see also 290-295)	1) Baffinland will be undertaking age determination of Hiatella arctica collected for weight-to-length and body burden analysis as part of the 2019 MEEMP Program. 2) Bottom trawls will be added to the fish sampling program in 2019, which targets the same fish species as would be collected in Fukui traps (demersal fish and mobile benthic invertebrates). Effort to improve effectiveness of fish collection using Fukui trap methods will also be made by varying sampling methodology (e.g., location, depth, bait, checking frequency, etc.). Should this method (Fukui traps) be determined to still be ineffective, other gear / methods (e.g. hoop nets) will be considered as part of future monitoring efforts. 3) Sampling effort in 2019 will increase compared to 2018 based on the additional proposed fish sampling (as per response to #2). 4) In 2019, an additional monitoring transect has been added extending north offshore from the new Phase 2 ore dock. It will run roughly parallel to the existing North Transect. 5) Reasons that certain specimens were not identified to species included: • The specimen was immature, and had not developed adult features required for species identification • The specimen was damaged during collection and did not have identifying features required for species identification • There was a paucity of literature for that taxa for the geographic region, thus information was lacking to identify a certain taxon to species with 100% confidence. All benthic invertebrate taxa were identified to the lowest level practical. Most of the taxa to genus level or higher in 2018 contained at least one species with a known occurrence in the Arctic or a taxon with a global distribution. It should be noted that species that are truly invasive worldwide tend to be well-known. If a well-established invasive species were present in the samples, and was mature enough and in good condition, it would be identified to species.

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				6) Concentrations of acenaphthylene (0.006 mg/kg) and dibenz(a,h)anthracene (0.0069 mg/kg) exceeded CCME and BC ISQGs (0.00587 and 0.00622 mg/kg respectively) at one station (SN-3-1) on the North transect in 2018. No similar exceedances were observed in 2017 at this station or at any sediment sampling station (i.e., PAHs in all sediment samples collected in 2017 were below detection limits and below CCME ISQG and PEL sediment quality guidelines). Although the effect threshold was exceeded at the one station in 2018, undertaking a follow-up study to investigate the source of the PAH exceedance is only triggered if the effect threshold is exceeded over two consecutive sampling seasons in which a similar effect is observed.
20	Project Certificate Condition No. 78 requires annual updating of pack ice and landfast ice data. There are no limitations in this Condition with respect to shipping seasons, routes, etc. As such, these data should be updated on an annual basis, as required by the PCC. Periodic updates (2011, 2015) are not annual updates, and new data on sea ice data are available on a weekly to bi-weekly basis (e.g., Canadian Ice Service charts) . This information is of particular value now with the Proponent's use of ice-management vessels during the shoulder seasons, and the ice conditions in 2018.	QIA considers the Proponent to be Non-Compliant with respect to PCC 78, since pack ice and landfast ice were last updated in 2015. QIA recommends that the Proponent update the sea ice data set as required for this Project Certificate Condition.	4.6.10; PCC #78 Page 210	Pack-ice and land-fast ice conditions in the RSA were characterized in Baffinland's Overview of Marine Operations, as well as in Golder's Assessment of Icebreaking Operations during Shipping Shoulder Seasons (see Appendix A for detailed daily ice charts for the 2018 shipping season; also see Table 1.2 icebreaking assessment). Moving forward, Baffinland will provide a similar table in future Annual Reports to NIRB. Baffinland also provides information related to ice conditions in the Ship-Board Observer Marine Monitoring Program Reports (see Golder 2019d).
21	The objective of Project Certificate Condition 86 is to update ballast water discharge impact predictions. As part of this condition NIRB recommended that additional sampling be undertaken to validate the model and to inform sampling sites and the monitoring plan. This model should be updated to take into account the new oceanographic data; operational discharge volumes, frequencies, and locations of ballast water discharges; and changes in the properties of ballast water that will occur from the present to 2024 in response to requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), which came into force in September 2017. Lack of through the season salinity and temperature profiles at appropriate locations was identified as a weakness that prevented verification of the ballast water dispersion model used for the Baffinland FEIS Phase 2 Addendum (Baffinland 2018a, TSD 18, Appendix B, S. B-3.0 Calibration Summary, pg. 17 (pg. 56 of 57). One of the objectives of the MEEMP, as required by PCC 86, was to "Provide additional current, temperature and salinity data to update, through further validation, the ballast water dispersion model developed for the Project in 2018" (s. 1.2, pg. 2). How does the collection of single vertical profiles per site over a 3-day period (August 7-9, 2018) provide the data needed for dispersion model validation, given that water temperature, salinity, and current at a particular depth and location change during the shipping season? What are the limitations of this approach for understanding the seasonal progression of the pycnocline in relation to monitoring sites? When modelling ballast water discharge it will be important to consider the sensitivity of the results to the broad range of salinities (perhaps 17 to 40 psu) that may be discharged by vessels that treat ballast water loaded in foreign ports rather than exchange it mid ocean.	QIA recommends that the Proponent update its ballast water dispersion model and impact predictions for ballast water discharges by Project shipping, using the supplementary oceanographic data and data on the operational shipping discharges of ballast water, and taking into account the transition from ballast water exchange to treatment. QIA considers the Proponent to be Partially-Complaint with PCC 86.	4.6.10; PCC # 86 Page 225-226	Golder and the Danish Hydrographic Institute (DHI) are currently running the ballast water model from TSD-18 for the existing shipping operations (current ore dock and 2018 vessel calls) with updated boundary conditions and model inputs that are based on available 2018 ballast water volumes and characteristics and a series of improvements in model forcing that have been implemented (e.g. improved wind data, salinity and temperature information, tidal boundary conditions, and freshwater inputs). The purpose of this exercise is to compare the model results to observed oceanographic measurements over the period July 15 to October 15 2018 to provide a more robust verification of the model used for the Phase 2 assessment. Results from the current similuations will be presented in a technical data report that will be issued to NIRB on 30 September 2019. Revised simulations of Phase 2 operations (TSD-18) are not deemed necessary at this time until the verification of the model with 2018 observations has been conducted. Should there be an obvious discrepancy between the 2018 verification results and previous TSD-18 results, then some revision of the assessment may be undertaken.
22	The objective of Project Certificate Condition 87 (see also PCC 88) is to prevent invasive species introductions resulting from shipping. To meet this condition the Proponent has developed a monitoring program to evaluate changes to marine habitat and organisms and the presence of non-native species. These studies do not prevent species introduction, they provide evidence that efforts at prevention have failed. Once invasive species become established they can be impossible to eradicate and cause serious environmental damage and expense. Gathering the information needed to properly assess the risk of species introduction, and adopting a proactive approach to preventing species introductions is very important. The transition from ballast water exchange to treatment will change the quality of the ballast water arriving (physical, chemical, biological) and require new and different methods of testing to assess whether these methods are being used properly (compliance) and their effectiveness (efficacy) for removing unwanted biota. These changes have not yet been properly considered in the PCCs related to ballast water, which merit revision.	QIA recommends that the Proponent monitor species' presence and abundance in the ballast water tanks of incoming Project vessels to determine whether they have exchanged and/or treated the ballast water to remove potentially invasive species (compliance) and to learn the efficacy of those measures for removing non-indigenous species, particularly those that are potentially invasive. Monitoring for the presence of non-indigenous species in the marine environment is ongoing, and meets the requirement to monitor for non-indigenous species that have been introduced to Milne Inlet. But, it does not meet the objective of preventing invasive species introductions.	4.6.10; PCC# 87 and #88 Page 227-229	Biological monitoring of ballast water is not being considered for 2019. Baffinland will continue with salinity and temperature testing for all foreign flag vessels in 2019 as described in Baffinland's Ballast Water Management Plan. Current ballast water sampling by Baffinland remains a voluntary measure that exceeds federal and international guidelines for ballast water management. Biological testing may be considered following additional guidance from IMO and Transport Canada regarding on-board treatment of ballast water (e.g. D2 Standard).

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
23	The objective of Project Certificate Condition 88 is also to prevent invasive species introductions resulting from Project shipping. To meet this condition the Proponent conducted a risk analysis in 2013, and has been monitoring the Milne Port and Ragged Island areas for aquatic invasive species (i.e., after they have been introduced). That risk assessment was flawed and underestimated the potential risk assessment (DFO 2014, p. 24). Since 2013 many risk factors have changed. Ore markets have expanded to include ports in Asia, South America, and many areas of Europe, which will change the variety of species arriving at Milne Port. In 2018, at least one vessel Nordpol arrived in ballast from the Saguenay without having to treat or exchange its ballast water (see PCC 89, Table 4.2.3, p. 235). New oceanographic data are available for updating of ballast water dispersion modeling (see comment on PCC 86). Real data now exist for volumes and frequencies of ballast water discharges at Milne Port. And, the BWM Convention has come into force, requiring ships to transition from mid-ocean exchange to treatment of ballast water. These factors argue the need to reassess risks associated with non-indigenous species introductions. To do so, data are needed on the presence and abundance of species arriving in ballast water at Milne Port, following mid-ocean exchange and/or treatment. In its Risk Assessment for Introduction of Aquatic Invasive Species from Ballast Water, Golder calculated the probability of aquatic invasive species arriving in Milne Inlet to be HIGH, surviving once they arrived to be VERY HIGH and, based on these, that the probability was VERY HIGH that foreign species would be successfully introduced (Baffinland 2018d, TSD 21, s. 4.0, p. 12; p. 20 of 24). Given the number of potentially harmful aquatic invasive species (166) in a subset of source ports the magnitude of the consequences was ranked as VERY HIGH. Based on the probability of introduction and magnitude of consequences the invasion risk was ranked HIGH, with MODERATE uncertainty. Golder noted that using the actual number of species and abundance of AIS present in each ship's ballast water would have reduced uncertainty related to invasive species risk (Baffinland 2018d, TSD 21, s.3.1.1, p. 9; p. 17 of 24). Scientifically defensible sampling of ballast water tanks for salinity and biota is needed to properly assess exchange compliance and the efficacy of exchange and treatment by various methods for reducing risk posed by invasive species and risk posed by chemical (including possible treatment residuals) and physical differences between the ballast water discharges and waters of Milne Inlet. This information is needed to recalculate the risk assessment analysis and inform adaptive management.	QIA recommends that the Proponent monitor ballast water of incoming Project vessels to determine the efficacy of exchange and treatment methods and use this, and other new information, to update the invasive species risk analysis and inform adaptive management designed to prevent invasive species introductions. QIA considers the Proponent to be Partially-Compliant with PCC 88.	4.6.10; PCC #88 Page 230-231	Baffinland has developed a comprehensive, stand-alone Ballast Water Management Plan (BWMP) for the Project. The BWMP includes a Standard Operating Procedure (SOP) which 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. In 2018, all bulk carriers that called at Milne Port during the shipping season were boarded by a Baffinland environmental representative that conducted salinity testing of the ship's ballast water before it was approved for release in Milne Port and before loading of the carrier could begin. In these instances, a single ballast tank on the vessel was tested for salinity concentration using a calibrated water quality meter (i.e. YSI Pro 30) to confirm that ballast water salinity levels were above 30 ‰ (parts per thousand), prior to being authorized by the port captain to discharge in Milne Port. Salinity levels were consistent with mid-ocean exchange requirements for vessels conducting a transoceanic voyage (salinity of mid-Atlantic seawater, where open-water exchange takes place, is typically in the range of 34-35 ‰). Ballast water salinity was measured in all ore carriers (n=71) that called at Milne Port in 2018. Salinity measurements for all vessels except for one ranged between 30.0 to 35.5 PPT, which was compliant with federal Ballast Water Regulations. One exception occurred on August 30, 2018 where ballast water tested on the Nordpol measured 20.6 PPT. Golder and Baffinland confirmed that this vessel had exchanged ballast water for freshwater in Port Alfred Canada and that the freshwater could be discharged in Milne Port as the vessel was coming directly from another Canadian Port located within the Canadian Exclusive Economic Zone (i.e., it did not arrive at Milne Port directly from international waters). Based on the above results, there is no need to update the aquatic invasive species risk assessment, as the result would remain the same (the invasion risk remains HIGH). The current risk assessment for Aquatic Invasive Species assumed that each ship will discharge on average 25% of the vessels Dry Weight Tonnage (DWT) in ballast water volume, which is a value based on existing scientific literature (Davis et al. 2012). This resulted in an estimated 3,023,750 tonnes of ballast water discharged per year, which when corrected for foreign exchange (10% of total volume), resulted in a 'probability of arrival' ranking of VERY HIGH - which is the highest ranked category for 'probability of arrival'. Following a review of the 2018 ballast water ship logs, the total volume of ballast water discharged by ships at Milne Port was shown to be on average 34% of the DWT (so 9% higher than originally assumed). However, this increase still results in a 'probability of arrival' ranking of 'VERY HIGH' - the same ranking as originally stated. As such, there is no need to revise the risk assessment based on 2018 actual volumes of ballast water released, as the result would remain the same (the invasion risk would remain HIGH regardless of whether the average discharge volume was 25% or 34% relevant to the ships DWT). Biological monitoring of ballast water is not being considered for 2019. Baffinland will continue with salinity and temperature testing for all foreign flag vessels in 2019 as described in Baffinland's Ballast Water Management Plan. Current ballast water sampling by Baffinland remains a voluntary measure that exceeds federal and international guidelines for ballast water management. Biological testing may be considered following additional guidance from IMO and Transport Canada regarding on-board treatment of ballast water (e.g. D2 Standard).

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
24	The objective of Project Certificate Condition 89 (see also 90) is to prevent impacts to marine water quality from ballast water exchange. To meet this objective salinity is tested in a single ballast water tank of each arriving vessel to determine whether open-ocean exchange of ballast water has been conducted (i.e., test compliance). Large vessels can have 20 or more separate ballast tank so significant uncertainty remains as to the completeness of each vessel's ballast water exchange. The single salinity measurement does little to protect water quality or prevent the introduction of non-indigenous species (see also PCC 87). The quality of water in the tanks will be determined by whether ballast water obtained at foreign ports is exchanged mid-ocean or simply treated before release into Milne Port. Consequently its physical and chemical properties may vary widely, and may be altered somewhat by treatment. There is even greater uncertainty related to the efficacy of the exchange or treatment method used to reduce the presence of non-indigenous species, because none of the tanks is sampled for biota. Consequently, the identity and abundance of species released into Milne Port and the risks they pose are unknown. If vessels have not fully exchanged their ballast water or if treatment methods are ineffective the potential for introducing non-indigenous species is greatly increased. While the Proponent notes that "it is the ship operators/owners are the responsible party for ensuring their ships are compliant with federal ballast water regulations and the BWM Convention", it is the Proponent's responsibility under PCC 89 to protect water quality and prevent the introduction of invasive species.	QIA recommends that NIRB revisit the requirements of Project Certificate Condition 89 to: 1) ensure that this monitoring program provides greater certainty regarding the efficacy of open-ocean exchange and treatment, and 2) provides the data necessary to better understand and mitigate risks from non-indigenous species transported in ballast water of Project vessels. QIA requests that the Proponent provide information on what actions have been taken in the past, and will be taken in the future, when a vessel is found to contain ballast water that is non-compliant with Federal regulations. QIA considers the Proponent to be Partially-Compliant with PCC 89.	4.6.10; PCC #89 and #90 Page 233-236 (see also 227-229, 237-224)	All vessels called 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 currently conducts regular monitoring of ballast water of all ore carriers for compliance with the Regulations and the D-1 standard of the Convention. Biological monitoring of ballast water is not being considered for 2019. Baffinland will continue with salinity and temperature testing for all foreign flag vessels in 2019 as described in Baffinland's Ballast Water Management Plan. Current ballast water sampling by Baffinland remains a voluntary measure that exceeds federal and international guidelines for ballast water management. Biological testing may be considered following additional guidance from IMO and Transport Canada regarding on-board treatment of ballast water (e.g. D2 Standard). If a vessel is found to contain ballast water that is non-compliant with federal regulations, Baffinland will contact Transport Canada to determine the next course of action per guidance received from Transport Canada in June 2019.
25	Project Certificate Condition 90 requires the Proponent achieve compliance with provisions of The International Convention for the Control and Management of Ship's Ballast Water and Sediment (2004) (aka BW Convention), which came into force in 2017 (IMO 2017). Under the BW Convention newly built ships must immediately meet the D-2 standard, which specifies the maximum number of organisms that can be present in the ballast water when it is discharged. By 2024 all existing ships must be retrofitted with ballast water treatment systems. The Proponent suggests that "[u]ntil then, all ships will continue ballast water exchange outside the Canadian Exclusive Economic Zone (EEZ)." This suggests that even those Project vessels capable of treatment will not be treating their ballast water until 2024. It also does not recognize the fact that at least one Project vessel has arrived in 2018 without having exchanged its ballast water (see PCC 89). The draft Ballast Management Plan (190513-08MN053-BIMC Draft Mgmt Plans-Ballast Water Mgmt Plan-IA1E.pdf) does not discuss ballast water treatment or testing of ballast water to verify compliance with exchange or the efficacy of exchange or treatment for reducing the risk of invasive species introductions. It is not clear how the Proponent will verify that D-2 standards have been met before ballast water is discharged into Milne Port or how	QIA recommends that the Proponent clarify whether Project vessels will indeed continue to exchange rather than treat their ballast water until 2024. QIA recommends that the Proponent revise and update its Ballast Water Plan to include testing of ballast water at a level designed to reduce uncertainty regarding compliance rates and to conduct biological sampling to assess the efficacy of exchange and treatment for reducing invasive species risk in Arctic waters.	4.6.10; PCC #90 Page 237	Baffinland has committed to revising and updating the Ballast Water Management Plan to include testing of ballast water that has been treated under the D-2 standard. Until such a time that this monitoring program has been developed, piloted and executed, Baffinland will continue to require vessels to exchange ballast water.
26	The objective of PCC 91 is to prevent impacts to marine water quality in Milne Inlet. To meet this condition the Proponent must develop a detailed plan for monitoring biofouling species on Project vessels. In accordance with PCC 91, a SCUBA study of vessel hulls was attempted in 2017 but aborted due to safety concerns. In 2018 a remotely operated vehicle (ROV)-based underwater video was used to survey the hulls of three Project ore carriers. QIA recognizes that this is a step forward towards meeting this condition but notes that the video resolution was insufficient to permit species identification and that specimens were not collected for identification. Inability to identify hull biofouling species is an important weakness of the hull fouling surveys. How have others solved this problem?	QIA recommends that the Proponent work with the MEWG to develop a scientifically defensible monitoring program capable of assessing the presence and abundance of non-indigenous biofouling species on the hulls of Project vessels to inform adaptive management and prevent introduction of invasive fouling species at Milne Port. The Shipping and Marine Wildlife Management Plan (SMWMP) should be revised accordingly. QIA considers the Proponent to be Non-Compliant with respect to PCC 91, as it has yet to conduct effective monitoring of biofouling species on vessel hulls.	4.6.10; PCC #91 Page 238-240	All vessels called to Milne Port are required to follow guidance and regulations from the International Maritime Organization (IMO) and Transport Canada (TC) related to the control and management of biofouling. A higher-resolution Remotely Operated Vehicle (ROV) video system with an improved lighting system will be used in the 2019 MEEMP surveys. Data collection will include physical collection of fouling species for subsequent taxonomic identification, as possible.

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
27	"Noise was raised as a concern during 2018 community meetings, in relation to the underwater noise-levels causing less marine life near Pond Inlet and more near Arctic Bay (Appendix B). Fewer narwhal were present in the Pond Inlet – Eclipse Sound – Milne Inlet area in 2018, and as such, fewer narwhal were harvested in 2018 compared to previous years." Community observations from 2018 provide better evidence for Potential project-related impacts than any of BIMC's monitoring activities (e.g., tagging, vessel-based Bruce Head study, Shipboard Observers) from that year. Local knowledge and observations need to be included in monitoring programs in an objective and transparent manner.	QIA recommends that the Proponent provide a summary of on-going efforts and progress in the development of community-based monitoring and IQ integration programs with respect to marine mammal monitoring.	40274 Page 250	Baffinland acknowledges the different definitions of Traditional Knowledge, Inuit Qaujimaningit, and Inuit Qaujimajatuqangit that exist. Baffinland seeks to gather 'IQ' through frequent and ongoing community engagement, where community members have the opportunity to share their unique knowledge and values in relation to the Project. While it is true that all community engagement cannot be considered IQ (e.g. general comments, clarifications, and questions asked about Project activities or how to access Project benefits and programs), it would not be beneficial to fully separate it from IQ either. Through community engagement, residents have often used their knowledge to share observations about the land, wildlife, and their communities. There has also been opportunity for residents to describe concerns related to Inuit livelihood effects; and suggest ways that these issues might be addressed. These valuable comments have not been dismissed because they weren't collected under the auspices of a formal IQ study; rather, Baffinland uses this information to supplement the overall understanding of the Project, its potential effects on the environment and nearby communities, and how best to manage any potential adverse effects through specific monitoring and mitigation initiatives . 1) MHTO membership and attendance in the MEWG at the Spring teleconference where the scope of the marine monitoring programs is initially presented for feedback; 2) During a focused marine monitoring program meeting between Baffinland and the MHTO in Pond Inlet, where Baffinland seeks further input and approval, as necessary, on the proposed marine monitoring programs; 3) MHTO membership and attendance in the MEWG summer face-to-face meeting in Iqaluit where final study designs for each of the marine monitoring programs are provided for further feedback; 4) During a mid-summer site visit where several environmental issues are discussed with the MHTO and updates to Project management measures (i.e. vessel traffic management) are workshopped; 5) Training and employment of Inuit in marine monitoring programs; 6) Hiring of a full-time shipping monitor in Pond Inlet to conduct live monitoring of vessels in the Project area and to serve as a communications liaison between Baffinland, the MHTO and community members; 7) During a pre and post shipping meeting held between Baffinland, the MHTO, and Hamlet of Pond Inlet in Pond Inlet where Baffinland provides an overview of the shipping activities and mitigation measures it plans to implement; 8) MHTO opportunity to comment on draft marine monitoring reports that are circulated to MEWG for comment; and 9) MHTO membership and attendance in the MEWG end of summer and early-Winter meetings where preliminary results of the marine monitoring programs are shared for feedback. Updates on the specific outcomes of some of these initiatives are captured in the following. During the April 23 MEWG teleconference, MHTO members expressed concerns regarding Baffinland's proposal to run aerial surveys in 2019. Specific concerns regarding the first leg of the program (i.e. mid-July aerial surveys focused on identifying narwhal abundance at the floe edge prior to the start of the shipping season) were raised by an MHTO member, citing that the noise from the aircrafts would disturb the narwhals, which could result in subsequent effects on hunters who are using the floe edge. Baffinland noted on the call that the aerial surveys would follow all requirements for flight heights to ensure that noise levels would be minimized to avoid disturbance to marine mammals. Baffinland also agreed that the program would not be finalized until seeking further feedback with the MHTO at the end of the month during the marine monitoring program meeting. MHTO members also inquired about whether or not acoustic recorders and tidal gage moorings deployed would emit noise that could potentially disturb narwhal. Golder described that the acoustic moorings are passive recorders and emit no noise. It was also discussed that tidal gages do emit a noise, but that the noise emitted is at a frequency that is far above the hearing frequency for narwhals (see Attachment 1). On April 30, 2019, Golder, on behalf of Baffinland, met with MHTO to review the marine monitoring programs being proposed for consideration for 2019. During this meeting, Golder representatives sought feedback on the study designs with the MHTO and the overall support of the MHTO to run the programs. On May 3, 2019, the MHTO provided signed letters of support for the 2019 marine monitoring programs, stating that the MHTO felt they had been adequately consulted on the design of the programs and had been

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
				provided an opportunity to give feedback on the study design, methodology and implementation of each program (see Attachment 2). Letters of approval, when deemed necessary by the MHTO, can also include conditions of approval. For example, while gathering support from MHTO on aerial surveys, Baffinland was requested to fund the cost of having two independent Inuit observers survey for one week at the floe edge for narwhal occurrence prior to the commencement of the aerial surveys and during a period when hunters are using the floe edge. Inuit participants in the aerial survey are also required to independently report to the MHTO on a daily basis following each survey flights. The final condition of approval for the aerial survey states that if Pond Inlet hunters report an impact from the aerial surveys on their hunting successes, the aerial survey team will meet immediately with the MHTO to discuss these impacts and consider any changes to survey design to minimize these impacts. As part of the pre and post-shipping meetings that occur in Pond Inlet each year, an overview of the marine monitoring programs are provided. This meeting provides the opportunity for MHTO members to provide feedback on the design of the programs and analysis of the results of the programs. This circular consultation process on the marine monitoring programs has resulted in improved methods for detecting narwhal during observations, included additional fish capture for body burden analysis, and has led to an expansion of the aquatic invasive species program to include sampling locations at Ragged Island. In 2019, greater than 50% of participants in the marine monitoring program are Inuit (see Attachment 3 for a complete breakdown for each program). Inclusion of Inuit in the marine monitoring programs bolsters Baffinland's ability to further integrate IQ into the monitoring programs, both in terms of program implementation, data collection methods and influencing how results of the program will be interpreted. It also provides training opportunities for Inuit participants, such as Personal Survival Techniques training course (10 Inuit from Pond Inlet travelled to Dartmouth, Nova Scotia to participate in (see Attachment 4)), employment opportunities throughout the summer, and local procurement opportunities for small businesses (e.g. Tagak Outfitters and Inuarak Outfitting) who supply personnel, equipment and other resources to Golder and Baffinland throughout the summer in support of monitoring program implementation. At the end of each shipping season, Baffinland and Golder meet with the MHTO to review preliminary results of the monitoring programs, and to compare results with experiences of community members and hunters with respect to the marine environment and marine mammals during the shipping season . Baffinland also engages with the QIA on a regular basis, and the QIA is an active member of the MEWG. The QIA provided substantial comments on the 2018 marine monitoring reports, which, where appropriate, also result in changes to the monitoring program design, implementation and analysis and presentation of results for future years. It is Baffinland's understanding that the QIA, acting as the Designated Inuit Organization (DIO) for the community of Pond Inlet, would provide comments and feedback on the marine monitoring programs that are directly representative of community interests, feedback they have heard from communities and hunters and IQ that has been collected by the QIA.

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
28	"Acoustic monitoring results demonstrated minimal impact on narwhal." The draft analysis (by JASCO) provided to the MEWG was unable to distinguish killer whale vocalizations from those of bowhead with certainty, suggesting issues with the automated processing system. Furthermore, a very small percentage (< 1%) of the data was manually examined. This calls into question the findings from the PAM program.	QIA recommends that the Proponent provide additional details on the PAM data analyses including ways to increase classification accuracy and rigour. QIA recommends that the Proponent provide statistical justification for the selection of such a small amount of the PAM data for manual verification. QIA recommends that the Proponent provide PAM data to interested parties (e.g, MEWG members) for external analyses.	4.6.10; Table 4.25 Page 251	Marine mammal call detection in the 2018 PAM Report was based on a generic marine mammal call detector and was intended simply to determine narwhal presence at five acoustic monitoring stations in Milne Inlet. A generic detector was used because an effective species-specific detector for narwhal was not available. While narwhal vocalization signals have been described to some extent, there was insufficient information available to develop a reliable, automated detector and classifier for systematic identification of narwhal signals. JASCO is presently working with Golder and the University of New Brunswick to refine the call detector. We are using the 2018 recordings to characterize more fully the narwhal call types and to attempt to train an automated detector for classification of narwhal signals. It is very challenging to develop a highly reliable narwhal classifier because of the overlapping characteristics of narwhal vocalizations with those of killer whale, beluga, and bowheads; and due to the limited availability of detector-training data. The analysis was targeted for detecting presence of narwhal in the study area. Because no detector specific to narwhal was available, these detectors were not setup to classify detections to species. Separate generic detectors were used to detect tonals and clicks. A selection of those detections were then manually reviewed, allowing us to distinguish identifiable species such as killer whales, beluga, bowhead, and pinnipeds. The amount of data required for validation depends on the size of the dataset and the aim of the research. Kowarski et al. (in preparation) compared the results of 0.5% ,1% and 2.5 % analysis for two baleen whale and two beaked whale species. They found that the occurrence results are identical for most of the analyzed datasets. When results differed between validation effort, 0.5% analysis always resulted in a more conservative outcome for occurrence. Underwater acoustic behaviour and movement of narwhal have been studied, and continue to be studied, by means of the following annual monitoring programs: JASCO's Passive Acoustic Monitoring Program (series of acoustic recorders deployed throughout the RSA), the Narwhal Tagging Program (2017 and 2018 datasets), and the Bruce Head shore-based monitoring program. A collaborative study between Golder, JASCO, the University of New Brunswick and Baffinland is also presently underway that evaluates changes in narwhal vocal behaviour in relation to vessel noise. This work is focused on broadband noise perception by narwhal related to shipping. Auditory weighting for the various marine mammal hearing groups will be applied to ship noise recordings to determine the durations and amplitudes of the broadband noise from individual ore carrier transits as they transit past the acoustic recorders (as would be perceived narwhals in that area). Using high resolution AIS (ship positional tracking) data, the sound output from transiting vessels will be determined as a function of distance, direction of travel and orientation. Ship noise data will be examined in concert with existing Bruce Head visual-based behavioural datasets to assess if there are relationships between the perceived broadband noise levels and the observed surface behavioral reactions of narwhal. Interannual changes in ship noise levels near Bruce Head will also be evaluated. The above study component will be based on acoustic monitoring and behavioural datasets collected in 2014, 2015, 2018 and 2019. A separate but related study being conducted includes the characterization of narwhal call rates and repertoire in relation to vessel traffic and associated ships noise levels. Changes in narwhal vocal behaviour occurring before and after individual ore carrier transits will be evaluated, with call rate and call (type) usage assessed as a function of distance, direction of travel, and orientation. Detailed results of the collaborative study will be available in Q3 2020 with preliminary results available as early as Q4 2019.

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
29	The PCC (99b) requires the collection of additional baseline data "[i]n Milne Inlet on narwhal, bowhead and anadromous Arctic Char abundance, distribution, ecology and habitat use". There has been little baseline data on bowhead ecology collected. Item 99c speaks to the need for enhanced baseline data including "aerial surveys for basking ringed seals throughout the landfast ice of Steensby Inlet and at an appropriate control location". This item also notes however that additional baseline data "include, but not be limited to the" items highlighted. Ringed seal surveys should be done in Milne now as well with ice-breaking and ice management occurring. This additional baseline work should be done to reflect current Project activities (versus what BIMC proposed in 2012). The Proponent noted that "[t]he Project is currently in the Early Revenue Phase and supplemental baseline assessments are now complete (pre-2018)." However, much of the baseline data required for this PCC still has not been collected, for example Steensby Inlet data collection that was not linked to construction, etc., and is thus still outstanding (but not required at this time).	QIA considers Project Certificate Condition No. 99 to be Partially Compliant. QIA recommends that the Proponent provide information on how bowhead whale ecology can be monitored in the Project area, including the potential role of IQ and community-based monitoring. QIA recommends that the Proponent conduct ringed seal monitoring. QIA recommends that the Proponent provide a schedule for collecting the required baseline data in Steensby Inlet.	4.6.10; PCC #99 Page 252-253	Baseline data (or simply baseline) is data that describes conditions before a Project starts which is subsequently used for comparative purposes when testing for Project effects in the marine environment (i.e., it defines the "pre-operation exposure" conditions). Given that shipping operations in Milne Inlet started in 2015, all data collected in the Project area since 2015 is not considered baseline data – it is monitoring data. Based on extensive baseline and monitoring data collected to date, very few bowhead occur along the Northern Shipping Route in the RSA during the shipping season. A total of 14 bowhead were recorded near Bruce Head during five consecutive years of shore-based monitoring conducted for Baffinland from 2013 to 2017 (Thomas et al. 2014; Smith et al. 2015; 2016; 2017; Golder 2018). Similarly, a total of 14 bowhead were recorded along the Northern Shipping Route during three consecutive years of aerial surveys conducted between 2013 and 2015 (Elliott et al. 2015; Thomas et al. 2015; 2016). Based on the most recent High Arctic Cetacean Survey completed by DFO in the Project area, the predicted number of bowhead in Eclipse Sound during 2013 was 32 (Doniol-Valcroze et al. 2015). Bowhead vocalizations were detected on underwater recorders near Bruce Head on 14 of 59 recording days in August 2014 (Kim and Conrad 2015), and were rarely detected over a two-month recording period during the summer of 2015 (Kim and Conrad 2016). Based on these results, bowhead are predicted to occur infrequently in the RSA during the shipping season, and icebreaking and shipping are not considered to overlap with important habitat for this species. Marine mammal aerial surveys are planned for July and August 2019. This will include surveying for all marine mammal species in the RSA, including ringed seal, bearded seal, bowhead whale, narwhal, beluga, walrus and polar bear. Furthermore, it is noted that all marine mammal monitoring programs include surveying for marine mammal species that are observed in the RSA, including the Aerial Survey, Bruce Head Shore-Based Monitoring Program and the Ship-Board Observer Program). As QIA is aware, in 2018, Baffinland committed to the creation of a 'Wildlife Monitoring Program (see. Article 17.8 of the IIBA), which is a community-based monitoring program, specific to the research interests of the community of Pond Inlet. To that end, Baffinland has provided the MHTO with $205,000.00 in 2019 to conduct community-based monitoring programs focused on studying fish health and narwhal harvesting efforts. This program will involve hunters collecting information on the presence of marine mammal occurence in the RSA (including bowhead whales if they are spotted). Any relevant information, if shared with Baffinland, will be integrated into data analyses of other marine monitoring observations as appropriate. It is also noted that in future years, if it is of interest to the community, the MHTO may elect to use funding associated with the Wildlife Monitoring Program to study bowhead whale ecology specifically. There are no current programs that are specifically focused on collecting baseline data near Steensby or for the southern portion of the Project, although some opportunistic baseline data is collected when possible (i.e. seabird data collection through collaborative monitoring programs with ECCC). Baffinland is aware of the need to collect additional baseline monitoring in advance of developing the Southern component of the proposed Project, including marine mammal monitoring.

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Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
30	PCC 100 requires that the Proponent “update its Shipping and Marine Wildlife Management Plan, to include… mitigation measures designed for potential fuel spills along the shipping lane during the winter months.” Project Certificate Condition No. 80 similarly requires that "a detailed risk assessment for Project-related shipping accidents" be done "[p]rior to commercial shipping of iron ore", "noting areas along the ship tracks where vessels may be particularly vulnerable to environmental conditions such as sea ice". This information was not found in the documents cited. This Project Condition was not limited to ice-breaking or to shipping through Steensby port, and as such the Proponent is behind schedule in meeting this condition for shipping along the northern route to Milne Port. Shipping now occurs into late October, when ice is forming, and this is considered the start of winter by the Proponent (e.g., Jason Prno Consulting 2017). In Jason Prno Consulting (2017), the season Ukiaksaaq (October to Mid-November) is defined as “the start of winter”, when “[t]he weather turns cold and the freezing begins”. Ice conditions in this season include “ the beginning of the freeze-up”, the movements of icebergs “ into Eclipse Sound from Navy Board Inlet”, the creation of pressure ridges, and this is the time of year (October/November) that “the old ice/multi-year ice starts to come in”. As such, SMWMP should be updated with "mitigation measures designed for potential fuel spills along the shipping lane during the winter months”.	QIA considers PCC 80 and 100 to be Applicable and the Proponent to be Non-Compliant with both, given recent shipping along the northern route during the shoulder season. QIA recommends that the Proponent update the SMWMP to include "mitigation measures designed for potential fuel spills along the shipping lane during the winter months”. QIA recommends that the Proponent conduct the detailed risk assessment for Project-related shipping accidents along the Northern shipping route. QIA requests that the Board clarify the intent of this Project Certificate Condition.	4.6.10; PCC #100, also see #80 Page 254 (also 212-213)	Please refer to the Spill at Sea Response Plan, which includes mitigations (Section 12) a risk assessment (see Table 15.2) and response plans (Section 7.2 and 7.3) for shipping through heavier ice conditions, such as those that could potentially be encountered during the beginning and end of the shipping season.
31	Baffinland considers PCC 101 to be "Not Applicable", but it is certainly applicable with respect to items b and c, which require the Proponent to incorporate “[e]fforts to involve Inuit in monitoring studies at all levels” and “[m]onitoring protocols that are responsive to Inuit concerns” into the appropriate monitoring plans. The Methods do not provide sufficient detail on how Inuit are involved in monitoring "at all levels" (e.g., how are Inuit involved in data analyses and interpretation?) or how monitoring is responsive to Inuit concerns. QIA notes that MHTO participation in the MEWG is not sufficient. The Results similarly do not report on Inuit participation at all levels or show that monitoring is responsive to concerns (e.g., harvesters raising concerns re: seal impacts for several years). This PCC (101e) also requires a “[s]chedule for periodic aerial surveys as recommended by the Marine Environment Working Group”, but the Proponent’s response does not mention anything about a schedule for periodic surveys. The Proponent states that this item is “[n]ot applicable in 2018”, but QIA disagrees, as the schedule is applicable even if no surveys were planned in a particular reporting year. Item 101h(iii) also requires a “[m]onitoring strategy focused on assessing and mitigating interaction between humans and wildlife at the port site(s). Local hunters have reported impacts to seals (and seal hunting success) near the port in Milne Inlet (e.g., at the NIRB monitoring workshop held in Pond Inlet, May 2019). The Proponent’s response to this item only considers Steensby port, when the PCC clearly says "port site(s)" and thus applies to Milne port.	QIA considers this condition to be Partially Complaint. QIA recommends that the Proponent provide detailed information on how Inuit participation in monitoring occurs at all levels (e.g., analyses, interpretation) and how monitoring is responsive to concerns about marine mammals raised over the past several shipping seasons. QIA recommends that the Proponent summarize MEWG discussions on aerial survey scheduling and provide a draft schedule for review. QIA recommends that the Proponent develop a monitoring strategy focused on assessing and mitigating interaction between humans and wildlife at Milne port.	4.6.10; PCC #101 Page 255-261	Consultation with Inuit and incorporation of Inuit in field monitoring programs is a standard practice Baffinland is undertaking. This includes but is not limited to: hiring and training Inuit to take part in all marine monitoring programs; formal bi-annual meetings with the MHTO to discuss shipping operations and marine mammal monitoring; participation of the MHTO in the MEWG. Baffinland also conducts multiple meetings throughout the year to discuss all topics related to the project either by invitation from the community or by request to meet on specific items. All of these mediums serve to guide information gathering and sharing which influence Baffinland’s monitoring programs, Project operations and a greater understanding of the environment and potential impacts. Also see response to QIA 27.
32	There is no assessment of "the level of adherence to the nominal shipping route and the spatial extent of the shipping zone of influence". Ship tracks are mapped, but there are no summary statistics, e.g., how far vessels deviated in drift zone, the number using Ragged Island anchorages, etc. No information on the shipping Zone of Influence (ZOI) is reported. This PCC also states that "[w]hen employing ice-breaking, an overlay of ship tracks onto ice imagery" is to be provided. The Proponent is now conducting ice-breaking and ice management, so ship tracks overlaid on sea ice conditions are needed. This information should be included in maps.	QIA considers this PCC to be in Partial Compliance. QIA recommends that the Proponent provide an assessment of the level of adherence to the nominal shipping route and the spatial extent of the shipping zone of influence, with summary statistics as appropriate. QIA recommends that the Proponent provide an overview of shipping activity overlaid on sea ice conditions and identifying areas where ice-breaking or ice management occurred.	4.6.10; PCC #103 Page 263-264	The Zone of Influence (ZOI) is consistent with the Regional Study Area (RSA) defined for the Project, which is intended to encompass the full range of direct and indirect effects (incremental and cumulative) on marine biophysical VECs resulting from routine Project shipping activities. The maps provided in Figure 4.15 of the Report (PCC #103) clearly demonstrate the spatial extent of shipping activities and relative adherence to the nominal shipping route defined for the Project. Furthermore, as defined in PCC #103, the shipping route for the Project is 'nominal' in nature. It should therefore be expected that deviations from the given waypoints defined for the shipping route will occur and are considered a normal and approved part of Project operations. Subsequently, marine monitoring programs that have been developed for this Project assume the potential for marine mammals to experience direct and indirect effects of Project-shipping across the entire RSA. Baffinland is therefore of the opinion that statistically summarizing the number of times a vessel deviates away from a defined waypoint would be redundant and add little value to the understanding of potential Project effects related to shipping. Baffinland provided detailed figures showing all Project vessel tracklines in the RSA and in Baffin Bay during the 2018 shipping shoulder seasons – which are overlaid with daily sea ice conditions/concentrations (i.e, Canadian Ice Service Charts) – these are included as Figures 15-18 in the 2018 Ship-Based Observer Monitoring Program Report (Golder 2019d).

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
33	The Proponent states that this PCC is Not Applicable, but it is applicable with respect to deviations on the route to Milne. This is the case even if there are not any deviations to report (and would therefore be In Compliance). The Proponent states that "[n]o significant deviations from the nominal shipping route occurred during the first four years of shipping (2015-2018)." How is 'significant' defined? One Sealift went up Navy Board Inlet - the reasons for this are justifiable (e.g., chartered Sealift making further deliveries), but it is nonetheless a significant deviation from BIMC's nominal shipping route. QIA also notes that the Board requested a definition of a "significant deviation", but this information was not provided in the Proponent's response (Appendix E, Item 17 - Shipping Route Deviations).	QIA recommends that the Proponent clarify what a "significant deviation from the nominal shipping route" means, i.e., how is "significant" defined?	4.6.10; PCC #104) (also see Appendix E, Item 17) Page 265	The term 'significant deviation' from the nominal shipping route is the terminology used by the Nunavut Impact Review Board (NIRB) in Project Certificate Condition No. 104, and therefore this question should be deferred to NIRB. Project Certificate 005 Term and Condition No. 104(b) states that: "The Proponent shall summarize all incidences of significant deviations from the nominal shipping routes for traffic to/from Milne Port and Steensby Port as presented in the FEIS and FEIS Addendum to the NIRB annually, with corresponding discussion regarding justification for deviations and any observed environmental impacts."
34	The Proponent reports 10 knots as their benchmark in the summary table (Table 4.26), when it should be 9 (see, e.g., Methods (b) - "Baffinland's Standard Instructions to Mariners (SITM; Fednav, 2018) identifies a vessel maximum speed limit of 9 knots over ground beginning at the entrance to Pond Inlet (at 76 degrees longitude) through Eclipse Sound and throughout Milne Inlet") (and also Appendix E - Concordance to NIRB Recommendations, Item 13 - Shipboard Observer Program, p. 8, which notes that ship speed limits were reduced to 9 knots from 10 knots in 2018). Every Project vessel listed in Table 4.26 exceeded the 9 knot limit (breakdown by transit is not shown). Some vessels appear to consistently break the rules, e.g "two (2) vessels were shown to repetitively exceed 10 knots during their respective transits (Table 4.26)" (and exceedances would be higher again at the proper 9 knot threshold). Vessels exceeding speed limits for 5-10% or more of the transit is a significant non-compliance issue. Some of these vessels were transiting at up to double the permitted maximum. This level of non-compliance in vessel speed adds considerable uncertainty to the Proponent's acoustic modelling work. If chartered vessels cannot be consistently kept to their committed speeds, this could have significant effects on narwhal and other marine mammals that are not being adequately captured in impact predictions. Similarly, QIA considers the Proponent to be "Partially Compliant" for PCC 120, in regards to having vessels running at constant speeds, due to the fact that all vessels exceeded the speed limit. In response to the Board's suggestion that vessel speed trials could be conducted (Appendix E, Item 12 - Traffic Log and Shipping Information), the Proponent stated that "[a]lthough some vessel speed exceedances were recorded near Bruce Head in 2017 and 2018, the overall number of exceedances was too low to allow for 'vessel speed' to be included as a control variable in the integrated analysis." Exceedances (Table 4.26) are reported by vessel, not by transit (or by location, i.e., whether or not in Bruce Head study area), so QIA is unable to determine how feasible this would in fact be. Vessels speeds should be presented, and mapped, on a per-transit basis, to determine feasibility. In s. 5.2 (p. 449), the Proponent notes that they "developed and implemented additional adaptive mitigations and monitoring activities for 2018", including "making modifications to the Standing Instructions to Masters to ensure speed limits are followed...". The Proponent stated that they believed "that the aforementioned measures that were implemented have effectively served to further enhance Project operations." This does not appear to be the case, given the numerous examples of non-compliance with vessel speed limits. The real-time traffic monitoring and a vessel alert system were expected to mitigate these effects, but QIA has significant concerns about the adequacy of the current systems, given the number of exceedances reported.	The Proponent considers PCC 105 to be Partially Compliant, but QIA considers this condition to be Non Compliant given the systematic vessel speed exceedances. QIA considers PCC 120 to be Partially Compliant. QIA recommends that the Proponent clarify why 10 knots is used as the vessel speed threshold in Table 4.26, and not 9 knots. QIA recommends that the Proponent provide a revised Table 4.26 using 9 knots as the speed limit, and a table showing a similar breakdown by vessel and transit. QIA recommends that the Proponent provide summary maps showing where along the shipping route that exceedances occurred. QIA recommends that the Proponent provide similar data as that above from 2017, to allow NIRB and intervenors the opportunity to chart progress in keeping vessels within their permitted speeds. QIA recommends that the Proponent provide plans for improving compliance with vessel speed restrictions. QIA recommends that the Proponent submit bi-weekly reports of vessel speed exceedances and other issues (significant diversions, drifting outside established zone), to MEWG and NIRB, to improve adaptive management of vessel traffic and address non-compliance issues in a timely manner.	4.6.10; PCC #104) (also see Appendix E, Item 17) Page 265	Instructions to all vessels have been updated to emphasise the need to conform to the posted speed limit. Using the ExactEarth Alert system, Baffinland will actively investiage non-compliance events throughout the shipping season. Throughout 2018 and 2019, Baffinland has conducted consultation with the MEWG, QIA and MHTO on adaptive management measures. Therefore, there is no apparent need to produce weekly reports. A summary of non-compliance events will continue to be shared with the MEWG (including QIA and MHTO) at the end of the shipping season and in the Annual Reports to the NIRB.

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
35	The Proponent is generally in compliance with these PCCs, but monitoring is less effective than it could be and isn't meeting the spirit of the PCC (which called for consideration of the needs of shipboard observers into purpose-built vessels). Alternative approaches could be considered to more fully meet the intent of this PCC (see PCC 107). Project Certificate Condition No. 107 requires ore carrier-based SBOs, but this is not feasible on market vessels. Alternative monitoring techniques (e.g., drones) were tested in the past, but technological and methodological advances in the last ca. 5 years may make these alternative tools more relevant at the present time. Ringed seal locations from the Botnica observer program could be compared to the springtime hotspots identified by Yurkowski et al. (2019), would provide information on whether similar areas are important in summer and fall. For PCC 119 (related to ice-breaking), the Proponent states that "[r]inged seal hotspots and pupping grounds will have dissolved by the time shipping begins in late-July." Important areas ("hotspots") may occur in the same areas post-pupping, and the Proponent has not presented any data to support the statement that hotspots will have dissolved by the time shipping starts.	QIA recommends that the Proponent research new opportunities for the use of drones in monitoring, and report and review these finding with the MEWG. The use of drones and other similar tools is greatly increasing in wildlife research, and new opportunities may exist. QIA recommends that the Proponent compare ringed seal observations (with quality controls as required given the suspect observations reported in the draft report submitted for MEWG review) from the Botnica observer program be compared to the springtime hotspots identified by Yurkowski et al. (2019), and other sources as appropriate, including IQ, to provide additional information on the seasonal presence of ringed seals in the study area and inform the development of additional monitoring and mitigation activities.	4.6.10; PCC #106, #107, #119) Page 271-273, 274-276, 301	In an effort to bolster its marine mammal monitoring programs, Baffinland is exploring incorporating an Unmanned Aerial Vehicle (UAV) or drone component into its Bruce Head shore-based monitoring program that would allow for a photographic aerial survey concurrently with shore-based observations. The objectives of the drone study component are to 1) confirm sightings information (e.g., group size, group composition, etc.), 2) evaluate detection performance by the shore-based observers in each of the strata and 3) assess potential changes in narwhal behaviour in Koluktoo Bay related to shipping and other anthropogenic activities. The UAV study component would also serve as a pilot program to assess the feasibility of using UAVs to conduct a narwhal population abundance survey in Milne Inlet and Eclipse Sound in future years, and in turn, initiate adaptative management when necessary. A drone-based survey requires a Beyond Line of Visual Sight (BLOVS) permit from Transport Canada for operation of the drone beyond visual limits of the operator (1.5 km according to TC regulation). To date, Transport Canada has never issued a BLOVS permit for marine mammal monitoring work. Baffinland has submitted its BLOVS permit application to Transport Canada, along with letters of support from the QIA, DFO, MHTO and Parks Canada, and are currently waiting a decision on this. Seal hot spots identified by Yurkowski et al. (2018) are based on sensitive ice-dependant ringed seal periods such as parturition, pupping, nursing and mating - which are all completed by end of May. It is important to note that Baffinland has incorporated specific mitigation into its Project operations to specifically avoid conducting icebreaking activities during these sensitive ringed seal periods. Ringed seal hotspots and pupping grounds will have dissolved by the time icebreaking commences in July. The seal foraging period extends from July to early December when ringed seals disperse as solitary animals or small groups throughout open-water areas or to coastal areas to forage (Kelly et al. 2010).
36	Results from the 2018 narwhal tagging program are not scheduled for release until Q4 of 2019. Reporting delays like this mean a full shipping season passes without having useful data to support adaptive management. Monitoring needs to be responsive to observed effects, and it isn't efficient with such reporting delays. QIA acknowledges that data analyses for satellite telemetry and acoustic data are time and effort intensive, but a balance needs to be struck in monitoring programs to maximize adaptive management potential. One year's results needs to be able to inform the next year, without shipping season-long gaps. The low sample size of the 2018 tagging program (n = 2) is also problematic, and alternative monitoring methods are required (especially considering that DFO isn't tagging narwhals in 2019). The Proponent highlights the value of tagging technologies, but does not acknowledge the numerous limitations, specifically delays in analyses and small sample sizes. None of the 2018 monitoring programs (Bruce Head vessel-based, Botnica SBO, and tagging studies) provided sufficient information on regional-scale narwhal distribution and movements. This is of particular concern given the widespread local reports of low narwhal abundance and harvest in 2018.	QIA considers this PCC to be Partially Compliant, as there are little regional scale monitoring data from 2018 available to inform mitigation and adaptive management. QIA recommends that the Proponent review and summarize the methods used to monitor marine mammal abundance, distribution, behaviour (and other parameters as required) worldwide, and report on their applicability to Project monitoring. This review should consider relevant factors such as cost, logistical needs, analyses needs and time requirements, statistical rigor, disadvantages, applicability to community-based monitoring, and degree of involvement of local Inuit possible.	4.6.10; PCC #109 Page 280-285	Regional-scale marine mammal monitoring is planned for 2019 by means of undertaking marine mammal aerial surveys during the 2019 early shoulder season and open-water season. Baffinland does not feel that a global meta-analysis of marine mammal monitoring programs is a reasonable request, nor is it warranted for the purpose of meeting Project Certificate requirements and current monitoring objectives designed to test impact predictions made in the environmental assessment. This information is readily publicly available to the QIA if they require it for their ongoing evaluation of the Project.

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
37	The effectiveness of the Proponent's acoustic monitoring program is uncertain due to temporal gaps in acoustic monitoring (i.e., years with no Proponent-collected data), questions regarding the quality of PAM data analyses (see QIA comments on draft monitoring plan submitted via MEWG), and the lack of substantial progress on the establishment of Early Warning Indicators (EWI) and thresholds for noise impacts. There has been discussion of EWI and noise thresholds at the MEWG, but no substantive progress. QIA believes that some of this delay is due to a lack of a clear understanding of and agreement on an EWI. Materials by the Proponent (via MEWG) identified examples of indicators (regional abundance, changes in timing of habitat use (e.g., changes in migration dates), but attempted to propose EWI and then propose a threshold for that EWI. It is QIA's opinion that this is not following the intent of the relevant conditions. The thresholds should be linked to potential project effects identified and assessed (e.g., FEIS, MEWG exercise), and the EWI should provide early warning to inform that those impact threshold may be close to being reached. We an unaware of a standard definition of an "Early Warning Indicator", but we have compiled examples of EWI in practice, including: - EWI of domestic banking distress - a series of market-based indicators that capture financial overheating - The WHO's EWI for HIV drug resistance - data that are routinely collected in patients medical and pharmacy records - EWI for success in student retention - targeted interventions for students who show risk of dropping out based on data on attendance, behaviour, and course performance In all three examples above, the EWI are already being collected (sometimes for different reasons), but can provide early warnings in regards to another variable of interest. Many of the examples the Proponent offered through the MEWG exercise (e.g., regional abundance, changes in migration dates) are not currently being collected. One source of long-term data that is available, and is being collected to some extent, is Inuit harvest success for narwhal. Harvest monitoring (expanded beyond the data currently compiled by DFO) could serve as an important early warning indicator for narwhal (and ringed seal). Existing harvest data are useful but CPUE (catch per unit effort) data and the information needed to interpret changes are lacking. The Proponent recognizes the value in local observations and knowledge as an EWI, e.g., minutes from June 5, 2018 TEWG meeting, which notes that "the way we're going to know when caribou come back is from the communities first, through the HTOs and then from GN surveys and then from HOL and snow track surveys." This acknowledgement that community-based observations will be an important EWI for increases in caribou abundance should similarly acknowledge that community observations can provide early (and accurate) indicators of a decline in abundance (or change in distribution, arrival/departure date, etc.), which can then be further assessed during additional Project monitoring. This is of particular importance given the 2018 observations of reduced narwhal abundance and subsequent low harvest success. As such, all discussion on EWI should be undertaken in the context of community-based monitoring/Inuit knowledge. Furthermore, thresholds are "limits of acceptable change", and quantitative, measurable thresholds are needed. To do this, it is necessary to define what is "acceptable". Just as importantly, thresholds need to be measurable. These limits (percentages, etc.) cannot be defined without a better understanding of what stakeholders consider acceptable, and a statistical analyses of what is feasible given current or future monitoring efforts (i.e., power analyses).	QIA requests that the Nunavut Impact Review Board provide guidance on the intent of these PCC, specifically on whether the thresholds (limits of acceptable change) link to the EWI or whether the thresholds link to impacts and the EWI provide early warning that thresholds may be approached. QIA recommends that the Proponent consider ways in which Inuit observations and harvesting can be used as EWI and in monitoring noise impacts. QIA recommends that the Proponent provide information on how local observations of reduced narwhal and seal abundance are being followed up on with respect to monitoring and mitigation of potential project impacts. QIA recommends that the Proponent work with stakeholders including impacted communities to define limits of acceptable change for impact thresholds, and work with the MEWG to determine the technical feasibility of detecting threshold effects.	4.6.10; PCC #104) (also see Appendix E, Item 17) Page 265	First request by QIA directed to NIRB. Baffinland has funded a community-based monitoring program for 2019 which focuses on collecting data on catch per unit effort (CUPE) by hunters. This information may be integrated as an EWI for monitoring shipping effects on narwhal, in consultation with the MEWG and if the MHTO wishes to distribute information collected further. In response to local observations of reduced narwhal abundance in the RSA during 2018, Baffinland has planned marine mammal aerial surveys for 2019, during both the early shoulder and open water seasons. This will include surveying for all marine mammal species in the RSA, including ringed seal, bearded seal, bowhead whale, narwhal, beluga, walrus and polar bear. Baffinland will continue to work with stakeholders including impacted communities to define limits of acceptable change for impact thresholds, and work with the MEWG to determine the technical feasibility of detecting threshold effects.

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
38	The Proponent states that "Inuit have been involved in monitoring studies at all levels", but no information is provided on how Inuit have been involved in evaluating potential impacts and how the Proponent is taking that information into account in monitoring program design and data analyses. The Proponent considers the inclusion of local Inuit land users in the marine monitoring programs to be “a successful example of community based environmental monitoring providing tangible results that contribute to Baffinland’s overall marine environment monitoring efforts”. While the employees undoubtedly contributed tangible results, this is not community-based environmental monitoring, but rather local employment on Baffinland monitoring programs.	QIA considers this PCC to be Partially Compliant, as it requires that local resource users be involved in "evaluating potential project-induced impacts and changes in marine mammal distributions". QIA recommends that the Proponent provide information on how "Inuit have been involved in monitoring studies at all levels", with specific marine monitoring examples. QIA recommends that the Proponent provide a detailed update on plans to develop community-based monitoring and progress to date.	4.6.10; PCC #126 Page 313-314	Information related to how Inuit have been involved with the marine monitoring programs is detailed in PC 126. As QIA is aware, in 2018, Baffinland committed to the creation of a 'Wildlife Monitoring Program (see. Article 17.8 of the IIBA), which is a community-based monitoring program, specific to the research interests of the community of Pond Inlet. To that end, Baffinland has provided the MHTO with $205,000.00 in 2019 to conduct community-based monitoring programs focused on studying fish health and narwhal harvesting efforts.
39	This PCC requires that the Proponent “collaborate with the Marine Environment Working Group to develop impact avoidance or mitigation strategies for the protection of the marine environment." This is Partially Compliant, as recommendations from the MEWG are not always acted on in a timely manner, or at all (e.g., comprehensive and proactive ballast water sampling procedures). The Proponent further notes (also see PCC 77, 184 for the same statement) that “Baffinland, with support from DFO and other members of the MEWG has put a strong emphasis on... developing more diverse community- based monitoring programs." QIA has not seen any evidence for substantive progress on the development of community-based monitoring programs. Stronger emphasis is required.	QIA considers PCC 183 to be Partially Compliant. QIA requests the Board consider ways to increase the effectiveness of the MEWG with respect to developing impact avoidance or mitigation strategies for the protection of the marine environment. QIA recommends that the Proponent provide additional information on the progress it has made, with DFO and other MEWG members, on developing community-based monitoring programs, particulalry with respect to the seasonal distribution, abundance, condiiton and health of fish and wildlife. QIA requests that DFO provide information on the emphasis it has put, with Baffinland, on the development of community-based monitoring programs.	4.8.2; PCC #183, #184, also see #77 Page 444-445 (also 208)	Several opportunities are made available to the MEWG to discuss and provide input to Baffinland's status of compliance with Terms and Conditions in Project Certificate No. 005 related to marine environmental protection. This includes participation in four MEWG meetings throughout the year, the opportunity to provide comments on all marine monitoring reports, and the opportunity to provide comments on the NIRB Annual Report. Comments received from Working Group members have informed the development of impact avoidance and mitigation strategies, such as reducing ship speeds and the development of a Ballast Water Management Plan and ballast water testing Standard Operating Procedure. As QIA is aware, in 2018, Baffinland committed to the creation of a 'Wildlife Monitoring Program (see. Article 17.8 of the IIBA), which is a community-based monitoring program, specific to the research interests of the community of Pond Inlet. To that end, Baffinland has provided the MHTO with $205,000.00 in 2019 to conduct community-based monitoring programs focused on studying fish health and narwhal harvesting efforts.
40	This PCC requires that the Proponent “collaborate with the Marine Environment Working Group to review the status of compliance with, and implementation of, all of the Terms and Conditions in Project Certificate No. 005 related to marine environmental protection.” At present, this condition is Not in Compliance, as the MEWG has not done a complete review of compliance with, and implementation of, all of the Terms and Conditions in Project Certificate No. 005 related to marine environmental protection.	QIA considers this PCC to be Non-Compliant. QIA recommends that the Proponent establish a schedule for when the MEWG will do a a complete review of compliance with, and implementation of, all of the Terms and Conditions in Project Certificate No. 005 related to marine environmental protection.	4.8.2; PCC #184 Page 446-447	Several opportunities are made available to the MEWG to discuss and provide input to Baffinland's status of compliance with Terms and Conditions in Project Certificate No. 005 related to marine environmental protection. This includes participation in four MEWG meetings throughout the year, the opportunity to provide comments on all marine monitoring reports, and the opportunity to provide comments on the NIRB Annual Report. Baffinland therefore remains of the opinion that this PC is in-compliance.
		Socio-Economic		
1	The Proponent shall include with its annual reporting to the NIRB a summation of employee origin information as follows: a. The number of Inuit and non-Inuit employees hired from each of the North Baffin communities, specifying the number from each b. The number of Inuit and non-Inuit employees hired from each of the Kitikmeot and Kivalliq regions, specifying the number from each c. The number of Inuit and non-Inuit employees hired from a southern location or other province/territory outside of Nunavut, specifying the locations and the number from each d. The number of non-Canadian foreign employees hired, specifying the locations and number from each foreign point of hire. QIA disagrees with Baffinland's assessment of in-compliance as the required information is not presented. Baffinland did not provide these statistics in the report, nor did it reference a location within the 2018 Socioeconomic Monitoring Report.	QIA recommends compliance with PC Condition 134 be considered non-compliant until the Proponent provides the required statistics.	4.7.1; PCC #134 Page 335	Data on the origin, number, and ethnicity of employees and contractors who worked on the Project are presented in Section 3.1.5 (Pages 21-22) of the 2018 Socio-Economic Monitoring Report. This information is compliant with PC Condition No. 134.

Baffinland

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
2	The Proponent is encouraged to consider offering additional options for work/study programs available to Project employees (in addition to study programs at project sites that would be offered to employees when off-shift). This condition encourages off-shift training for employees to pursue education and training. While the Apprenticeship and Heavy Equipment Operator programs partially occur off-site, this does not meet the intent of this condition.	QIA recommends compliance with PC Condition 135 be considered partially compliant. Baffinland should describe any efforts to provide off-site training to Project employees. QIA has expressed the need for education opportunities to occur within the communities and continues to work with Baffinland on this topic. Per the 2019/20 IIBA Annual Work Plan, Baffinland is to provide education and training programs in additional formats that may be accessed off-site (e.g., Driver Training, Pond Inlet Training Program, Adult Basic Education, etc.)	4.7.2; PCC #135 Page 338	PC Condition No. 135 encourages Baffinland to consider offering additional work/study programs; it does not require Baffinland to do so or prescribe the programs to be delivered. Baffinland continues to provide updates on this topic through the NIRB Annual Report process, and is in-compliance with PC Condition No. 135. Baffinland also acknowledges relevant commitments it has made through the IIBA (e.g. $10 million commitment to the construction of the Baffinland Inuit Training Centre in Pond Inlet) and IIBA Annual Work Plan process. The Company will report on progress made on these initiatives in future NIRB Annual Reports.
3	The Proponent is encouraged to work with the Qikiqtani Inuit Association prior to construction in order to prioritize the provision of training of Inuit to serve as employees in monitoring or other such capacities. QIA disagrees with the Proponent's assessment of in compliance for PC Condition 141. Baffinland acknowledges that the possible commencement of Phase II would represent another Construction Phase of the Project. While Phase II has not been approved, Baffinland reporting has indicated new contracts relating to Phase II and the largest increase in employment hours since the Project began. Meanwhile, a construction training program has yet to be initiated.	QIA recommends compliance with PC Condition 141 be considered non-compliant until the Construction Phase Training Program for 2019 be reviewed once provided by Baffinland. Of importance is understanding the labour supply and demand to determine appropriate training programs to maximize Inuit employment. The current training being provided should be considered but not relied upon entirely. QIA would expect training for all relevant positions, such and Inuit Environmental Monitors or Ship Monitors, be included. Not just those positions for which training is currently being conducted (e.g., apprentices and heavy equipment operators).	4.7.2; PCC #141 Page 351	PC Condition No. 141 pertains to the Approved Project, not the Phase 2 Proposal as alluded to by QIA. Baffinland continues to provide appropriate updates on training programs offered to Inuit for the Approved Project through the NIRB Annual Report process, and is in-compliance with PC Condition No. 141. Updates relevant to Phase 2 (e.g. regarding the Phase 2 Construction Phase Inuit Training Plan) will be provided to NIRB through the ongoing review of that component of the Project.
4	The Proponent is encouraged to address the potential direct and indirect effects that may result from Project employees on-site use of various Inuktitut dialects as well as other spoken languages, specifically paying attention to the potential alienation of some employees that may occur as a result of language or other cultural barriers. QIA disagrees with the Proponent's assessment of in compliance for PC Condition 142. Baffinland has described what services/support are being offered to Inuit but it has not described what efforts are being made to address language or cultural barriers that may be caused by non-Inuit employees. The current Inuktitut in the Workplace Policy is from 2013 and though it does address some considerations for Inuktitut usage on-site, it does not meet the requirements of the IIBA, the Inuit Language and Protection Act, or specifically address alienation due to speaking Inuktitut.	QIA recommends compliance with PC Condition 142 be considered partially compliant. Baffinland is requested to discuss edits to be provided by QIA on the Inuktitut in the Workplace policy in June 2019. QIA expects its input to be considered in the finalization and implementation of the updated policy in 2019.	4.7.3; PCC #142 Page 355	Appropriate updates on this PC Condition have been provided by Baffinland in the 2018 NIRB Annual Report; this information is compliant with PC Condition No. 142. However, Baffinland is willing to discuss suggested edits QIA has on the Inuktitut in the Workplace Policy, and will consider these when updating the Policy in 2019.
5	The Proponent is encouraged to work with the Government of Nunavut and the Qikiqtaaluk Socio-Economic Monitoring Committee to monitor the barriers to employment for women, specifically with respect to childcare availability and costs. QIA disagrees with the Proponent's assessment of in compliance for PC Condition 145. Baffinland has not monitored barriers to employment, especially with respect to childcare availability and costs.	QIA recommends compliance with PC Condition 145 should be considered non-compliant. Baffinland should provide any actions taken in 2018. While minimal movement on this topic has occurred to date, Baffinland has committed to begin addressing childcare as an employment barrier for women as part of the 2019-20 IIBA Work Plan. Moreover, Mining Industry Human Resources Council is conducting an Inuit Barriers Analysis.	4.7.3; PCC #145 Page 359	Baffinland continues to provide information relevant to this topic in its Socio-Economic Monitoring Reports (i.e. hours worked by Project employees and contractors, by ethnicity and gender). However, appropriate community-level government indicator data are currently unavailable for the topic of childcare availability and costs. As such, this topic continues to be tracked by Baffinland through the QSEMC process and community engagement conducted for the Project (e.g. by documenting and qualitatively reporting stakeholder comments received on this topic). For these reasons, Baffinland is compliant with PC Condition No. 145. Should appropriate government data become available on this topic in the future, Baffinland will consider incorporating them into its monitoring program. Baffinland will also continue to report on related initiatives it is undertaking in this area (e.g. those identified in IIBA Annual Work Plans) in future NIRB Annual Reports.

Baffinland

Table A.1 - Response to QIA Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	QIA Recommendations	Reference Section	Baffinland's Response
6	The Proponent is encouraged to work with the Government of Nunavut and the Nunavut Housing Corporation to investigate options and incentives which might enable and provide incentive for employees living in social housing to maintain employment as well as to negotiate for and obtain manageable rental rates. QIA disagrees with the Proponent's assessment of in compliance for PC Condition 147. Baffinland has not provided any results from discussions with the GN or Nunavut Housing Corporation, nor has it included any actions taken in 2018 or prior.	QIA recommends compliance with PC Condition 147 be considered non-compliant. It is requested that any actions that have been taken to date by Baffinland to support Inuit employees living in social housing to negotiate and obtain manageable rental rates be provided.	4.7.3; PCC #147 Page 362	Housing in Nunavut is the responsibility of the Government of Nunavut and the Nunavut Housing Corporation. This term and condition was written prior to fundamental changes were made to the public housing rent scale. Since then tenants in public housing that find employment are not subject to immediate and severe increases in rent. Instead, rent is based on a limited number of individuals and increases by a limited amount each year to give the tenant time to find private housing. Baffinland has and will continue to participate in discussions with the GN and NHC on relevant housing issues if requested. Furthermore, the Company has worked with the Nunavut Housing Corporation to include several housing-related questions in its annual Inuit Employee Survey (results are reported on in annual Socio-Economic Monitoring Reports). Baffinland also notes PC Condition No. 147 encourages the Company to investigate additional actions that might be taken in this area; it does not require specific actions be taken.
7	The Qikiqtani Inuit Association is encouraged to provide the Board and the Qikiqtaaluk Socio-Economic Monitoring Committee with information regarding the effectiveness of any provisions within the Inuit Impact and Benefit Agreement which may require that larger contracts be broken down into smaller size in order that they are reasonably managed by smaller businesses in the North Baffin region, while respecting any confidential or privileged information. While this provision is directed at the QIA, the necessary information required for QIA to make assertions on the effective implementation of contract tailoring IIBA provisions has not been provided by Baffinland.	QIA requests that retroactively for 2018 and going forward, Baffinland adhere to the reporting requirements of the IIBA Implementation Guide which includes reporting on contract tailoring efforts. This would include any contract tailoring information from 2018.	4.7.4; PCC #152 Page 373	Responsibility for implementation of PC Condition No. 152 is primarily directed towards QIA. Baffinland continues to work with QIA through the IIBA's Contracting Committee and Joint Executive Committee to maximize Project-related benefits to Inuit Firms. Baffinland also continues to report Inuit Firm contracting information to QIA through quarterly and annual IIBA Implementation Reports, and to NIRB through the NIRB Annual Report process. Baffinland understands the presentation of this information may benefit from refinement in future reports and shall ensure contract tailoring efforts are reported as requested.
8	The Proponent is strongly encouraged to provide buildings along the rail line and Milne Inlet Tote Road for emergency shelter purposes and shall make these available for all employees and any land users travelling through the Project area. In the event that these buildings cannot, for safety or other reasons be open to the public, the Proponent is encouraged to set up another form of emergency shelters (e.g. seacans outfitted for survival purposes) every 1 kilometre along the rail line and Milne Inlet Tote Road. These shelters must be placed along Tote Road and rail routing prior to operation of either piece of infrastructure, and must be maintained for the duration of project activities, including the closure phase. QIA disagrees with the Proponent's assessment of in compliance for PC Condition 165. Emergency shelters are not stationed every 1 KM along the Milne Inlet Tote Road.	QIA recommends compliance with PC Condition 165 be considered partially compliant. It is recommended emergency shelters be installed as per the Project Certificate.	4.7.7; PCC #165 Page 409	Baffinland has assesed the effectiveness and distribution of the current emergency shelters on the Milne Inlet Tote Road. The current distribution aligns with Emergency Response Procedures and effectively mitigates safety hazards on the road. Ongoing traffic on the road allows for continual communications. Baffinland does not feel that emergency shelters stationed every 1km on the tote road would increase safety around the Project.
9	The Proponent should ensure through its consultation efforts and public awareness campaigns that the public have access to shipping operations personnel for transits into and out of both Steensby Inlet port and Milne Inlet port either via telephone or internet contact, in order that any questions regarding ice conditions or ship movements that could assist ice users in preparing for travel may be answered by Project staff in a timely fashion. The objective of this condition is to ensure members of the public can access shipping information on an as-required basis to inform potential users of the scheduled Project activities, which could require deviations to land users' schedules or routing and to answer any questions concerning ice conditions. Currently, Baffinland has stated there is a new communications protocol with Pond Inlet but does not specify whether Inuit are able to contact Shipping Operations staff directly with any questions. Moreover, there is no indication of an effort to make the public aware of this protocol.	QIA requests that Baffinland clarify whether this communications protocol includes direct communication between Shipping Operations and Inuit and whether and to what extent there has been a campaign to spread awareness of this protocol.	4.7.7; PCC #166 Page 411	To clarify, responses to concerns raised by community members were provided directly by the Head of Shipping for Baffinland. The communicatons protocol was distributed to community members via the 2018 Shipping and Marine Wildlife Fact Sheet, in addition to being presented to MHTO at the June 7+8 and July 12, 2018 meetings in Pond Inlet. Copies of the Shipping and Marine Wildlife Fact Sheet were also available at the Baffinland office in Pond Inlet for interested community members to pick-up at any time. This process has again been undertaken in 2019, with further enhancements, including the hiring of full-time shipping monitors who will serve as liasons in the community to increase the effectiveness of communications and awareness of the protocol.

Baffinland

Responses to Government of Nunavut Comments

Baffinland

Table A.2 - Response to GN's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
1	NIRB Project Certificate 05, Terms and Conditions Nos. 39 and 40 require Baffinland Iron Mines Corporation (Proponent) to develop a progressive revegetation program for disturbed areas and include the revegetation strategies in the Site Reclamation Plan. Both conditions are marked as compliant in the Baffinland 2018 Annual Report (2018 Report). The Proponent states that there is ongoing development of such programs, including a review of available best practices and relevant outcomes (2018 Mary River Project Vegetation Reclamation Plan). The 2018 NIRB Annual Report (Mary River Project, March 2019, section 4, p. 115) briefly presents the key conclusions of the study. The Proponent further proposes organizing a Mine Closure Working Group in 2019 in its Interim Closure and Reclamation Plan to evaluate the implementation and results of reclamation research programs and progressive reclamation projects at Mary River (Mary River Project, March 2019, section 2.6, p. 17). The 2018 Mary River Project Vegetation Reclamation Plan - DRAFT. 27 pp. is currently not available for review. The Interim Closure and Reclamation Plan (Baffinland 2018) does not include any details of the proposed revegetation strategies. The development of progressive revegetation program should be considered as work in progress with no completed deliverables. Due to the lack of a revegetation plan the GN feels that the Proponent is only partially compliant with Project Certificate 05, Terms and Conditions 39 and 40. Although the Project is currently not undertaking any reclamation and restoration activities, a revegetation plan is important for impact assessment of Project development. Understanding post closure site reclamation supports the environmental monitoring of the Project. In particular, it informs the prediction of reversibility of Project impacts on soils, vegetation and wildlife habitat and ultimately helps determine if the Project impact predictions are accurate and mitigatable.	The GN recommends that the Proponent produce a revegetation plan according to Terms and Conditions Nos. 39 and 40 of the Projects Certificate. The revegetation plan should be produced with input from the Terrestrial Environmental Working Group. The plan should also be designed so as to confirm or refute the Project's impact predictions.	Environmental Dynamics Inc. (EDI), 2019b. 2018 Mary River Project Vegetation Reclamation Plan - DRAFT. 27 pp. (not available) Interim Closure and Reclamation Plan (Baffinland 2018) 2018 NIRB Annual Report (Mary River Project, March 2019). Section 4.	Baffinland is currently developing a reclamation study and will be setting up trial plots in 2019. Reporting for this Pilot Program will be made available when complete.

Baffinland

Table A.2 - Response to GN's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
2	NIRB Project Certificate 05, Term and Condition No. 38 requires Baffinland Iron Mines Corporation (Proponent) to mitigate Mary River Project (Project) impacts on vegetation abundance, diversity, and health. As stated in the 2018 NIRB's Annual Report on the Mary River Project , "The Proponent shall review, on an annual basis, all monitoring information and the vegetation mitigation and management plans and adjust such plans as may be required to effectively prevent or reduce the potential for significant adverse Project effects on vegetation abundance, diversity and health." (NIRB, 2019, Annual Report on the Mary River Project, section 4, p. 112) The 2018 Terrestrial Environment Annual Monitoring Report (Terrestrial Report) informs on the status of vegetation outside the Project Development Area (PDA). There is, however, no reference to Term and Condition No. 38 in the Terrestrial Report and the study does not appear to be directly addressing this Term and Condition. The monitoring program studies plant cover and plant group composition on a number of sampling sites located at the various distances from the PDA. The results of the study characterize plant abundancy, but there is no discussion provided for Project impacts on plant diversity and health in the Terrestrial Report. The monitoring results, as stated in the Terrestrial Report, "show no evidence of changes in vegetation abundance because of a Project-related effect" (EDI, 2019, Terrestrial Report, section 3.2.2.1, p. 49). It is not clear if and how the plant diversity has changed. The Terrestrial Report does not discuss the status of and changes in vegetation health. The results of the vegetation monitoring are not used for the evaluation of the Project impacts predictions. No discussion is provided for the effectiveness of the Project's impact mitigation or adaptive management plans. Air emissions effects on vegetation can occur through fumigation, fertilization and smothering (at high deposition loads), as well as due to changes in soils chemistry from dust and acid deposition. Reduction of plant composition and cover may cause erosion and potentially affect permafrost. As stated in the 2018 Terrestrial Environment Annual Monitoring Report (Terrestrial Report): "The Project's FEIS identified potential effects on vegetation abundance, diversity and health (Baffinland Iron Mines Corporation 2012) as a potentially Project-related effect. Overall effects to vegetation abundance and diversity were predicted to be not significant with a high level of confidence, while effects on vegetation health were predicted to be limited, with moderate confidence due to uncertainties on the effects of dust, metals and emissions on local vegetation." (EDI, 2019, Terrestrial Monitoring Report, section 3, p. 38) The results of vegetation monitoring should be used for the evaluation of Project impact predictions. Monitoring should discuss the effectiveness of the Project's impact mitigation and adaptive management plans. The monitoring program is focusing primarily on plant abundancy. Study of plant diversity and health has greater potential to monitor for the loss of sensitive species. Vegetation diversity and health, as well as vegetation abundancy, are typically considered as key indicators of vegetation valued ecosystem components that should be assessed for Project effects. Leaving these indicators undiscussed may lead to underestimating the Project effects on vegetation.	The GN offers the following recommendations to the Board with respect to this issue: 1) The Proponent should reference Term and Condition No. 38 in the 2018 Terrestrial Report, and include a discussion on how this Term and Condition has been addressed and fulfilled; 2) The Proponent should provide a discussion in subsequent Annual Reports on how the vegetation monitoring will be used to identify and mitigate impacts to vegetation diversity and health. This should include a description of study methodology, current status of vegetation diversity and health, and observed changes if any; and 3) The Proponent should use, in subsequent Annual Reports, the results of vegetation monitoring for evaluation of the Project impact predictions. The Proponent should provide a discussion on the effectiveness of impact mitigation and adaptive management in subsequent Annual Reports.	2018 NIRB Annual Report (Mary River Project, March 2019) Section 4 2018 Terrestrial Environment Annual Monitoring Report (EDI, 2019)	1. Project Term and Condition No. 38 will be included as a consideration as part of future versions of the annual monitoring report. 2. The 2018 Terrestrial Environment Annual Monitoring Report includes a description of the study methodology, status of vegetation diversity and health, and observed changes (i.e., trends) as part of existing vegetation monitoring programs. 3. Baffinland will consider how to better include a discussion on the effectiveness of impact mitigation and adaptive management in subsequent annual reports. However, Baffinland reiterates that no impacts beyond what was predicted in the impact assessment (i.e., loss of vegetation within the footprint of the project, with limited measurable effects outside of the footprint) have been observed. It is therefore difficult if not impossible to state otherwise without taking an experimental approach of not applying mitigation and observing the resulting impacts. That experimental approach is likely an unacceptable method to implement within a Project effects monitoring program.

Baffinland

Table A.2 - Response to GN's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
3	Project Certificate Term and Condition No.: 60 requires Baffinland Iron Mines Corporation (Proponent) to: "…develop a detailed blasting program to minimize the effects of blasting on terrestrial wildlife that includes, but is not limited to the restriction of blasting when migrating caribou, sensitive local carnivores or birds may be negatively affected." The 2018 NIRB Annual Report (2018 Report) states: "Baffinland submitted a Borrow Pit and Quarry Management Plan to the Nunavut Water Board in late 2013/early 2014. That plan accompanied a broader Environmental Protection Plan that included the requirement to scan for and report wildlife presence on a wildlife sightings log and that blasting not occur if wildlife is present and could be harmed by the activity" (BIM, 2018 Annual Report, section 4, p. 169). The Environmental Protection Plan Document #: BAF-PH1-830-P16-0008 does not appear to include this requirement. The 2018 Report and 2018 Terrestrial Environment Annual Monitoring Report do not include any wildlife sightings logs. Additional information is required to understand if the Proponent is in compliance with the Term and Condition: No. 60. The inclusion of wildlife sighting logs is important for reviewers to ensure that the Proponent is collecting accurate information with an adequate level of detail. The detail of the logs provides a useful metric to determine if on-site initiatives such as employee training regarding wildlife has been effective.	The Government of Nunavut (GN) offers the following recommendations to the Board with respect to this issue: 1) The Proponent should Provide a copy of the Environmental Protection Plan where there is a requirement "to scan for and report wildlife presence on a wildlife sightings log and that blasting not occur if wildlife is present" (BIM, 2018 Annual Report, section 4, p. 169); and 2) The Proponent should provide the wildlife sightings logs produced by the Project in 2018 to both the GN and NIRB.	Baffinland Iron Mines, 2019, Baffinland Iron Mines 2018 Annual Report to the Nunavut Impact Review Board 2018 Terrestrial Environment Annual Monitoring Report (EDI, 2019) Baffinland Environmental Protection Plan. Document #: BAF- PH1-830-P16-0008	1. See section 2.20.1 (Environmental Protection Measures) of the Environmental Protection Plan, which notes that "all drilling and blasting activities will be in accordance with the Company's site specific Quarry Management Plans". Section 3 of the Q1 Quarry Management Plan clearly states that "Blasting and processing operations will be suspended if incursions are into the quarry occur, or if observations of wildlife in the immediate quarry area are made. Personnel working in the quarry area will provide warnings if approach by any animals are noted. All employees working on quarry operation will recieve wildlife awareness training. Furthermore, Section 4.5.6 (Noise Management) of the Q1 Quarry Management Plan, notes that during quarry operations, wildllife monitors will inform management if significant wildlife activity, such as caribou movements, is occuring. Depending on the concentrations and likely effect of the noise generating activity, management may temporarily suspend operation of the quarry. 2. The wildlife sightings logs are reported annually in the Terrestrial Environment Annual Monitoring Reports (see Table 11), which have already been provided to the NIRB and GN as participating members of the TEWG. It is unclear what additional value would be obtained by the reviewer if wildlife logs are appended to the report, rather than being summarized. Provision of raw data in annual monitoring reports should not be required if the information is already being adequately captured; however Baffinland cwill consider appending these in future years of reporting.

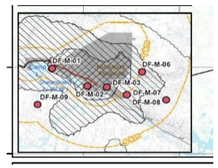
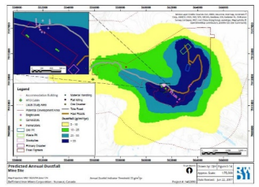
Baffinland

Table A.2 - Response to GN's Comments on Baffinland's 2018 Annual Report to the NIRB

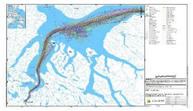
Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
4	Section 2 of Baffinland Iron Mine Corporation's (Proponent) Terrestrial Annual Monitoring Report (Terrestrial Report) contains several contradictions in its presentation of information. In particular: 1) Text of the report. The Terrestrial Report summarized on the data collected from 33 dust fall monitors located throughout the Project area. The 2018 states: that "Nine (9) dust fall samplers located at the Mine Site (three within the Mine Site, four outside the mine footprint within low to moderate isopleth areas and two references sites; one to the northeast, and one to the south) located at least 14 km from any Project infrastructure outside of the extent of expected dust fall" (EDI, Terrestrial Monitoring Report, section 2.1.2, p. 4). At the same time Table 2 indicates the distance from reference sites to PDA as 9,000 m. 2) Metal concentrations. The Terrestrial Report states "…the dust fall samples were analyzed for total metal concentrations to help inform potential trends in soil and vegetation tissues, collected as part of vegetation health monitoring" (EDI, Terrestrial Monitoring Report, section 2.1.2 p. 4). The results of the metal monitoring in dust fall, however, are not presented in the report and no discussion on the subject provided. 3) Maps. Map 1. Dust Fall Sample Locations, has mismatched inserts. The Map also shows the proposed dust fall monitoring sites but no rational for the location of these sites is provided in the Terrestrial Report. 4) Median and average values. Figures 3 and 4 present median daily dust fall. The average values of dust fall are substantially higher compared to median at the distance of 100 m from the Tote road. For example, the median value at 100 m (site DF-RS-03) is approximately 0.5 while the average value would be approximately 1.37 (EDI Terrestrial Monitoring Report, section 2.2.2, p. 22, Figure 4 and Table 6). The median dust fall at 100 m in Figure 4 is less than lower limit of the confidence interval. A median value below the lower limit of confidence is unlikely and may indicate problems in the accuracy of readings. Table 7 indicates the actual dustfall at DF-RS-03 site as Moderate (i.e. less than or equal to 50), when it fact it should be presented as High since its value is 50.51. Presentation of seemingly low dust fall values (e.g. median vs average) undermines the results and should be avoided. 5) Decrease in dustfall. The Terrestrial Report states "There was a decrease in dust fall at Milne Port dust fall monitoring station DF- P-01 in 2018 when compared with 2017. Slight decreases in dust fall were also noted at DF-P-04, -06 and -07. Only at station DF-P-05 was there minimal increase over 2017" (EDI, 2019, Terrestrial Monitoring Report, section 2.3.2, page 36, Figure 17). At the same time, Figure 17, which presents the results of annual dustfall, actually shows an increase in the dust fall for monitoring stations DF-P-01, DF-P-05 and DF-P- 06 at Milne Port compared to 2017. The Proponent should correct this discrepancy between the Figure and the description in the text. 6) Summary. The report states that "[a]nnual dust fall at the Mine Site sample locations currently falls within predicted levels…" (EDI, 2019, Terrestrial Monitoring Report, section 2.4, p. 37). This is only partially true as the 2018 Annual Report states that dust fall deposition rates were in the high range (above 50 g/m2/year with no upper level). Actual dustfall numbers should be compared with predicted numbers to prove this statement. The report further states that "[d]ust fall continues to decrease at most year- round sampling locations throughout the Project area" (EDI, 2019, Terrestrial Monitoring Report, section 4, p. 45). This is not wholly supported by the monitoring data and provides a skewed illustration of dust trends at the Project. There was a dust fall decrease in 2018 compared to 2017 at some sites, but the statement that there is a continuation in dust fall decrease is overstated. In order for reviewers to make a thorough and informed review of the Project's 2018 Report, discrepancies in the presentation of data cannot exist. The discrepancies prevent reviewers from having confidence in the presented values and as such render them unable to produce comments and questions that the Proponent can reasonably respond to. Numerous mismatches and errors in the 2018 Report decrease the 2018 Report's quality and undermine its value for the Project.	The Government of Nunavut requests that the Proponent undertake a review of the 2018 Report, including the Terrestrial Report, and address any discrepancies regarding data presentation. These reviews should be undertaken in subsequent Annual Reports to ensure that data discrepancies do not occur in the future. Revisions made to the 2018 Report as a result of clarification of discrepancies should be presented in a revised report to the NIRB for review by intervenors and other interested parties.	2018 Terrestrial Environment Annual Monitoring Report (EDI, 2019)	Several comments on the Draft 2018 Terrestrial Environment Annual Monitoring Report were provided by the Government of Nunavut previously. Responses to these comments were appended to the Final Terrestrial Environment Annual Monitoring Report (EDI, 2019). Responses to comments provided by Baffinland were also discussed via teleconference with the TEWG on April 24, 2019. It is unclear why the Government of Nunavut is submitting additional comments on the 2018 Terrestrial Environment Annual Report, rather than having included these comments on the Draft Report or raised these issues during the April 24 TEWG teleconference. These reports are not living documents and will therefore not be updated again. Baffinland will continue to accomodate for reviewer input by issuing draft versions of the report to the TEWG and following the process described above. Baffinland will continue to welcome comments from the GN on future years of reporting via Working Group Comment and Response form on the Terrestrial Environment Annual Monitoring Reports.

Baffinland

Table A.2 - Response to GN's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
5	The Terrestrial Environment Annual Monitoring Report (Terrestrial Report) section 2.2.1.1, Overview of Weather Conditions, describes the prevailing winds at the mine site as "south/southeast winds [occurring] frequently, followed by strong north winds" (EDI, Terrestrial Report, section 2.2.1.1, p. 12). The 2018 NIRB Annual Report (Mary River Project, March 2019) Map 1 Dust fall sample locations for the Mary River Project (Project) area (Page 7) identifies the dust sampling locations adjacent to the Mine site (i.e. DF-M-01, DF-M-02, DF-M-05, DF-M-07, DF-M-08 and DF-M-09). Based on the prevailing winds identified in the Terrestrial Report section 2.2.1.1, dust sampling locations are located upwind of the deposit and excavation and appear to be located in the direction of lowest dust fall (see below). The figure below also identifies the highest deposition [of dust fall?] to the northwest of the collection locations. This would result in the collection locations yielding lower dust fall deposition than the downwind side. Figure 1. Locations of Dust-fall Monitoring Stations at the Mary River Mine Site (EDI, 2019, Terrestrial Report, Map 1, p. 7) In addition, the Phase 2 FEIS Addendum, TSD 7, Figure E-14 (below) suggests the prevailing winds are from the southeast and therefore sampling locations should be to the northwest of the excavation activities. Sampling dust fall downwind of disturbance areas is essential as it provides the maximum level of dustfall, accurate effects assessment and required mitigation measures.   Sampling dust fall downwind of disturbance areas is essential as it provides the maximum level of dustfall, accurate effects assessment and required mitigation measures.	The Government of Nunavut (GN) offers the following recommendations to the Board with respect to this issue: 1. Baffinland Iron Mines Corporation (Proponent) should explain, through an open letter submitted to both the GN and NIRB, the inconsistencies between the dust fall sampling location, prevailing wind direction, and projected dust fall deposition; and 2. The Proponent should also revise its dust fall sampling locations to include downwind of dust producing sources, such as crushing or excavation.	Nunavut Impact Review Board, 2019, 2017-2018 Annual Monitoring Report for Baffinland Iron Mines Corp.'s Mary River Project Nunavut Impact Review Board, 2019, 2018 NIRB Annual Report for the Mary River Project, March 2019. Section 2. TSD 07, Phase 2 FEIS Addendum Environmental Dynamics Inc., 2019, 2018 Mary River Project Terrestrial Environment Annual Monitoring Report.	1. Dust fall monitoring at the Milne Port was established in 2015. DF-P-01 and DF-P-07 are downwind of the ore stock piles, DF-P-05 is downwind of the camp and the sealift staging pad. DF-P-04 is located to capture any dust fall associated with travel coming into Milne Port via the Tote Road. 2. Following the previous four years of data collection, and adjustments to Port infrastructure to accommodate increase stockpile and staging areas, there has been an identified need to implemented proposed changes to dust fall monitoring that include increased monitoring downwind of dust generating areas including stockpiling and crushing areas.

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
6	Baffinland Iron Mines Corporation's (Proponent) Mary River Project's (Project) 2018 marine shipping routes cover an area considerably larger than the nominal shipping route used in the Project's Final Environmental Impact Statement (FEIS) to assess impacts on marine wildlife. The 2018 Annual Report (2018 Report) does not discuss this deviation from the nominal FEIS shipping route and does not provide an assessment of the spatial extent of the shipping zone of influence (ZOI), as required under the Project Certificate. The Government of Nunavut also notes that Term and Condition No. 104 does not employ a definition for the term "significant deviation" (BIM, 2018 Annual Report, section 4, p. 265) as used to describe ships that do not follow the nominal shipping route. The Proponent has not advised how it interpreted the term "significant deviation" in the 2018 Report. For assessing the effects of Project shipping on marine mammals, the FEIS used a nominal shipping route to and from Milne Inlet (Figure 1) and employed mitigation measures to minimize the spatial extent of disturbance such as the assumption that transiting vessels would adhere to the same route during round-trips (BIM, FEIS, Volume 8).  Figure 1. Nominal marine shipping route for Milne Inlet port (Source: Technical Service Document 24, Marine Mammal Effects Assessment, FEIS Addendum) Project Certificate 005 Term and Condition No. 103 states that: "The Proponent shall report annually to the NIRB regarding project-related ship track and sea ice information, including: … (d) An assessment of the level of adherence to the nominal shipping route and the spatial extent of the shipping zone of influence." Project Certificate 005 Term and Condition No. 104(b) states that: "The Proponent shall summarize all incidences of significant deviations from the nominal shipping routes for traffic to/from Milne Port and Steensby Port as presented in the FEIS and FEIS Addendum to the NIRB annually, with corresponding discussion regarding justification for deviations and any observed environmental impacts." The GN considers the Proponent's 2018 Report not fully compliant with Terms and Conditions Nos. 103(d) and 104(b). The 2018 Report provides a map of ship tracks (Figure 2) and concludes that there were no significant deviations from the nominal shipping route in 2018 and have been no significant deviations during the first 4 years (2015-2018) of shipping (BIM 2019, section 4.6.10, p. 50). The GN notes the following: The Project Certificate does not define the term "significant deviations" as used to describe shipping under Term and Condition No. 104(b). However, the GN notes that there are many individual ship tracks that appear to deviate from the nominal shipping route (Figure 2). Moreover, the combined ship tracks for 2018 create a shipping 'lane' that is greater than 10km wide in some places (Figure 2). This is clearly larger than the nominal shipping route used in the Project's effects assessment. From the GN's perspective, this clearly constitutes a significant deviation. The Proponent should have discussed the reasons for this deviation and the associated environmental impacts, per Term and Condition No. 104(b), in the 2018 Report. The 2018 Report does not provide an assessment of the shipping ZOI, as required under Term and Condition No. 103(d). Pursuant to the GN's analysis contained in this comment, The 2018 ZOI will be larger than the Proponent's estimates, which were generated based on the assumption that ships will adhere to the nominal route presented in the FEIS. Figure 2. Ship tracks for the Mary River Project's 2018 operations. (Source: BIM (2019), figure 4.15)	The GN offers the following recommendations to the Board to address these issues: 1) The NIRB should provide a definition of the term "significant deviation" for Term and Condition No. 14. In future Annual Reports, Project shipping activity should be reported under Terms and Conditions Nos.103 and 104 using this definition; 2) The Proponent should, in accordance with Term and Condition No. 104(b), summarize instances of deviation from the nominal shipping route that occurred in 2018 in accordance with the definition of "significant deviation" that will be provided by the NIRB. The Proponent should also provide justification for significant deviations and the observed environmental impacts. These recommendations should be fulfilled through amendments to the 2018 Report, and their inclusion in subsequent Annual Reports; 3) The Proponent should, in accordance with Term and Condition No. 103(d), provide an assessment of the spatial extent of the shipping ZOI in 2018. This assessment should be quantitative in nature. The GN recommends that the assessment include estimates of the total area over which noise from Project shipping exceeded the 120 dB re 1 µPa SPL disturbance threshold used to assess acoustic disturbance of marine mammals (BIM 2018, FEIS Addendum, TSD 24); 4) The Proponent should express estimates in absolute terms and as a proportion of the marine Local Study Area and Regional Study Area; 5) The Proponent should also map this area to illustrate the acoustic footprint of shipping in 2018. If possible, this map should illustrate spatial variation in the frequency of threshold exceedances within this footprint; and 6) The Proponent provide similar estimates and maps for the disturbance of marine mammals, such as seals, that may occur as a result of the visual stimulus presented by ships. The Proponent should submit the assessment and map to NIRB so that they can be openly reviewed by intervenors and other interested parties.	Baffinland Iron Mines (BIM). (2012). Final Environmental Impact Statement (FEIS) for the Mary River Mine, volume 8, Marine Environment Baffinland Iron Mines (BIM). (2019). 2018 Annual Report to the Nunavut Impact Review Board, section 4.6.10 – Marine Wildlife Baffinland Iron Mines (BIM). (2018). Final Environmental Impact Statement (FEIS) Addendum for the Mary River Phase 2 Project Proposal. Technical Service Document 24 – Marine Mammals	As a general note, Baffinland wishes to discuss further with the Government of Nunavut their mandate and expertise for providing recommendations to the Board with respect to Baffinland's marine mammal managemen and monitoring programs, understanding marine mammals are expressly excluded from the Wildlife Act. 1. NIRB to respond. 2. As described in PC 103, no significant deviations from the nominal shipping route have occured in the first four years of iron ore shipping.The term 'significant deviation' from the nominal shipping route is the terminology used by the Nunavut Impact Review Board (NIRB) in Project Certificate Condition No. 104(b) which states that: "The Proponent shall summarize all incidences of significant deviations from the nominal shipping routes for traffic to/from Milne Port and Steensby Port as presented in the FEIS and FEIS Addendum to the NIRB annually, with corresponding discussion regarding justification for deviations and any observed environmental impacts." 3. The estimated range for marine mammal disturbance onset (120 dB re 1 µPa SPL) and avoidance behaviour (135 dB re 1 µPa SPL) relative to the nominal shipping lane is presented quantitatively for each species in 'Section 5' and 'Appendix B' of Golder's Assessment of Icebreaking Operations during the Shipping Shoulder Seasons. In addition to this, and specifically in response to Technical Comments issued by DFO on the Phase 2 FEIS (DFO 3.5.2 and 3.5.6), Baffinland is preparing a technical memorandum that summarizes the sound field ranges (i.e., ensonification zones) associated with a Project vessel transiting through the RSA, as well as the associated daily vessel exposure periods for narwhal, during both shoulder season and open water season scenarios, relevant to the 135 dB avoidance and 120 dB disturbance onset thresholds, as well as for the 110 dB noise field. Deliverable of this technical memorandum is scheduled for 15 July 2019 (it will be uploaded to NIRB registry). The information requested by the GN in this comment will be provided as part of this technical memorandum. 4. The information requested by the GN in this comment has already been provided in Section 5' and 'Appendix B' of Golder's Assessment of Icebreaking Operations during the Shipping Shoulder Seasons. Noise fields as a proportion to the LSA and RSA will be presented in the technical memorandum referenced in #3; however, this will only be provided at four fixed locations along the shipping corridor, which corresponds with the four locations for which acoustic modelling data is available. 5. In response to DFO Technical Comment 3.1.7 on the FEIS Addendum (Phase 2 Proposal), JASCO will be providing an animated visual representation of all proposed shipping traffic during the shipping season under a Phase 2 operational scenario. This animation has been built using 2018 AIS ship tracking data which was then extrapolated to account for the relative increase in shipping frequency under a Phase 2 scenario. The animation will include estimated noise footprint/propagation around each Project vessels as they move through the RSA to and from Milne Port and associated anchorages.

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
				6. There is no evidence in the scientific literature of seals in-water being disturbed by ships as a result of visual stimulus, nor any indication as to what range this may occur (if it even occurs at all). Baffinland is unable to comment further on this recommendation given that is unfounded scientifically.
7	Section 4.6.7 of Baffinland Iron Mine Corporation's (Proponent) 2018 Annual Report (2018 Report) provides an overview of the Proponent's 2018 monitoring activities to address terrestrial concerns, with note of particular emphasis on caribou monitoring: "Caribou has been and continues to be one of the primary focuses of stakeholder concern with respect to the terrestrial environment. The TEWG is a stakeholder body that Baffinland interacts with regarding caribou and other components of the terrestrial environment."(BIM 2019, S. 4.6.7, p. 139) Table 4.18 lists the possible Project effects on the terrestrial environment and the monitoring programs used to assess these effects. Table 4.18 Terrestrial Environment Impact Evaluation The 2018 Report concludes that the Project's effects on the distribution and movements of caribou are within FEIS predictions. This conclusion is based largely on the results of two monitoring programs; height-of-land (HOL) surveys and snow track surveys. The 2018 Report describes the methods and amount of time employed in conducting these surveys, and the results of the surveys. During early June 2018, the Proponent's Terrestrial Monitoring Report (EDI 2019) states that a total of 18 hours 20 minutes of HOL survey effort and a one-day snow track survey were undertaken, and that no caribou were detected during either survey. These surveys have not detected caribou since 2013. As detailed in the Government of Nunavut's (GN) comments on previous Annual Reports, the GN is concerned that these surveys have not been able to detect caribou for the purposes of mitigating and monitoring Project-related effects on caribou. The fact that no caribou were observed in the last 5 years could be a result of the following: 1) Caribou were not detected because they are simply not present in the area during the survey, possibly owing to low population density or low survey effort. 2) Caribou were not detected due to avoidance behaviour and/or deflection from Project infrastructure and activities. The GN is concerned that the current study design and level of survey effort does not offer the power to distinguish between these two possibilities. As a result, the GN suggests the Proponent may not be complying with Terms and Conditions No. 53(b)-(c) and 58(b). The 2018 Report notes that: "Caribou numbers are low at this time and therefore interactions with the Tote Road and vehicles have not occurred;" and "Snow tracking surveys have not yet observed caribou tracks due to very low caribou numbers." (BIM 2019, section 4.6.7, p. 148) These conclusions are not supported by the evidence provided by current caribou monitoring programs. Project Certificate Term and Condition No. 53(b) states that: "The Proponent shall demonstrate consideration for the following: … b. Monitoring and mitigation measures at points where the railway, roads, trails and flight paths pass through caribou calving areas, particularly during caribou calving times. The details of these monitoring and mitigation measures shall be developed in conjunction with the Terrestrial Environment Working Group. ". Term and Condition No. 53(b) refers to monitoring and mitigation measures for caribou and appears to contemplate that one of the purposes of monitoring will be to trigger mitigation measures, such as road traffic or aircraft management, when caribou are detected near the Project. The 2018 Report (BIM 2019) points to the results from height-of-land monitoring as	The GN reiterates its previous requests (GN 2018) that the Proponent monitor Project effects on caribou as required by the Project Certificate by: Significantly increasing the HOL survey effort such that a large, statistically defensible portion of the year when caribou may be present along the road corridor is being observed (similar to what the Proponent does for monitoring narwhal at Bruce Head) Or, given the low densities of caribou in the Project Development Area and the survey area, the Proponent could alternatively: Invest the effort of an improved HOL survey into regional monitoring programs led by the GN, including aerial surveys and collaring programs, so as to increase effort in areas of the Project Development Area where caribou may be present. The GN further recommends that the Proponent explore alternative methods for monitoring caribou in the Local Study Area around the Project; methods that facilitate greater survey effort and range of sampling (e.g. unmanned aerial vehicles). The GN expects the Proponent to work closely with the GN and the TEWG when developing and/or modifying mitigation and monitoring programs.	Baffinland Iron Mines (BIM). (2019). 2018 Annual Report to the Nunavut Impact Review Board, section 4.6.7 – Terrestrial Wildlife Environmental Dynamics Inc. (2019). 2018 Mary River Project Terrestrial Environment Annual Monitoring Report. Government of Nunavut (GN). (2018). Comments on Baffinland Iron Mines 2018 Annual Report to the Nunavut Impact Review Board, comments #2 and #3.	In response to previous requests, Baffinland doubled the survey effort for both the Height-of-Land and snow track survey programs in 2019. Baffinland also already contributes to regional monitoring programs led by the GN (and ECCC-CWS). Since 2009, Baffinland has provided cash funding and in-kind resources to the GN's regional monitoring programs, and has committed to providing continuing support. For example, in 2017, Baffinland provided support for the North Baffin Island fall caribou population surveys by providing helicopter access, fuel and accommodations for the survey team. Baffinland remains open to discussing alternative monitoring methods through the TEWG.

Component	Effects	Monitoring Program	Impact Evaluation
Habitat Loss	Direct habitat loss due to the Project footprint, and indirect habitat loss due to sensory disturbances	Height of Land monitoring; snow track and snow bank monitoring; incidental observations; GN regional aerial surveys. Regional numbers appear very low.	Within FEIS predictions
Restriction of Movement	Project infrastructure and the tote road act as a barrier to the movement of caribou		
Mortality	Mortality resulting from vehicle collisions or project-induced hunting	Incidental observations; biologists and other staff on-site; no mortalities observed	Within FEIS predictions

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
	evidence of compliance with this Term and Condition. For 2018, the Proponent conducted a total of 18 hours and 20 minutes of HOL surveys during which no caribou were observed (EDI 2019, section 4.4.2, p. 77). All the reported HOL surveys took place during early June. This level of monitoring represents 0.2% of the time when caribou could be present near the Project. For the remaining 99.8% of the time there was no dedicated monitoring program to detect caribou near the Project. As previously noted by the GN in response to the 2014, 2015 and 2017 Annual Reports, this level of monitoring is insufficient and does not adequately "demonstrate consideration" as required under Term and Condition No. 53. Project Certificate Term and Condition No. 53(c) states that: "The Proponent shall demonstrate consideration for the following: … c. Evaluation of the effectiveness of proposed caribou crossings over the railway, Milne Inlet Tote Road and access roads as well as the appropriate number." As evidence of compliance with this Term and Condition, the 2018 Report points to the results of caribou snow track monitoring. During 2018, a one-day snow track survey was conducted during which no caribou tracks were recorded (EDI 2019, section 4.2.2, p. 67). This one-day sample is presented as evidence that caribou are not interacting with the Project and are therefore not experiencing problems in crossing roads. As previously noted by the GN in response to the Proponent's 2017 Annual Report (GN 2018), this level of monitoring is insufficient and does not adequately "demonstrate consideration" as required under Term and Condition 53. Snow track surveys are intended to "collect data on caribou response to Project activities based on patterns of movement observed by their tracks" (EDI 2019, Section 4.2.1, p. 67), yet they are only conducted once annually", in this case on April 28, 2018(EDI 2019, Section 4.2.1, p. 67). Detecting the presence or absence of an animal requires multiple visits within a season and even then, only allows inference of animal activity in the biologically relevant season for a species. Furthermore, since snow tracks can be altered or erased by wind, snowfall, and temperature changes, this method requires a measure of the length of time that tracks may have accumulated since a clearing event. Additionally, assessing snow tracks from the Tote Road serves to limit the ability of the program to assess deflection. Observers are limited by their line of sight, and if caribou are deflected from the Tote Road or exhibit avoidance behaviour that keeps them – and their tracks – outside of the observers' line of sight from the Tote Road, then these impacts would remain undetected by the snow track survey. The current study design only captures one example of deflection, whereby the snow bank height doesn't allow for caribou to cross the Tote Road, so they closely parallel the road until finding a suitable place to cross it or turn away and do not cross. Project Certificate Term and Condition No. 58(b) states that: "Within its annual report to the NIRB, the Proponent shall incorporate a review section which includes: … (b) A detailed analysis of wildlife responses to operations with emphasis on calving and post-calving caribou behaviour and displacements (if any), and caribou responses to and crossing of the railway, the Milne Inlet Tote Road and associated access roads/trails." As evidence of compliance with this Term and Condition, the 2018 Report notes that this Term and Condition is: "addressed in the terrestrial environment annual monitoring program annually through height-of-land surveys, snow bank height management and monitoring, and snow track surveys. However, caribou displacement has not yet been observed on-site." (BIM 2019, section 4.6.7, p. 161) As discussed above, the GN maintains that the 18 hours 20 minutes of HOL surveys and the one-day snow track survey, conducted in 2018, is an inadequate level of sampling to support the conclusion that caribou are not being displaced from the Project and are freely crossing the Tote Road. These surveys have failed to collect any caribou observations in the last 5 years. At this level of monitoring effort, it is not possible to determine whether the lack of caribou observations in the vicinity of the Project is due to low caribou densities, lack of survey effort and/or caribou avoidance of the Project. Although the GN acknowledges that caribou density in north Baffin is low, this does not preclude the Project from having significant effects on the movements and distribution of caribou. It does, however, mean that the level of sampling effort required to detect potentially significant Project effects will necessarily be relatively high; much higher than the current effort. The study designs rely on behavioural observations to indicate how caribou might be interacting with Project infrastructure and activities. This approach is			

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
	only effective when caribou are frequently observed, such as in instances of high caribou population density. The requirement, under Term and Condition No. 58(b), to conduct a detailed analysis of wildlife responses to operations cannot be fulfilled because the Proponent has not, since 2013, applied adequate monitoring effort and/or methodology to: (1) collect the data necessary for this analysis; or (2) prove, statistically, that such data cannot be collected due to lack of caribou interactions with the Project. In summary, the caribou monitoring programs implemented by BIM since 2013, do not provide an adequate basis for detecting caribou for the purpose of implementing day-to-day mitigation measures. They do not provide a means for accurately and reliably monitoring Project effects on caribou in-order to facilitate adaptive management.			
8	In accordance with Project Certificate Terms and Conditions Nos. 33 and 36, Baffinland Iron Mines Corporation (Proponent) monitors vegetation abundance and composition. One of the objectives of this monitoring is to determine whether the Project is affecting the availability of caribou forage within the Regional Study Area (RSA). In 2017 and 2018, the Proponent conducted a study to assess the repeatability of the point quadrat method used in this monitoring program to determine whether it produces precise, repeatable data. Based on the results of this study, is the Proponent concluded that the point quadrat method is a highly objective and repeatable method and is thus appropriate for measuring percent plant cover and composition for the purposes of Project effects monitoring. The 2018 Annual Report (2018 Report) lacks several details regarding the repeatability study that are necessary for reviewers to understand whether the study's conclusions are reasonable. The GN requests additional information in this regard. The 2018 Mary River Terrestrial Environment Annual Monitoring Report states that: "A repeatability study was conducted in 2017 and 2018 at previously established vegetation abundance monitoring sites in the Project area. Sites were randomly selected to be remeasured by returning to the site later the same day or the following day. Plots were remeasured using the point quadrat method and by following the same protocol described above in Section 3.1.1.1." (EDI 2019, section 3.1.1.2, p. 47) From this description, it is unclear how many and how often plots were remeasured. Additionally, an important consideration in assessing the repeatability of a method is determining whether the method is repeatable amongst observers collecting the data. Since the vegetation monitoring program is intended to measure long-term changes in plant cover and composition, it is reasonable to assume that multiple individuals will be involved in collecting data over time. It is thus important to understand the potential effect of multiple observers on monitoring results. From the methods described in the 2018 Report, it is unclear whether and how the effect of multiple independent observers was considered.	The GN recommends the following: 1) The Proponent should provide information on the number of vegetation plots that were re-measured as part of the repeatability study and the number of times each plot each of these plots was re-measured; 2) The Proponent should clarify how the effects of multiple independent observers were incorporated into the repeatability study; and 3) The Proponent's response take the form of an open letter directed to both the GN and NIRB.	Baffinland Iron Mines (BIM). (2019). 2018 Annual Report to the Nunavut Impact Review Board, section 4.6.7 – Terrestrial Wildlife Environmental Dynamics Inc (EDI). (2019). 2018 Mary River Project Terrestrial Environment Annual Monitoring Report, section 3.1.1.2 Evaluation of Vegetation Abundance Monitoring Methods	1. The total number of vegetation plots that were re-measured as part of the repeatability study was 17 (refer to the 2018 Terrestrial Environment Annual Monitoring Report, Appendix A). Some plots were opportunistically re-measured once while others were intentionally re-measured twice. 2. Only one observer conducted the repeatability study; however, the purpose of the repeatability study was to analyze the point quadrat method and precision of the measurements, where measurements with high precision are less variable and more repeatable. At each plot 200 measurements are made and plots which were used for the repeatability study were re-measured either later that day or the following day removing any potential for observer bias. 3. It is unclear to Baffinland what the GN's request is for an "open letter". Baffinland is of the opinion that providing meaninful responses to the GN and other reviewers on the NIRB Report is both an appropriate and effective mechanism for encouraging publically accessible dialogue on Baffinland's environmental effects monitoring programs.

Baffinland

Table A.2 - Response to GN's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	GN Recommendations	Reference Section	Baffinland's Response
9	The Iqaluit Airport is experiencing a critical shortage of jet fuel, several weeks ahead of the next sea lift delivery. The Government of Nunavut (GN) Department of Community and Government Services (CGS)is responsible for the order and disbursement of petroleum products in the territory. CGS has identified an increase in flight frequency associated with the Mary River Project as a contributing factor to the shortage. The Proponent's Socio-Economic Monitoring Program tracks potential impacts to community infrastructure, including airport infrastructure, and government services. The Proponent currently tracks air traffic movements at the local study area community airports. Table 8-4 outlines project air traffic from 2014-2018. The Proponent observed an increase in air traffic in total and in Iqaluit. Term and Condition No.159 encourages the Proponent to work with the GN to develop a monitoring program that captures potential impacts to community infrastructure, including community airports. While the Proponent reports on historical air traffic activity, the Proponent has not yet implemented a forecasting system to anticipate changes to air traffic activity and related increase demand for jet fuel. The GN sells jet fuel to a wide variety of customers utilizing Nunavut's airports. There is a finite annual supply of jet fuel, which is limited by the previous year's sealift order. The GN does not have a statutory monopoly on fuel sales. While the GN does supply fuel in all Nunavut communities, including aviation fuel in many communities, the planning presumption is that this fuel is primarily intended to serve civilian intercommunity routes and connections to major centres. Without advanced notice of the Proponent's anticipated draw on fuel in the preceding summer shipping season, there may only be limited capacity to serve large and sustained spikes in itinerant or private charter traffic, even in a larger centre such as Iqaluit. Incorrectly estimating the quantity of fuel needed has the potential for significant negative impacts for all parties, including the GN, the Proponent and its contractors, and other commercial enterprises operating in the territory. The Proponent's development of a fuel use forecasting mechanism (or alternative solutions as proposed), including communication protocols for such forecasts, will better allow the GN to estimate yearly fuel needs and reduce the likelihood of shortages to be borne by commercial businesses in the months leading up to the next year's sea lift.	The GN recommends that the Proponent develop a fuel use forecast communication protocol in conjunction with the departments of Economic Development and Transportation and Community and Government Services to forecast changes to air traffic frequency and demand for jet fuel from airports in the local study area. This protocol should include: (1) annual flight activity forecasting in advance of the GN's annual fuel sea lift; and (2) quarterly updates to the Petroleum Products Division (Community and Government Services) comparing real flight data with forecasted fuel needs. In addition, the GN remains open to further suggestions from the Proponent regarding a resolution on this issue, provided they are cost-neutral for the GN and do not increase our operating risks.	2018 Socio-Economic Monitoring Report for the Mary River Project, Table 8-4: "Number of Project Aircraft Movements at LSA Community Airports" (p. 78)	PC Condition No. 159 does not require fuel use forecasting be provided by Baffinland to the GN. 2019 flight requirements are in line with 2018 requirements and were communicated to the Iqaluit ground crew through our aviation partner. Current projections indicate we are within the expected range of number of flights for the year at this time. Baffinland remains open to discussing potential resolutions to this issue with the GN, outside of the NIRB Annual Report process.

Baffinland

Responses to Environment and Climate Change Canada Comments

Baffinland

Table A.3 - Response to ECCC's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	ECCC Recommendations	Reference Section	Baffinland's Response
	Air Quality monitoring data and the Canadian Ambient Air Quality Standards			
1	In a letter dated May 14, 2018, ECCC outlined its comments on the 2017 annual report. In the letter, ECCC stated: ECCC has reviewed the air quality Term and Conditions #7 to #12 and summary conclusions. However, without access to supporting documentation, such as an air data report, we are unable to confirm Baffinland Iron Mines Corporation's (the Proponent's) conclusions presented in the annual monitoring report. In future iterations of the annual report, ECCC recommends that the Proponent provide this information. Upon review of the 2018 annual report ECCC notes that the air quality monitoring has not been included with the annual report. Again, ECCC reiterates that without the air quality data ECCC is unable to confirm the Proponent's conclusions presented in the annual monitoring report. ECCC requests that the Proponent provide tables and figures presenting the air quality monitoring data rather than qualitative statements indicating if the data is above or below the Nunavut Ambient Air Quality Standards (AAQS). The 2018 letter from ECCC also directs the Proponent to include comparisons of the air quality monitoring data to the Canadian Ambient Air Quality Standards (CAAQS). These comparisons have not been included in the 2018 Annual report. Again, ECCC requests the proponent to include comparisons of monitoring data to the CAAQS in conjunction with comparisons to the Nunavut AAQS.	ECCC recommends the Proponent provide figures and tables containing the ambient air quality data and compare this data to the CAAQS as well as the Nunavut AAQS.	NIRB Annual Report (for 2018)	To maintain a transparent approach to managing air quality, Baffinland discloses emissions publicly through Environment and Climate Change Canada's National Pollutant Release Inventory and GHG reporting portals. Moving forward, Baffinland will consider revising the documentation provided in future Annual NIRB Reports for air quality monitoring programs, although it remains unclear why use of the Nunavut AAQs are not considered sufficient by ECCC. Canadian Ambient Air Quality Standards (CAAQS) were developed by the Canadian Council for the Ministers of the Environment (CCME) to manage air emissions and ambient air quality concentrations in a regional airshed; CAAQS are not intended to determine compliance for an industrial facility. CAAQS are best suited as a tool to manage air emissions in regional airsheds that have multiple industrial sources. Regional airsheds typically have sensitive receptors (i.e. vulnerable populations such infants, elderly and those with respiratory ailments), major industrial air emissions and opportunities for achievable emission reductions. These airsheds often have multi-pollutant management needs. Regional airsheds differ based on the unique characteristics of local geography, meteorological conditions, and composition of human activity, including industrial activity. Baffinland notes that details regarding whether ambient air quality data falls below or above the Nunavut AAQs has been clearly provided by Baffinland in PC Condition 7 and 8.

Baffinland

Responses to Department of Fisheries and Oceans Comments

Baffinland

Table A.4 - Response to DFO's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	DFO Recommendations	Reference Section	Baffinland's Response
Effects Monitoring				
i	Ship-Board Marine Mammals Observation: Condition 3.4 of Baffinland's Fisheries Act Authorization for the Milne Inlet Ore Dock under DFO file number14-HCAA-00525, states "the Proponent shall provide sufficient marine mammal observer coverage on project vessels to monitor marine mammal interactions with project vessels" DFO notes that the marine mammal observer program was discontinued in 2016 and that in 2018, "An SBO Program was conducted from on-board the MSV Botnica" (pg. 307, 2018 Annual Report). On page 307 of the 2018 Annual Report, it states "The 2018 SBO Program took place from July 28 to August 7 (spring shoulder season) and again from September 28 to October 17 (fall shoulder season)."	DFO notes that while Baffinland conducted a marine mammal observation program in 2018, it was not conducted throughout the entire shipping season and only during the shoulder seasons. DFO notes that monitoring throughout the shipping season is important in order to inform the conclusions regarding potential effects and interactions of vessels with marine mammals; especially with respect to ship strikes.		The ship-based observer (SBO) program is based aboard the icebreaker which is only present in the RSA during the shipping shoulder seasons. Placing marine wildlife observers on ore carriers is not an option due to safety and logistical limitations. Potential effects of shipping on marine mammals during the open water season, and data evaluating potential interactions of vessels with marine mammals during this period, 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.
ii	Shipping Route Deviation: On page 264 of the 2018 Annual Report, Baffinland states "There were no significant deviations from the nominal shipping route in 2018 by Project ore carriers." DFO notes in Figure 4.15 on the same page, route deviation is visible and one vessel travelled through Navy Board Inlet. DFO acknowledges the vessel was not an ore carrier, however, Baffinland has not discussed this deviation as part of the conclusions. DFO further notes that the route through Navy Board Inlet, as a shipping route, has not been included in Baffinland's impact assessments.	DFO recommends Baffinland provide further discussion regarding shipping route deviation.		The vessel that travelled through Navy Board Inlet was a resupply vessel that was not under contract during the time it deviated from Baffinland's Northern Shipping Route. This resupply vessel was under separate contract to deliver goods to other communities, such is normal practice for resupply vessels in the Arctic. Baffinland has no responsibility for vessels when they are retained on other contracts.
iii	Aquatic Invasive Species: DFO notes that on page 206, it states "In 2018, a total of 44 zooplankton species were identified during AIS sampling in 2018 at Milne Port and Ragged Island. Four of these species were not recorded during baseline studies or during previous AIS monitoring campaigns" and "A total of 349 benthic invertebrate taxa were identified during AIS sampling in 2018 at Milne Port and Ragged Island. Forty-six (46) of these taxa were not recorded during baseline studies or during previous AIS monitoring campaigns." Further "A new sabellid worm (Pseudofabricia sp. nr. Aberrans) was identified in the deep-water infaunal samples collected from Milne Port in 2018." […]"Currently, the only species described for this genus is aberrans with the only known range in the Mediterranean Sea and is presumed to be endemic to that region" (pg. 206, 2018 Annual Report). DFO notes "that different labs have conducted taxonomic analyses, and differences within lab sample processing has occurred to date. Consistent expertise for taxonomic analysis is important for the comparability of data over time and the interpretation of possible changes in the system. Some rarer species may be named differently depending upon how familiar taxonomists are with the literature" (DFO 2019). DFO notes a large number of newly identified species for 2018 and is unclear on Baffinland's current conclusions, stating on page 201 of the 2018 Annual Report, that "None of the macroflora, benthic epifauna, or fish taxa observed during the AIS surveys in 2018 were identified to be invasive". DFO notes that Baffinland states that "All taxa are compared against a global invasive species database (Molnar et al. 2008), as well as a known invasive species list within the National Risk Assessment for Introduction of Aquatic Nonindigenous Species to Canada by Ballast Water (Casas-Monroy et al. 2014)" (pg. 203-204, 2018 Annual Report), but DFO further notes that potentially harmful species may not necessarily exist on these lists. DFO acknowledges that "Further investigations into the status of P. sp. nr. aberrans is in progress in consultation with DFO" (pg. 206, 2018 Annual Report).	DFO will continue to work with Baffinland to ensure the best preventative measures against the spread of aquatic invasive species. However, DFO notes that for a thorough review, it's important to provide a detailed list of the previously unrecorded species, a background on each individual species and a detailed rationale to support Baffinland's conclusions to consider the species non-invasive. DFO recommends that Baffinland provide information on the newly recorded species for review.		Baffinland will work with DFO to provide them with information on the newly recorded species in the Project area, including species previously identified as potentially invasive.

Baffinland

Table A.4 - Response to DFO's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	DFO Recommendations	Reference Section	Baffinland's Response
	Compliance Monitoring			
1	Fish Passage Obstruction along the Tote Road: As per the DFO Fisheries Act Authorization for the Milne Inlet Tote Road (DFO file no.: 06-HCAA-CA7-00084), condition 2.2 states “Culverts shall be appropriately sized and embedded to maintain upstream and downstream fish passage at each crossing.” The Proponent submitted its Annual Fish Habitat Monitoring Report to DFO and identified issues with fish passage at multiple culvert crossings, of which some are also reported in the 2018 Annual Report submitted to the NIRB. Specifically, the Proponent identified 11 fish passage/habitat issues in the Annual Report during the 2018 Crossing Survey. The Proponent indicated that “works to address concerns identified in the 2018 assessments are planned for 2019” (pg. 128, 2018 Annual Report). DFO recommends that all crossings with fish passage concerns should be targeted for repair in the 2019 year.			During 2019, Baffinland plans to continue the implementation of surface water improvements as outlined in the Tote Road Earthworks Execution Plan (TREEP; Golder 2017) and original (2013) Hatch documentation to address outstanding fish passage concerns identified at water crossings during the 2019 assessments. Some of the concerns were addressed in 2018, and in 2019 work will continue as approvals are received from QIA. Additionally, minor ad hoc work is done throughout the summer seasons when fishery biologist are on-site. A long term comprehensive plan will be developed for culvert fish passage issues in 2019 if backwatering and rustic ramps are not affective. Baffinland Iron Mines Corporation (Baffinland). 2018. Mary River Project Early Revenue Phase - Tote Road Upgrades, Fish Habitat Monitoring 2018 Annual Report. Prepared by Baffinland for Fisheries and Oceans Canada. December 31, 2019. Golder Associates Limited (Golder). 2017. Tote Road Earthworks Execution Plan and Design Report. Report No. 1667708, Rev. 0. Issued April 2017 by Golder Associates Limited.
2	Absence of Juvenile Arctic Char: DFO notes that in the 2017 Annual Report, Baffinland identified an unexpected absence of juvenile arctic char downstream of crossing BG-50 and further investigation was to be conducted during 2018 to determine the potential causes. On page 119 of the 2018 Annual Report, Baffinland states that “an absence of fish in BG-50 downstream was observed again in 2018”. DFO notes that the loss of juvenile char in the downstream area from the BG-50 crossing may be considered additional serious harm to fish not accounted for in the issued Fisheries Act Authorization. DFO reminds Baffinland that there is a Duty to Notify DFO when they have caused, or are about to cause, serious harm to fish that is not authorized under the Act. Moreover, the Fisheries Act imposes duties to take corrective measures and to provide written reports when there are occurrences that may result in serious harm to fish. Failure to notify, take corrective measures or report in such situations may result in penalties. Notification should be provided as soon as practicable, once the issue is discovered. DFO notes that as part of DFO’s comments to the NIRB for the 2017 Annual Report, DFO recommended “that Baffinland notify DFO in the event that the trend of missing juvenile arctic char persists in the 2018 season.” DFO recommends that Baffinland develop a response plan for absent juvenile arctic char and propose additional measures to ensure that juvenile arctic char return and are able to use the habitat downstream of crossing BG-50. DFO recommends Baffinland discuss any action and response plans with DFO.			Baffinland will continue to engage with DFO in 2019 including the implementation of actions and development of associated response plans for the BG-50 crossing. Rocky ramps have been implemented to adress the fish passage concern, however further work is still required. It should be noted that the culvert crossing is adjoined by a bridge crossing which fullly allows fish passage. Initial works at this location began as early as Octover 2007, with additional works prior to 2018 occuring in winters of 2013/14 and 2014/2015 and in November 2016.Baffinland will continue to reinstall or provide maintenance on the perched culverts during the 2019/2020 season and continue effectiveness monitoring. Baffinland will provide an update to DFO as works are completed.

Baffinland

Table A.4 - Response to DFO's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	DFO Recommendations	Reference Section	Baffinland's Response
3	On page 119 of the 2018 Annual Report, Baffinland states “Rocky ramps were installed downstream of CV-114 and CV-106, and will be monitored for effectiveness in future summer monitoring programs.” DFO notes that all new workings, activities or undertakings that occur below the high water mark should be submitted to DFO for review prior to construction. DFO recommends Baffinland provide further information about the rocky ramps and provide DFO with any correspondence Baffinland may have had with the department on the rocky ramp construction plans. DFO notes that construction and infilling below the high water mark can be considered serious harm to fish (permanent alteration of fish habitat).			Baseline characterization programs rated fish habitat at both of these locations as marginal. Initial work at these locations began as early as 2007, with additional modifications occurring last in 2011 prior to 2018. As summarized in the annual report submitted to DFO (Baffinland 2018), rocky ramps were installed downstream of CV-114 and CV-106 to facilitate the upstream passage of fish. Effectiveness of the ramps will continue into 2019 and any modifications required will be implemented as needed. As noted during the 2019 summer inspection with DFO CV114 and CV106 rustic hand made rocky ramps were improving fish passage of the crossing. Baffinland is committed to discussing fish passage improvement works with DFO prior to implementation.
4	DFO notes that throughout the 2018 Annual Report, Baffinland states that “Vessel ship tracks are publicly accessible through the Baffinland website during the shipping season” and that the provided link shows “Information on ships such as last reported coordinates of the vessel, whether the vessel is moving, the direction of vessel movement and destination of the vessel” (pg. 315). However, DFO notes this application hasn’t been functioning in the last several months; when interacting with the provided link an error message on the page occurs: “exactEarth Custom Application Expired...”. DFO agrees this was a valuable tool and recommends the continued use of a repaired webpage.			Baffinland activates the ExactEarth application prior to the start of each shipping season, and deactivates the application at the end of each shipping season. The application will once again become available on the Baffinland website (www.baffinland.com) prior to the start of the 2019 shipping season.

Baffinland

Responses to World Wildlife Fund Comments

Baffinland

Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
			General Comments	
	We have included comments related to the need for appropriate adaptive management within nearly every submission made to the NIRB and to BIMC for the Mary River project. We again submit our concern that an adaptive management framework is not yet in place to identify and appropriately mitigate impacts to the environment, specifically to marine mammals and terrestrial wildlife. We request that Baffinland indicate how adaptive management is being appropriately and effectively applied to the project with specific reference to marine mammals and their habitat and terrestrial wildlife. In addition to the following comment, we submit specific requests related to the development of indicators and thresholds in the section that follows. BIMC's 2018 Annual Report, section 4.6.10 Marine Wildlife states: "The potential effects of increased shipping on marine wildlife was expressed in 2018 consultation activities (Appendix B). Noise was raised as a concern during 2018 community meetings, in relation to the underwater noise-levels causing less marine life near Pond Inlet and more near Arctic Bay (Appendix B). Fewer narwhal were present in the Pond Inlet – Eclipse Sound – Milne Inlet area in 2018, and as such, fewer narwhal were harvested in 2018 compared to previous years."	WWF notes that BIMC has not addressed these issues throughout the reporting on various marine components. Comments on specific terms and conditions are provided, however as an overarching issue, WWF suggests that BIMC has missed a very significant concern from the community in all its reporting and consideration of study results, and we are aware of the possibility existing that this may not be a single year anomaly. The monitoring programs directly related to marine mammals were severely limited for 2018 (acoustic surveying, narwhal tagging) which decreases the ability of BIMC and other reviewers to consider potential impacts; in a year that saw the most intense shipping frequency yet, WWF finds BIMC's lack of monitoring effort concerning, to say the least. The fact that no reference to community concerns was made beyond this introductory comment (i.e. was not included in any reporting on specific conditions), nor in the recommendations to address issues in the upcoming year, remains an outstanding concern for WWF and we request that the Proponent indicate how it plans to address the community concerns related to marine mammal abundance, distribution and population health in the coming year.	BIMC's 2018 Annual Report, section 4.6.10 Marine Wildlife	Baffinland acknowledges comments from Inuit regarding a lack of narwhal in the RSA during 2018, and is responding by increasing the level of monitoring undertaken in 2019 to evaluate this observed change. A marine mammal aerial survey will be implemented in 2019 immediately prior and during icebreaking activities during the early shoulder season to examine changes in distribution and abundance of marine mammals in relation to icebreaking activities. A marine mammal aerial-based abundance survey will also be conducted during the 2019 open water season to estimate the abundance of the Eclipse Sound narwhal summer stock and compare this to previous abundance estimates when icebreaking operations did not occur. Further to this, a ship-based observer program onboard the icebreaker will be implemented in 2019 during both shoulder season to examine changes in the relative abundance, distribution and behaviour of marine mammals in relation to the icebreaker and icebreaking activities. A passive acoustic monitoring program is also being implemented in 2019 to measure icebreaker noise levels in Pond Inlet and Eclipse Sound and compare measured levels vs. those predicted by the acoustic model. The Bruce Head shore-based monitoring program will also be re-run throughout the full shipping season with an increased observational daily effort, and this will be supported by simultaneous passive acoustic monitoring program at the base of the cliff. Baffinland is also presently analyzing narwhal tagging data collected from the 2018 shipping season which includes extended periods when tagged narwhal occurred within close range of the icebreaker during the fall shoulder season. Changes in surface and dive behaviour in relation to icebreaker movements (via AIS ship positional data) will be assessed as part of this work (to the extent possible). A collaborative study between Golder, JASCO, the University of New Brunswick and Baffinland is also presently underway that evaluates changes in narwhal vocal behaviour in relation to vessel noise. This work is focused on broadband noise perception by narwhal related to shipping. Auditory weighting for the various marine mammal hearing groups will be applied to ship noise recordings to determine the durations and amplitudes of the broadband noise from individual ore carrier transits as they transit past the acoustic recorders (as would be perceived narwhals in that area). Using high resolution AIS (ship positional tracking) data, the sound output from transiting vessels will be determined as a function of distance, direction of travel and orientation. Ship noise data will be examined in concert with existing Bruce Head visual-based behavioural datasets to assess if there are relationships between the perceived broadband noise levels and the observed surface behavioral reactions of narwhal. Interannual changes in ship noise levels near Bruce Head will also be evaluated, and will consider different responses by between different marine mammal groups. For example, the detection distances and durations of the noise from ore carrier transits will be much higher and longer for bowhead than narwhal. The above study component will be based on acoustic monitoring and behavioural datasets collected in 2014, 2015, 2018 and 2019. A separate but related study being conducted includes the characterization of narwhal call rates and repertoire in relation to vessel traffic and associated ships noise levels. Changes in narwhal vocal behaviour occurring before and after individual ore carrier transits will be evaluated, with call rate and call (type) usage assessed as a function of distance, direction of travel, and orientation. Detailed results of the collaborative study will be available in Q3 2020 with preliminary results available as early as Q4 2019.

Baffinland

Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
	Similar to the on-going issue of adaptive management, we have previously made our concern known with regard to the lack of indicators and thresholds developed to inform project management and mitigation measures. WWF again submits that the development of indicators and thresholds should be of the highest priority to Baffinland, the NIRB, and all parties involved in the on going monitoring of this Project. WWF remains concerned that despite the fact that the work to identify thresholds and indicators has been initiated by BIMC, their development and consideration has been parked at the Marine Environment Working Group table, a confidential advisory group which provides non-binding input to BIMC, and which often meets only a few times per year, with a full slate of discussion items which are routinely rushed and left incomplete. Without the necessary indicators and thresholds in place, it is impossible employ adaptive management to address, or even understand, the impacts this project may be having.	Given the onus on the Proponent to predict, assess, analyze and mitigate impacts of the project, WWF requests that Baffinland be required to provide a draft listing proposed indicators and thresholds for review by the NIRB and all parties.	General	Baffinland provided the MEWG and the NIRB with a draft screening listing of revised early warning indicators (EWIs) and thresholds on Feb 26, 2019 for their review, comment and input (response requested by March 31, 2019). Responses were received by QIA on April 1, 2019. No written input has been provided by the WWF on the development of the EWIs with the MEWG, despite being provided with the opportunity to do so. Baffinland continues to work with the MEWG on finalizing the EWIs and thresholds in 2019 through the MEWG advisory meeting process.
	As noted in our comment on BIMC's 2017 Annual Report, WWF again requests that BIMC indicate whether and to what extent, its monitoring programs and mitigation measures have incorporated aspects of the draft framework as circulated by NIRB in 2017. Given the importance of having a monitoring program in place to guide the ongoing monitoring and mitigation activities associated with the Mary River project, WWF also asks that NIRB provide parties with an update regarding the development of the monitoring framework, and its anticipated timeline for finalization of this integral aspect of a robust adaptive management approach to the project.	As noted in our comment on BIMC's 2017 Annual Report, WWF again requests that BIMC indicate whether and to what extent, its monitoring programs and mitigation measures have incorporated aspects of the draft framework as circulated by NIRB in 2017.	General	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.
	Review of 2018 Annual Report			
i	BIMC's reporting on Condition 50 states that the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) "outlines Baffinland's monitoring programs for terrestrial wildlife and habitat. The plan has been revised based on guidance and recommendations provided by the TEWG and NIRB over the past several years." WWF notes the reporting document control cites 1 revision made in 2016.	If more recent revisions have been made to the document, WWF requests that BIMC provide a listing of what specific revisions have been made, whether these were based on recommendations provided by the TEWG and NIRB (and what those recommendations were, specifically), and the dates of revision incorporation.	50	The TEMMP has been continually updated to reflect changes to methods that are indicated in the Terrestrial Environment Annual Monitoring Reports. A recent update to the TEMMP that captured cumulative track changes made since the start of the Project was recently submitted to NIRB as part of the Phase 2 review process and details requests for revisions up to April 2019. It is noted that minor modifications to specific methods, approach to data analysis or timing and frequency of monitoring programs described in the TEMMP may occur year-over-year based on feedback received from the community, QIA, as new information becomes available, and in consideration of other regional monitoring initiatives (e.g. GN led monitoring programs), without requiring any revisions in the TEEMMP.
ii	Condition 51 requires that BIMC (either directly or as part of the Terrestrial Environment Working Group, or TEWG) cooperate with community based monitoring initiatives that raise issues or produce information pertinent to mitigating Project-induced impacts. Specifically, the Condition suggests BIMC give special consideration for supporting regional studies of population health and harvest programs for North Baffin caribou that help address areas of uncertainty for Project impact predictions. BIMC's 2018 Annual Report notes that it has provided financial and logistical support for the GN's North Baffin Island caribou survey research on several occasions since 2009, including the 2018 spring caribou population survey and that it will continue to provide support for future GN caribou surveys, as relevant, to enhance BIMC's understanding of potential Project- related effects and regional knowledge about wildlife distribution and abundance.	WWF acknowledges BIMC's financial contribution toward surveying. WWF requests that BIMC confirm which, if any, community level monitoring initiatives it has coordinated with, and any others which it is aware but has not integrated into its terrestrial monitoring program(s). Similarly, WWF requests that the GN and Mittimatalik Hunters and Trappers Organization indicate whether there are any regional and/or local terrestrial monitoring initiatives that may be applicable to BIMC's responsibilities under this Condition. WWF requests that BIMC initiate terrestrial monitoring programs that are required to obtain the information necessary to inform the analyses of project-related impacts. As the Proponent, WWF expects BIMC to dedicate whatever resources are necessary to conduct this essential work.	51	Baffinland continues to support the GN's regional caribou surveys and has submitted a draft Memorandum of Understanding to the GN to continue with that support. Although Baffinland has established a community environmental monitoring fund of $200,000.00/year, the MHTO has elected to focus those funds marine-based monitoring for 2019. Baffinland is currently unaware of any terrestrial focused community-based monitoring initiatives facilitated by the GN, QIA or MHTO that would allow for data integration with Baffinland's existing terrestrial monitoring programs. As per discussions with the TEWG at the June 18 meeting in Iqaluit, in 2019, Baffinland will investigate options for increasing data collection efforts from hunters who travel to the Project site.

Baffinland

Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
iii	Condition 54 sets out a number of requirements for BIMC to consider in meeting the objective of mitigating impacts to caribou from Project-related traffic. While WWF understands the rationale put forth by BIMC during TEWG meetings and in prior responses to WWF submissions that asked for additional effort level in Height of Land and snow track surveying - namely that while there are very few caribou present, BIMC sees limited value in conducting additional monitoring - WWF disagrees with this rationale and approach. Similar to comments provided by another organization during a TEWG meeting, WWF suggests that low caribou numbers should not equate a proportionally small monitoring effort level. That is, caribou numbers being at a low point in the cycle does not diminish the need for adequate monitoring to detect the animals. In fact, increasing efforts now, while population numbers are down, is a key to determining where and when caribou are present, with increased efforts needed to find those few animals that may be present in the PDA, and help determine what their responses might be to project infrastructure and transportation, rather than waiting until numbers have increased to the point where the animals are in proximity to project areas in larger numbers.	WWF requests that BIMC discuss the rationale of both approaches, and specifically outline why it prefers not to increase monitoring efforts at this time in order to improve an understanding of the population and get out ahead of a) the potential future increase(s) in caribou population, and b) proposed increases in overland haulage of ore per Phase 2 development.	53	Baffinland has responded to this reviewer request and doubled the survey effort for both the height-of-land and snow track survey programs in 2019.
iv	BIMC's 2018 Annual Report notes challenges associated with its reporting on item 54(f) which requires BIMC provide "Details of a comprehensive hunter harvest survey to determine the effect on caribou populations and potential effects on caribou behaviour resulting from increased human access caused by upgrades to the Milne Inlet tote road (and any other roads if they are shifted from private to public use) and increase local knowledge of the mine site, including establishing pre-construction baseline harvesting data." WWF has previously requested that BIMC comment on its ability to support/initiate a hunter harvest study to gather information about community harvest of caribou, similar to that conducted by Agnico Eagle Mines for the Meadowbank project. BIMC has responded that tracking or monitoring harvest information is outside of its legal mandate, and that the GN now manages the quota/tag harvest system in the region. While WWF respects BIMC's self- imposed limitation to not undertake a harvest study (i.e., harvesters are not legally obligated to provide BIMC with data however an incentivized program could be developed and implemented by BIMC to collect data relevant to ongoing monitoring programs such as was done for Meadowbank), we also suggest that gathering information from community members, and community monitoring programs (per WWF comment on Condition 51 above, and as an example, a hunter harvest study) could be a valuable addition to BIMC's current understanding of caribou population presence, distribution, and other dynamics, as well as other wildlife species (carnivores, marine mammals, etc.).	WWF requests the GN confirm whether information related to the quota/tag system and any reporting related to harvest details are collected and shared with BIMC for its consideration regarding caribou interactions with the project.	54	This comment is directed to the Government of Nunavut. Baffinland welcomes any supplementary data that can be provided related to reporting on regional harvesting.

Baffinland

Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
v	WWF is disappointed that BIMC's reporting on Condition 77 has not improved despite our repeated comments that the Marine Environment Working Group (MEWG) is not being adequately engaged nor its input adequately incorporated into BIMC's mitigation plans and monitoring programs. Condition 77 sets out the establishment of the MEWG "to serve as an advisory group in connection with mitigation measures for the protection of the marine environment, and in connection with the Project Environmental Effects Monitoring program, as it pertains to the marine environment." BIMC's reporting on results for this Condition state "the MEWG provides a valuable forum for ongoing Project communication and reporting between Baffinland and other interested parties. The MEWG also serves as an advisory group to provide recommendations on appropriate management approaches related to the Project. The MEWG has guided the development of the Marine Environment Effects Monitoring Program (MEEMP), and also reviews and provides comments on other draft marine environment monitoring reports. In 2018, the MEWG held meetings on March 15, June 6, September 13 and December 10." BIMC appears to be missing the key element of the MEWG's role as an advisory group, instead noting its value as a forum for communication and reporting between BIMC and other interested parties. BIMC suggests the MEWG "guided the development of the MEEMP", however it has not provided clear indication of where or how the input of the MEWG has been incorporated. Similarly, with regard to reporting on trends, BIMC's 2018 Report indicated	WWF has requested previously, and we do so again now, that BIMC clearly outline where and how input from the MEWG has factored into its annual marine monitoring programs, specifically where the MEWG's advice has been heeded. WWF would like to acknowledge to this end, that after pressing for years that BIMC continue marine mammal aerial surveying, BIMC is looking at resuming a program in 2019. It is unclear whether that decision had to do with input fromthe MEWG members/observers, however we are encourgaged that BIMC is engaging in additional monitoring this year. Other examples of changes to marine monitoring following input from MEWG is requested.	71	To date, Baffinland has captured the input provided by the MEWG by including a copy of the meeting minutes as an Appendix in the Annual Report. A new format for tracking recommendations made by the Working Groups was raised at the June 18/19, 2019 Working Group meetings in Iqaluit, and Baffinland has commited to modifying the format of the meeting minutes to better capture recommendations put forth by the Working Groups and the outcomes of these recommendations. Baffinland will also begin appending a copy of the comments received by Working Group members on draft meeting minutes to the Final meeting minutes, per the request of Working Group members. Recommendations made by the Working Group have been incorporated into the marine environment and marine mammal monitoring programs conducted for the Project. This has included geographical expansion of the aquatic invasive species monitoring program to Ragged Island, a switch from using benthic epifauna to benthic infauna as the effects indicator in the MEEMP program, use of ECSAS protocol for seabird surveys as part of the SBO program, and execution of a marine mammal aerial survey in 2019. Additional examples are provided in Section 4.6.9 of the NIRB Annual Report.
vi	WWF requests that BIMC provide an updated analysis for pack and land fast ice for the Northern Shipping Route every year, as required by Condition 78. BIMC's 2018 Annual Report stated the ice condition report for the Northern Shipping Route would be updated periodically as new data become available. The Condition requires annual update using annual sea ice data. WWF requests that this be provided for 2018 at this time, and that the 2019 data be synthesized and where necessary (i.e. changes are observed warranting updates), incorporated into management plans.	WWF requests that BIMC provide an updated analysis for pack and land fast ice for the Northern Shipping Route every year, as required by Condition 78. BIMC's 2018 Annual Report stated the ice condition report for the Northern Shipping Route would be updated periodically as new data become available. The Condition requires annual update using annual sea ice data. WWF requests that this be provided for 2018 at this time, and that the 2019 data be synthesized and where necessary (i.e. changes are observed warranting updates), incorporated into management plans.	78	Pack-ice and land-fast ice conditions in the RSA were characterized in Baffinland's Overview of Marine Operations, as well as in Golder's Assessment of Icebreaking Operations during Shipping Shoulder Seasons (see Appendix A for detailed daily ice charts for the 2018 shipping season; also see Table 1.2 icebreaking assessment). Moving forward, Baffinland will provide a similar table in future Baffinland's Annual Reports to NIRB. Baffinland also provides information related to ice conditions in the Ship-Board Observer Marine Monitoring Program Reports (see Golder 2019d).

Baffinland

Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
vii	WWF has provided comments related to BIMC's compliance with Condition 101 for each of the past three annual Mary River Annual Reports, as well as during discussions at the MEWG meetings. While WWF recognizes that BIMC did not undertake the Bruce Head Shore Based study in 2018, we remain concerned with Baffinland's heavy reliance upon shore-based data collection and monitoring to inform its findings on the effects of project shipping on narwhal behaviour and responses, and the extrapolation of results to apply to "marine mammals" in general. We also note that BIMC's representation of its marine mammal monitoring efforts are somewhat skewed, noting section 4.6.10 of the 2018 Annual Report stated: "Baffinland implements a number of marine mammal monitoring programs. In 2018, marine environment monitoring programs undertaken by Baffinland included the following: • Marine Environmental Effects Monitoring Program (water, sediment, invertebrates and fish) around the ore dock; • Aquatic invasive species (AIS) Monitoring Program; • Ore Dock Marine Fisheries Habitat Offset Monitoring Program; and • Tremblay Sound Narwhal Tagging Program, in partnership with Fisheries and Oceans Canada (DFO)." WWF understands that, aside from utilizing data collected by DFO through the Tremblay Sound Narwhal Tagging Program (recognizing in-kind and collar contributions), BIMC did not implement or undertake any further monitoring that was directly related to marine mammals. WWF acknowledges that the programs that were undertaken all have some type of connection with marine mammals, and many components subject to study are important or even essential to the health and longevity of marine mammal species, however WWF does not agree that these should be referred to as a "number of marine mammal programs" BIMC implements.	WWF again requests that Baffinland comment on its plan to undertake additional studies on disturbance, including acoustic monitoring, aerial surveys, and additional remote sensing programs. WWF is encouraged by BIMC's proposing that its monitoring programs will continue aerial surveying in Milne Inlet, and suggests it consider including additional areas such as Eclipse Sound and Pond Inlet. WWF also ask whether BIMC plans to conduct a similar tagging exercise in 2019, and specifically, whether its participation/conduct of a tagging survey at Tremblay Sound, or elsewhere, is contingent on DFO leading such a program. If a tagging program is contingent on DFO's participation, and if DFO does not engage in such a program in 2019 or future years, WWF requests that BIMC confirm how it will ensure consistent, year-over-year collection of data to ensure a robust analysis of data and how it could then make a determination with regard to trends.	101	Regional-scale marine mammal monitoring is planned for 2019 by means of undertaking marine mammal aerial surveys prior to the start of, during the start of the 2019 shipping season and again during the middle of August. Other marine mammal monitoring programs planned for 2019 are described in Baffinland's response to WWF ix. No tagging program is proposed for 2019 as the MHTO has advised Baffinland and DFO that they are not currently supportive of a remote tagging approach for marine mammal scientific data collection given the potential interference/adverse effects of narwhal hunting activities. Implementation of a remote tagging program would require approval from DFO given the extensive permit requirements to undertake this type of invasive tagging program and the overall level of multi-year and species-specific tagging experience required to execute such a program (this would only be possible through a joint exercise with DFO, and associated veterinarian and animal handling experts). Previously, DFO and Golder collaborated under the same permit for this work, along with many other collaborating organizations including WWF, Oceans North, Parks Canada, the Vancouver Aquarium, amongst others.

Baffinland

Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
ix	Item c WWF notes that Condition 101(c) requires that BIMC's marine environment monitoring incorporate monitoring protocols that are to Inuit concerns. Specifically, and similar to comments above, WWF requests that BIMC indicate how, or if, it plans to address comments heard in 2018 from Inuit regarding a lack of narwhal. BIMC's reporting indicates it held meetings with the MHTO as follow up to the 2018 field programs, which is a great step forward to incorporating the MHTO's participation and input into monitoring programs. However, given BIMC reported Inuit concerns about a lack of narwhal, WWF requests that BIMC provide information on how, precisely, it plans to respond to Inuit concerns about decreased narwhal numbers. Is it planning an increased shore-based program? Will it sponsor a harvest study to learn from hunters outside of the MHTO, where, when, and how many whales are harvested? Will it undertake additional (relative) population abundance and distribution studies to improve baseline and current population estimates in the regional study area? The condition requires more than reporting on what types of meetings BIMC held with the MHTO, it asks for a plan that looks forward to address concerns raised. This has not been provided in the current annual reporting. WWF requests further information in regards to the requirements of Condition 101(c). Items d, g WWF notes that BIMC reported on trends relating to the shore-based observations of narwhal (d), and for item (g) relating to the 2017 tagging study: "observed behavioural responses of narwhal during their interactions with ships, appear to be in agreement with impact predictions made in the FEIS, which state that 'narwhal are expected to exhibit temporary and localized avoidance behavior when encountering Project vessels along the shipping route' and that 'no abandonment or long-term displacement behaviour is anticipated'." WWF suggests that this statement is misleading, specifically regarding the results supporting BIMC's prediction that no abandonment or long-term displacement behaviour will occur. The 2017 Tremblay Sound Narwhal Tagging program was successfully applied to 12-19 individuals, for one program year only. It is concerning that such a small sample size and this single exercise would be used to support such significant hypotheses. Further, in its reporting for Condition 109, BIMC stated "Results from the Narwhal Tagging Program are not directly comparable to narwhal behavioural patterns observed as part of the Bruce Head Monitoring Program given differences in study design and data collection methods. The Bruce Head shore-based study did not measure individual dive responses in narwhal, was limited in spatial scale and applied several different analytical parameters such as vessel travel direction."	WWF requests that BIMC outline its plans for marine mammal monitoring up to 5 years in advance, such that some consistent and meaningful monitoring is undertaken that will allow for an analysis of significance and trends in the reporting. As it is now, BIMC has been inconsistently undertaking one or another type of monitoring program every year, and results from one program cannot be considered in conjunction with another (i.e. shore based monitoring and remote sensing programs), meaning these programs are occurring in silos, with no integration of results being possible. Further, BIMC not continuing programs year after year means results are missing and trends will be impossible to consider. WWF requests that NIRB require BIMC, with input from DFO and WWF, to set out a plan for marine mammal monitoring that extends a number of years into the future, such that parties can comment on the suitability of the overall monitoring plan's design, function, and have an idea of how results will inform an analysis against impact predictions. The ad-hoc, BIMC-driven year by year plan is not serving any purpose for WWF in reviewing trends, impacts, and considering the need for adaptive management.	101	Baffinland's Marine Mammal Monitoring Plan (MMP) describes monitoring actions that Baffinland uses so the Project does not unduly prejudice (as defined in the Nunavut Agreement, Section 12.5.5) the integrity of the marine environment and wildlife in the Project area. The MMP is driven by monitoring requirements outlined in Project Certificate No. 005 and subsequent amendments to the Certificate as well as community and MEWG inputs. The MMP is a "living" document and will be revised regularly as new information becomes available, methods are further developed, refined or replaces and /or to account for adaptive management measures. Monitoring programs for each year are updated, as needed in consultation with the QIA, MHTO and the MEWG. Various monitoring methods and programs identified in the MMP will be conducted at varying frequencies throughout the life of the Project. Flexibility in this plan is needed to account for preferences or modified input from MHTO, the presence of a response variable (e.g. relative abundance and distribution of narwhal in the RSA), the potential for data availability (e.g some features may not exist in sufficient quantity to provide a robust evaluation of Project effects), and an evaluation of cost versus effort (e.g. the effort required to collect sufficient data may be unreasonable when there is a low to nil possibility that the Project will have a significant impact, or only a small interaction with a response variable). Annual updates to the MMP will also consider regional monitoring efforts and/or research initiatives conducted by other agencies, universities and institutes and/or non-government organizations who have a jurisdictional interest and/or responsibilities for monitoring in the Project area (i.e. DFO) as appropriate.

Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
	Integrating these two approaches must be considered with caution, and WWF is concerned that BIMC's reporting for 101(d, g) may suggest that observations and study results support FEIS predictions that no long-term avoidance and displacement would occur as a result of shipping activities. Where no shore-based monitoring occurred in 2018, tagging results are from 2017, and shore-based survey locations are significantly limited within Bruce Head, WWF has serious concerns with study design and the application of integration to these results in considering overall project impact predictions. This is even more concerning considering Inuit input that fewer narwhal were present in 2018. WWF requests that BIMC confirm how it reconciled findings of its 20 animal tagging study and acoustic monitoring with Inuit concerns from 2018, and that it confirm what additional monitoring will be undertaken in 2019 to address those concerns, and to further confirm its findings of no long-term avoidance or displacement behaviour (i.e. continued remote sensing, additional relative abundance/distribution aerial surveying, incorporating additional location(s) for shore-based monitoring, etc.).			
x	Condition 105 requires that BIMC ensure measures to reduce the potential for interactions with marine mammals in Milne Inlet are identified and implemented, including: a) Changes in the frequency and timing (including periodic suspensions) of shipping when interactions with marine mammals are likely to be the most problematic. b) Reduced shipping speeds where ship-marine mammal interactions are most likely. c) Identification of alternate shipping routes through Hudson Strait for use when conflicts between the proposed routes and marine mammals could arise. Repeated winter aerial survey results showing marine mammal distribution and densities in Hudson Strait would greatly assist in this task.	WWF requests that in respect of item a, BIMC develop a protocol to implement shipping suspensions during periods of increased narwhal presence/abundance, or when nursing or calving behaviours are observed. To WWF's knowledge, shipping suspensions have not been considered or implemented as part of the Early Revenue Phase or Production Increase Proposal monitoring programs and mitigation efforts. WWF would also suggest that Item c be incorporated to BIMC's shipping management plan, specifically that aerial surveys of the Northern Shipping Route be undertaken in shoulder seasons (July, October) when ice formation is beginning. Though Item c speaks to Steensby Inlet, WWF suggests that given the 30% increase to ship traffic through Milne Port via the Production Increase that was recently approved, in order to monitor mammal distribution and densities along the Northern Shipping Route and to properly understand where and when conflicts with marine mammals may be occurring (not only strikes, but animals avoiding the shipping route), BIMC should be required to undertake adequate surveying in those shoulder seasons, and to identify potential alternate routes that may alleviate or lessen impacts to marine mammals from shipping during sensitive periods.	105	Narwhal calving and nursing behaviour may occur throughout the RSA during the full course of the shipping season, and therefore undertaking suspension of shipping during nursing/calving events is not logistically possible, nor is it considered warranted given that to date, Project monitoring has not detected any adverse behavioral effects on narwhal (i.e. large scale displacement or abandonment) from shipping beyond those predicted in the environmental assessment. This is in light of a continuous year-to-year increase in ship traffic in the RSA since the start of Project operations, both Project and non-Project related. A marine mammal aerial survey will be implemented in 2019 immediately prior and during icebreaking activities during the early shoulder season to examine changes in distribution and abundance of marine mammals in relation to icebreaking activities. A marine mammal aerial-based abundance survey will also be conducted during the 2019 open water season to estimate the abundance of the Eclipse Sound narwhal summer stock and compare this to previous abundance estimates when icebreaking operations did not occur. Further to this, a ship-based observer program onboard the icebreaker will be implemented in 2019 during both shoulder season to examine changes in the relative abundance, distribution and behaviour of marine mammals in relation to the icebreaker and icebreaking activities. These monitoring activities support ongoing understanding of any potential conflicts with marine mammals that could occur as a result of Project shipping. Baffinland is open to discussing the use of Navy Board Inlet as an optional shipping route and is in the process of developing a comprehensive baseline characterization of environmental conditions along this route, as well as an assessment of potential interactions with project-related shipping in Navy Board Inlet and Lancaster Sound within the Nunavut Settlement Area.

Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
xi	As has been previously communicated in WWF's comments on BIMC's 2016 and 2017 Annual Reports, WWF remains of the opinion that conducting one shore-based program from Bruce Head and the small survey size Tremblay Sound tagging program is inadequate to meet the requirements of Condition 109, namely that BIMC "conduct a monitoring program to confirm the predictions in the FEIS with respect to disturbance effects from ships noise on the distribution and occurrence of marine mammals, and that the survey be designed to address effects during the shipping seasons, and include locations in…Milne Inlet, Eclipse Sound and Pond Inlet. The survey shall continue over a sufficiently lengthy period to determine the extent to which habituation occurs for narwhal, beluga, bowhead and walrus." WWF has concerns that BIMC's focus is on narwhal alone, which we have suggested is too limited a scope to determine shipping impacts on marine mammals. Secondly, running an observation platform from Bruce Head (or ship-deck nearby) is insufficient to determine effects within the areas of Eclipse Sound and Pond Inlet. In its reporting on Condition 109, however, BIMC states that "shore-based monitoring at Bruce Head has been shown to be an effective method for monitoring of narwhal in relation to shipping activities." WWF disagrees with this statement. BIMC's reporting on this condition also noted that results from the Narwhal Tagging Program are not directly comparable to narwhal behavioural patterns observed as part of the Bruce Head Monitoring Program given differences in study design and data collection methods.	As suggested in our comment to the 2017 Annual Report, WWF reiterates that expanding the scope of focus per the condition requirement to include Eclipse Sound and Pond Inlet would enable Baffinland to assess narwhal behaviour over a larger area, and to support the assessment of larger-scale movements of marine mammals. In order to properly understand the effects this project may have on marine mammals also at a population level, it is essential that the monitoring program include Pond Inlet and Eclipse Sound as required by the term and condition – these areas represent important parts of the animals' migration corridors, feeding, and socializing areas, and these areas, utilized by marine mammals, are subject to project- related ship movements. WWF suggests that Baffinland be required to adhere to the specifics of this condition; doing so would ensure a more comprehensive understanding of the project effects on marine mammals. WWF suggests that while a useful program, and one that we suggest should continue, monitoring undertaken at the Bruce Head station alone should not absolve Baffinland from meeting its full obligations under this condition. Where BIMC states the shore-based study is focused in Milne Inlet due to higher concentrations of marine mammals in this area during the shipping season, compared to Eclipse Sound and Pond Inlet, WWF suggests that this introduces an intentional bias to the collection of data and interpretation of results. BIMC has no way of knowing what the response of animals is to shipping in the majority of the Northern Shipping Route, as it has not conducted any comparable surveying there. Considering Inuit are voicing concerns about reduced number of narwhal available to them, it is unclear whether all hunting occurs in Milne Inlet, and therefore whether BIMC's 2018 reporting that narwhal are not demonstrating avoidance or long-term displacement effects from shipping negates impact to Inuit harvesting, or whether hunting occurs along the entire shipping route, and BIMC has no data to indicate whether similar non- response to shipping is the case in the other areas utilized by hunters. WWF requests that BIMC expand its study area for shore-based, aerial, and other studies as applicable, to include locations along the entire shipping route.	109	Baffinland strongly disagrees with WWF, and remains of the opinion that the present level of monitoring undertaken to date (including the marine mammal aerial survey program, Bruce Head shore-based monitoring program, the narwhal tagging program, the Passive Acoustic Monitoring Program and the Ship-based Observer (SBO) program) are adequate to meet the requirements of Condition 109, namely that Baffinland "conduct a monitoring program to confirm the predictions in the FEIS with respect to disturbance effects from ships noise on the distribution and occurrence of marine mammals, and that the survey be designed to address effects during the shipping seasons, and include locations in Milne Inlet, Eclipse Sound and Pond Inlet. To date, monitoring has not observed any behavioral impacts on narwhal from shipping (i.e. large scale displacement or abandonment) beyond those predicted in the effects assessment. This is in light of a continuous year-to-year increase in ship traffic in the RSA since the start of Project operations, both Project and non-Project related. A shore-based marine mammal monitoring study is not technically feasible in Pond Inlet or Eclipse Sound given there is too great a distance between the shoreline and the shipping corridor, and shore-based monitoring studies require visual detection of narwhal. This is only feasible along narrow sections of the shipping route, which is why Bruce Head was selected for this purpose. Other monitoring programs currently being undertaken to evaluate behavioural responses of narwhal in Pond Inlet and Eclipse Sound includes marine mammal aerial surveys, the Ship-based Observer Program, the narwhal tagging program and a passive acoustic monitoring program. Marine mammal aerial surveys are planned for 2019 during both the shoulder and open water seasons. This will include surveying for all marine mammal species in the RSA, including ringed seal, bearded seal, bowhead whale, narwhal, beluga, walrus and polar bear. Surveys will be undertaken throughout the full RSA and beyond, including Milne Inlet, Tremblay Sound, Navy Board Inlet, Admiralty Inlet, Eclipse Sound and Pond Inlet. It is not feasible to design and implement a research / monitoring program that focuses on marine mammal species that occur so infrequently in the RSA as do beluga, bowhead and walrus. There simply would be an inadequate amount of data to be able to evaluate changes in abundance or distribution of these species or potential changes in behaviour including habituation effects for these species (sample sizes would be far too low to allow for meaningful statistical analysis or scientific inference). Furthermore, Milne Inlet, Eclipse Sound and Pond Inlet do not represent an important summering ground for beluga – given the historical low number of beluga in these areas during this period. IQ collected by Remnant and Thomas (1992) indicates that only small numbers of beluga frequent waters near Pond Inlet during spring, summer, and fall. The majority of beluga present at the mouths of Pond Inlet and Navy Board Inlet during ice break-up are thought to migrate farther north and west into Admiralty Inlet and Barrow Strait (Remnant and Thomas 1992; COSEWIC 2004). No sightings of beluga were reported during five consecutive years of shore-based monitoring conducted at Bruce Head from 2013 to 2017 (Thomas et al. 2014; Smith et al. 2015; 2016; 2017; Golder 2018). Similarly, no sightings of beluga were recorded along the Northern Shipping Route during three consecutive years of aerial surveys conducted for Baffinland between 2013 and 2015 (Elliott et al. 2015; Thomas et al. 2015; 2016). Based on these results, beluga was considered unlikely to occur in the Milne Port area during the shipping season and icebreaking is not considered to overlap with important habitat for this species. Few bowheads are expected to occur in the RSA during the open-water season. A total of 14 bowhead were recorded near Bruce Head during five consecutive years of shore-based monitoring conducted for Baffinland from 2013 to 2017 (Thomas et al. 2014; Smith et al. 2015; 2016; 2017; Golder 2018). Similarly, a total of 14 bowhead were recorded along the Northern Shipping Route during three consecutive years of aerial surveys conducted between 2013 and 2015 (Elliott et al. 2015; Thomas et al. 2015; 2016). Based on the most recent High Arctic Cetacean Survey completed by DFO in the Project area, the predicted number of bowhead in Eclipse Sound during 2013 was 32 (Doniol-Valcroze et al. 2015).

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Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
xii	These conditions require the development of indicators and thresholds to inform mitigation and management related to impacts of shipping activities on marine mammals. BIMC has initiated discussion at the MEWG, however no concrete recommendations or information has been put forth. WWF requests that the NIRB become involved in moving this discussion forward. The onus is on the Proponent to initiate the development of indicators and thresholds. WWF expects BIMC will undertake the heavy lifting to ensure these indicators and thresholds are developed, however it has left the discussion at the MEWG, which meets only four times per year. This condition is on the Proponent to develop, and WWF requests that NIRB take action on non-compliance to see that BIMC makes headway in the immediate future. In addition to the discussion on indicators and thresholds, items a and b of Condition 110 require BIMC to develop mitigation and adaptive management practices that will "restrict negative impacts as a result of vessel noise. This shall include, but not be limited to: a) Identifications of zones where cumulative noise could be mitigated due to biophysical features (e.g., water depth, distance from migration routes, distance from overwintering areas etc.) b) Vessel transit planning, for all seasons, to determine the degree to which cumulative sound impacts can be mitigated through the seasonal use of different zones.	WWF requests that BIMC provide an update with regard to the identification of zones where cumulative noise mitigation may be implemented, and indicate how seasonal use of different zones has been considered/implemented to mitigate cumulative sound impacts.	110,111,112	Existing mitigation includes measures to avoid and/or reduce potential cumulative noise effects from Project vessels on marine mammals during various times throughout the shipping season, as follows: 1) Limit the number of Project-vessel transits in the RSA during heavier ice conditions (shoulder seasons) 2) Restrict the number of Project vessels drifting or anchored at Ragged Island to three Project-vessels (shoulder seasons and open water) 3) Maintain speed restrictions along the entire shipping route for all (shoulder season and open water season)
xiii	Condition 170 requires BIMC to provide within its updated Terrestrial Wildlife Management and Monitoring Plan, plans for increased caribou monitoring efforts including weekly winter track surveying and summer and fall surveys undertaken on foot twice per month. BIMC's reporting on this condition indicated that as this refers to better understanding and minimizing caribou interactions with the railway, and a railway has not been built, these monitoring activities have not been triggered. WWF suggests that given the increase in truck transportation of ore, in the absence of a railway, BIMC should be required to increase its monitoring efforts to address the increased likelihood that ore transportation may impact caribou in the region. The original project shipping via rail proposed multiple daily train transits to carry ore from Mary River to Steensby Inlet. The 2018 Annual Report indicated a daily average of 260 one way transits per day to support the Early Revenue Phase approved activities. It is also proposed that the Phase 2 project will see up to 560 one way truck transits per day for 3 years while the railway is constructed. This is a significant increase over the initial expectation that no ore would be transited via semi-truck transits along the Tote Road, and as compared to the currently approved 196 daily transits and the actual average of 219.5 one way transits per day reported within the 2018 Annual Report.	WWF requests the NIRB consider requiring a significantly increased effort with regard to snow track and summer/fall surveying along the Tote Road.	170	Baffinland has responded to this reviewer request and doubled the survey effort for both the height-of-land and snow track survey programs in 2019.

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Table A.5 - Response to WWF's Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt #	Reviewer's Detailed Comment	WWF Recommendations	Reference Section / Condition	Baffinland's Response
xiv	Condition 175 requires that BIMC take measures to mark shipping track(s) during periods of ice cover to assist in improving ice-based travellers' ability to see the shipping route(s) and ensure their safety while travelling. BIMC has indicated this condition does not apply since no winter shipping is associated with the current phase of the project, and suggests the measures are deferred until winter shipping through Steensby Port is initiated. WWF is concerned that BIMC has not considered marking ship tracks, especially considering it employed an Ice Management Vessel, the Botnica, to assist in ice management in October 2018, a ship track was present in ice (i.e. reports of a narwhal following a day-old ship track per 2018 Annual Report), and also considering that residents of Pond Inlet do utilize ice during periods of formation.	WWF requests that BIMC advise the NIRB (and the MEWG) if an Ice Management Vessel is to be employed in 2019, and that if this is to be the case, it confirm the ship/crew/staff will deploy markers during such time as the vessel is employed to keep shipping lanes open/clear of ice in support of transiting vessels. If no markers are to be deployed, WWF asks what other safety/precautionary measures will be taken to ensure the safety of community travelers.	175	Given that there is at present no provision for breaking landfast ice, the marking of a 'track' will be virtually impossible. In places where the track is marked (such as Voisey Bay), the marking is achieved by deploying land based personnel, something that is not possible when the ice is broken and mobile, or when it is freshly frozen. Deploying any 'floating markers will be of no use since the markers will move with currents and winds and will quickly lose any relevance with respect to location of original track. Baffinland is in regular communication with the MHTO during the shipping season, and has specific requirements not to begin the shipping season until it is confirmed the sea ice is no longer being used by Pond Inlet residents. In terms of additional safety measures, regular broadcast of anticipated traffic can be considered as a means of ensuring awareness of local traffic.

Baffinland

Responses to Parks Canada Agency Comments

Baffinland

Table A.6 - Response to Parks Canada Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	PCA Recommendations	Reference Section	Baffinland's Response
		General		
1	MSV Botnica is referred to as an ice management vessel throughout the report. Additionally, only ice management is referred to throughout the report (e.g.: Bullet 2, page 15: "Use of Ice Management Vessels in 2018".	Baffinland describes ice management as an activity taking place near the port and by ice-class tugs. Ice breaking is conducted along the northern shipping route and involves the use of an ice breaker to facilitate the passage of ice class vessels through prevailing ice conditions (BIMC IR response, Mary River Phase 2; Appendix 12, section 4). References to the MSV Botnica as an ice management vessel throughout the monitoring report be replaced with its correct categorization as an icebreaker used to conduct ice escort services. All references to ice management should be replaced with the full scale of Baffinland's ice- related activities as defined in BIMC IR response, Mary River Phase 2; Appendix 12, section 4), namely ice management and ice breaking. Baffinland conducted ice management and ice breaking activities during its 2018 shipping season and plans to do so in 2019. However, the monitoring report contains no indication that these activities were monitored to determine if they resulted in impacts to the environment. Baffinland must develop monitoring relevant to this activity throughout the shipping season and, if applicable, mitigation.		Use of the MSV Botnica to escort ore carriers at the beginning and end of the shipping season is consistent with shipping season activities described in the FEIS Addendum for the ERP, namely shipping between approximately July 15 to October 15. Baffinland's plans for the 2019 shipping season are similar to that of 2018. Shipping is anticipated to commence approximately July 15, and will include travel along the Northern shipping route for between 82-86 ore carriers, nine re-supply vessels and 4-5 deliveries of fuel. The MSV Botnica has been procured again by Baffinland for 2019 to provide escort to Project-vessels at the beginning and end of each shipping season. As was done in 2018, Baffinland will not begin shipping until it has been confirmed by the community of Pond Inlet that the floe edge is no longer being used by hunters and that landfast ice has been broken along the corridor. Three monitoring programs will be conducted in 2019 to monitor for any potential effects related to the use of the MSV Botnica at the beginning and end of the shipping season. This includes 1) conducting aerial surveys at the floe edge near Pond Inlet prior to the start of, and during the beginning of the shipping season and at the end of the season, 2) running the Ship-Board Observer program off the platform of the MSV Botnica and 3) conducting acoustic monitoring to assess vessel noise and confirm modelled impact predictions.
2	Baffinland uses the terms "BSA" and "SSA" throughout the report but no definition of these acronyms are provided in the list of Abbreviations or elsewhere in the document.	Baffinland must define what "BSA" and "SSA" mean and how they are relevant to the monitoring information provided.		The definition of BSA and SSA should have been included in the list of acronyms at the front of the Report. The BSA refers to a smaller Behavioural Study Area, while the SSA refers to the a broader Stratified Study Area. The BSA and SSA are study areas defined in relation to the Bruce Head Shore-Based Monitoring Program. The SSA covers a total area of 82.5 km² and was designed for the collection of narwhal relative abundance and distribution (RAD) data. The SSA is stratified into nine strata: strata A (northernmost stratum) through I (southernmost stratum). Each stratum is further subdivided into three substrata: substrata 1 through 3 (1 being closest to the Bruce Head shore/observation platform and 3 being the farthest away). There is a total of 26 substrata within the SSA as stratum D is comprised of only 2 substrata, 1 and 2 (substratum 3 is hidden behind Poirier Island and cannot be sampled from the observation platform). The substrata boundaries were visually defined in the field using definitive land marks on the far shore of Milne Inlet and nearby islands (Smith et al. 2015, 2016, 2017; Golder 2018a) and have remained unchanged since 2014. The BSA covers an area closest to the Bruce Head observation platform. In 2014–2016, it was defined to cover portions of strata E and F, while in 2017 it was redefined to also include a portion of stratum D. Throughout the sampling years, only the area within 1 km of the shoreline below the Bruce Head observation platform was included in the BSA. The BSA spatial boundary was designed for the collection of narwhal group composition andbehaviour data. The shoreline adjacent to the BSA is a common narwhal hunting camp for local Inuit.

Baffinland

Table A.6 - Response to Parks Canada Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	PCA Recommendations	Reference Section	Baffinland's Response
3	Page 200 (221 of 485) indicates "The marine environment has been a key focus of stakeholder interest and concern. This includes marine mammals (discussed in Section 4.5.11)..."	There is no Section 4.5.11 in the monitoring report, Section 4 only goes to Section 4.3 (Water Licence Compliance). Marine mammals are discussed in Section 4.6.10 (Marine Wildlife). Baffinland must include correct references/links in their reports.		Thank you for your comment. This is an editorial error. Please refer to Section 4.6.10 for information on marine mammals.
4	Baffinland has been developing a series of marine monitoring programs, some since 2006, and others starting in 2013. During this time changes in methodology (e.g.: sampling design, locations, and parameters) and analysis have been suggested through the MEWG, others dictated by logistics, etc. While it is understood that Baffinland's marine monitoring program must evolve, it has become difficult to evaluate due to the number of changes and lack of integrated tracking/gap analysis reflective of the entire suite of marine monitoring programs. There is a need for a comprehensive, well-designed, and repetitive environmental monitoring program to ensure project effects are understood and mitigated.	Baffinland should produce an annual integrated tracking table/report clearly describing what changes have been made through time to each program, how statistical analysis has accommodated these changes and been used to produce trends that are defensible, and how compliance with EIS significance predictions has been determined. This integration table/report should contain information on gaps to the overall marine monitoring program and information on how these will be addressed.		The information requested by Parks Canada is already adequately detailed in the Annual Monitoring Reports, including an overview in the Executive Summary. It is also well documented in the Annual Report to NIRB and through the various MEWG meeting minutes. An additional annual integrated tracking table report would be redundant and is not warranted given the relatively infrequent changes in methodology that occur in the monitoring programs.
Project Conditions				
5	Project certificate condition #105: discussion of project vessel speed restrictions and results for the year.	Table 4.26 indicates that the Zelada Desgagnes exceeding the 9 knot limit for 30% of its cruise time. Further information regarding this instance and what may have caused it would be appreciated (i.e. weather conditions, standing instructions not received, etc...)		2018 was the first year that all Project-vessels (i.e. fuel and resupply in addition to ore carriers) were given copies of the Standing Instructions to Masters. Instructions to all vessels have been updated to further emphasise the need to conform to the posted speed limit. Using the ExactEarth Alert system, Baffinland will actively investiage non-compliance events throughout the shipping season in 2019 to minimize non-adherence to speed restrictions to the fullest extent possible.
6	Project certificate conditions #106 and #123: discussion of compliance in providing shipboard observers.	PCA recognizes that Baffinland is complying with condition 106 to the extent possible at present, given that safety and logistical concerns allow only for SBO's aboard icebreakers. However, given that this implies that the program cannot be run across consistent dates each year Parks Canada is unclear how Baffinland determined the trends described on page 272 PCA recognizes that Baffinland is complying with condition 123 to the extent possible at present but does not agree that an "in compliance" ranking is accurate Baffinland should describe how they corrected observational data for the difference in observation dates and search effort over years in order to arrive at their described trends. Rather than the "in compliance" status assigned by Baffinland, a "partially-compliant" status is more appropriate for conditions 106 and 123 in recognition that it is not feasible for Baffinland to comply fully with these conditions until it has purpose-built ore carriers available for both the northern and southern shipping routes. Further, this should be applied to all conditions where Baffinland has provided an "in compliance" status but, in fact, is still working towards fulfilling the condition.		The MSV Botnica was deemed the safest and most appropriate platform to conduct the SBO program in 2018. The MSV Botnica only operates during the shoulder season. Previous programs completed during open-water conditions required observers to board ore carriers at sea, which was assessed as an unacceptable safety risk for Baffinland. The history of the SBO program has been provided in the NIRB Annual Report. The only trend ascribed is for the years 2013, 2014, and 2015 when the program was run consecutively, and a decline despite increased survey effort was noted. This is a simple observation of the available data and not a comprehensive trend analysis. As multi-year data is collected, an enhanced analysis of trends will be provided in future years of reporting.

Baffinland

Responses to Crown-Indigenous Relations and Northern Affairs Canada Comments

Baffinland

Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
		Effects Monitoring		
1	The generation of dust by components of the Project and the potential effects of dust fall on water quality, soil, vegetation and forage for caribou continue to be of great concern to all parties. This concern, combined with several years of exceedances of the predicted threshold levels for dust fall presented in the FEIS, prompted Baffinland to implement additional dust mitigation measures described in the updates to PC Conditions 10 and 58c. As noted in Table 4.6 of the 2018 Annual Report to NIRB, "annual dust fall at Milne Port continued to exceed predicted threshold levels at all but one site. As seen at the Mine Site dust fall monitoring locations in 2018, dust fall in summer months was lower than winter. Since 2016, dust fall deposition in the summer has decreased while dust fall deposition in the winter months has increased". CIRNAC understands that in 2017 Baffinland implemented additional measures to mitigate downwind dust from the Ore Pad at Milne Port by removing dust- impacted snow from areas of accumulation, including snow drifts near waterbodies and the beach west of the ship loader. In addition, a snow fence trial was conducted at the Milne Port Ore Pad to determine the effectiveness of capturing windblown ore dust snow, varying wind directions confounded results. CIRNAC also understand that research towards various dust control binding agents for crusher pads and roads is continuing.	CIRNAC recommends that Baffinland continue to evaluate and implement alternative dust control binding agents as a priority to further reduce airborne dust and dust fall at the Milne Port, as well as at other Project sites (e.g. mine site, crusher pads, stockpiles and roads).	Baffinland 2018 Annual Report to NIRB Section 4.6.2 Air Quality Table 4.6 – Air Quality Impact Evaluation	Baffinland has been working diligently to control and reduce dust generation from the Project. Additional shrouds were installed at the Mine Site crushers in 2019 and a new trial polymer dust suppression product, Dust Stop, is being tested on the Project site. Operating strategies such as restricting traffic and speed on the toad road will continue to be investigated to determine if operational changes would have an impact on dust generation.
2	The Baffinland FEIS predicted that non-compliant water is "not expected" to be discharged anywhere on the mine site, Tote Road, or Milne Port. The 2018 Fresh Water Supply, Sewage, and Wastewater Management Plan (Baffinland 2018e) supersedes the FEIS predictions. The monitoring and resampling, if needed, of effluent quality before discharge is detailed in the Fresh Water Supply, Sewage, and Wastewater Management Plan. <u>Discussion of NT-NU Spill Reports in Annual Report</u> The 2018 NIRB Annual Report discussed three particular spills in the Performance on Project Certificate Conditions section, PC No. 17, and essentially repeated the discussion in PC's Nos. 24 and 46. A more detailed discussion of the Project's 2018 monitoring results under the Type A Water License is provided in the 2018 QIA & NWB Annual Report for Operations. Three non-compliant effluent discharges were reported in the 2018 Annual Report – sewage exceeding total phosphorus and Total Suspended Solids (TSS) criteria on January 9, Waste Rock Facility (WRF) effluent exceeding TSS criteria on August 10, and oily water treatment system effluent exceeding the total lead criteria on September 4. The WRF effluent is discussed in more detail in CIRNAC Comment # 12. A non-compliant effluent discharge event occurred at the Mine Site Sewage Treatment Plants (STP) on January 9, 2018, with a minor phosphorus exceedance and a larger TSS exceedance for which sampling error is blamed. Any further issues at the Mine Site STP should result in an examination of the Mine Site STP operation practices. The number of sewage spills remains high. The reasons for the many small spills of untreated sewage are not discussed in either the 2017 or 2018 annual reports. The small exceedance in lead detected in the September 4 sampling of oily water treatment system (OWTS) effluent appears to be due to an aging metals removal consumable, which Baffinland has committed to replacing and improving training regarding treatment media replacement frequency. The effluent spill reporting indicates the date of the water quality exceedance but does not indicate how long the effluent may have been above the guideline. Conservatively, it must be assumed that the effluent was non-compliant from the date of sampling to the date when laboratory results were received.	1) CIRNAC recommends that the time period between sample collection and data availability be discussed in the spill reporting. If plan upset conditions can be traced to a specific event that should also be presented. 2) CIRNAC recommends that Baffinland continue the daily monitoring of watercourses during freshet, which allows the rapid reaction to snowmelt sediment issues with physical works and/or snow removal.	Baffinland 2018 Annual Report to NIRB, Section 4, Project Certificate Conditions (PCs) No. 17. 24 and 46. Baffinland Mary River Project – Final Environmental Impact Statement. February 2012. Baffinland 2018 QIA & NWB Annual Report for Operations Baffinland 2018 Fresh Water Supply, Sewage, and Wastewater Management Plan	1) In accordance with Baffinland's Spill Contingency Plan, once a potential spill is identified, a spill report is submitted within 24 hours of each spill event. In the time period between sample collection and data availability, appropriate spill prevention and mitigation measures are put in place. These measures are specific to each spill type, and are detailed in each spill follow-up report submitted within thirty (30) days of each reported spill. The follow-up reports include a description of the event, the immediate cause(s), corrective and preventative action(s), photos, and a map showing the location of the spill. All spills reported to the NT-NU Spill Line in 2018 are summarized in Table 6.1 and presented in Figure 8. The follow-up spill reports and original spill reports are provided in Appendix E.8.4 of the QIA-NWB Annual Report for Operations. 2) To further outline the corrective actions taken in 2018 and planned in future years to address the sediment releases reported during freshet 2018, Baffinland provided the 2018 Freshet Monitoring Report to the NWB, CIRNAC, ECCC and the QIA in early 2019. A copy of the 2018 Freshet Monitoring Report is provided as Appendix E.10 of the QIA-NWB Annual Report for Operations.

Baffinland

Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
3	Project Certificate Condition No. 23 states that: *"The Proponent shall develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater within the Project area".* To meet these criteria Baffinland has implemented two rounds of groundwater quality sampling (2017 and 2018) near the Mine Site Non-Hazardous Waste Landfill. Although Baffinland has undertaken the monitoring and provided the data, they have not included any interpretation of the results. This is important in determining if the results are showing a trend or are indicative of background groundwater quality. For instance, in MS-LF-GW1-17, the dissolved Lithium concentration was 0.49 mg/L. In MS-LF-GW1-18, located in the same general area, the dissolved Lithium concentration was 0.672 mg/L (0.707 mg/L in the duplicate). At all other locations in both 2017 and 2018 the dissolved Lithium concentration is two orders of magnitude lower. Additionally, the identification of higher concentrations closer to the landfill (2018) is consistent with groundwater contaminant transport. These results would suggest one of the following: 1) The landfill has received materials containing Lithium which has become dissolved and then been transported to the northwest via groundwater flow. 2) These results are related to a localized anomaly resulting in a high natural Lithium concentration in groundwater at that specific location. 3) Laboratory and/or sampling error. Applying some interpretation is also required to determine if the current sampling program is sufficient with respect to the number and location of the monitoring points. Data interpretation is also required to show: 1) If a groundwater monitoring program in the active layer is feasible. 2) If there are groundwater impacts caused by the non- hazardous waste landfill. 3) If there is potential for groundwater impacts to affect surface water resources. Although the groundwater elevations have been reported and the groundwater flow directions inferred, a piezometric surface map has not been created. A piezometric surface map would provide a visual representation of the measured piezometric elevations in the active layer as well as the inferred groundwater flow directions and hydraulic gradients. An estimate of the hydraulic properties of the soils should be made. This would allow further interpretation of potential groundwater transport rates which would aid in the interpretation of the results. The locations of the monitoring points should be revaluated. Section 3.2.2 Well Networks of the Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills states the following: *A minimum of one well up-gradient from the landfill to establish background water quality, and to establish water level elevations and hydraulic gradients for determining groundwater flow into, or below, the landfill. Although one up-gradient well is the minimum, it is recommended that two up-gradient wells be installed to give some idea of background water quality variability.* *A well immediately adjacent to the down-gradient edge of the filled area, with screen intercepting the water table to enable sampling of 'raw' leachate for chemical constituents at the contaminant source and to measure fluid levels for determining leachate position in relation to the refuse. A line of three wells situated down-gradient from the landfill and perpendicular to groundwater flow in the horizontal plane to detect and determine the extent and concentrations of any leachate plumes; to assess groundwater levels, flow directions, and flow rates; and to assess leachate impacts on receptors (e.g. supply wells and receiving waters)".* There are no upgradient wells, although there are sampling locations which could be considered cross gradient. Upgradient wells are not just for measuring background water quality, but also to aid in determining groundwater flow directions. A monitoring location on the upgradient side of the landfill should be established. It is reported that *"All down-gradient monitoring locations were established within 30 metres of the limits of the landfill Facility."* Groundwater flow and contaminant transport are slow. Given than the active layer is only unfrozen for approximately one third of the year, the groundwater flow velocity would be even lower. Subsequently, if the landfill is producing impacts to the groundwater, it may not be detected if the wells are distant from the landfill. This is why the guidelines cited above state that wells be installed "immediately adjacent to the down-gradient edge of the filled area". Further, there is no discussion on the form of the landfill. For instance, if the landfill has been built up, groundwater flux could be radial, and subsequently all directions would be considered downgradient. Some information on the construction should be made available to allow review of future interpretations.	CIRNAC recommends that all available groundwater monitoring data for the landfill site area be compiled and presented in a consolidated report to: 1) Provide all data collected to date in each annual submission 2) Identify if there are any trends showing up in the data 3) Identify if there are any significant changes in the data over time	Baffinland 2018 Annual Report to NIRB, Section 4, Project Certificate Condition (PC) No. 23 Baffinland 2018 QIA & NWB Annual Report for Operations Baffinland 2017 QIA & NWB Annual Report for Operations	Baffinland continues to evaluate the ground water monitoring network at Mary River. Baffinland conducted groundwater monitoring at the Mine Site Landfill Facility in 2018. The 2018 monitoring program used a similar methodology to the 2017 Groundwater Pilot Program, establishing shallow groundwater wells up-gradient and down-gradient of the Landfill Facility using drive-point piezometers and collecting water samples near the depth of the active layer (approx. 1 metre) during September 2018. The 2018 monitoring program involved sampling two (2) groundwater wells up-gradient of the Landfill Facility and three (3) groundwater wells down-gradient of the Landfill Facility. Water quality results for groundwater samples collected during the 2018 program did not demonstrate any significant trends that would allow for evaluation of potential water quality changes associated with the Landfill Facility. Due to the limited data set, an expansion to the groundwater monitoring program is required to gain a better understanding of natural groundwater chemistry at the Project site. As additional monitoring is conducted in future years, Baffinland will be able to better characterize natural groundwater chemistry at the Project and identify any trends, including potential impacts from Project activities or infrastructure. For additional details on the 2018 groundwater monitoring program conducted at the Landfill Facility, refer to Appendix E.11 the NWB-QIA 2018 Annual Report for Operations. Baffinland plans to continue the groundwater monitoring program in 2019 using a consistent methodology as the 2018 program. Following the 2019 year, Baffinland will provide further recommendations to CIRNAC, NWB and other relevant parties.

Baffinland

Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
4	Baffinland has updated the Interim Waste Rock Management Plan (IWRMP) (Golder, March 2019) which addresses geochemical characterization, waste rock deposition, and thermal performance of the waste rock facility (WRF). Progress has been made since last year in determining sources of acidic drainage which was noted during the first year of mining and reported on in the 2018 Annual Report to NIRB. Current data suggests that acidity is due to soluble sulphate minerals. The IWRMP indicates ongoing work which will meet the Water License (WL) Conditions. Specifically, progress or results have been provided for the following: 1) Additional geochemical characterization (ABA) which is also ongoing 2) Identified potential source of acidity in year 1 3) Evaluation of soluble sulphate is ongoing 4) Heat generation and thermal performance of the WRF is underway 5) Baffinland is in the process of developing a Quality Control (QC) plan for the construction of the WRF, which is expected to be completed in May 2019. There are additional requirements for the Water License specific to ARD/ ML which are still required including: 1) Update to the Geochem model, with updates on pit water quality predictions 2) Field tests, which will facilitate the incorporation of on-site test pile program results into the geochemistry model 3) Impact assessment of ARD ML effects on site 4) Results of ongoing humidity cell Kinetic test work With respect to waste rock placement within the WRF, there is no indication if Baffinland is currently tracking source and placement location of waste rock within the WRF.	1) CIRNAC recommends that waste rock source tracking and placement information (within the WRF) be included in the QC plan. 2) CIRNAC also recommends that the QC plan include an annual to biannual audit of the WRF to confirm that materials are placed in accordance with the Deposition plan and strategies.	Baffinland 2018 Annual Report to NIRB, Section 3 - CIRNAC Directive - Waste Rock Facility Baffinland 2018 QIA & NWB Annual Report for Operations, Section 9.6 Baffinland 2018 QIA & NWB Annual Report for Operations, Appendices E.5, E.6, and E.7 Nunavut Water Board Water License No. 2AM-MRY1325, Part F, Section 3	Baffinland has committed to and is currently conducting confirmatory sampling of PAG rock segregation and placement in the Waste Rock Facility. In the next update to the Phase 1 Waste Rock Management Plan, Baffinland commits to incorporating a QA/QC program for waste rock once placed in the Waste Rock Facility. Within the updated QA/QC program, the internal audit frequency of the Waste Rock Facility (to confirm that materials are placed in accordance with the deposition strategies) will be outlined. The updated plan will be submitted by December 31, 2019.

Baffinland

Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
5	The Proponent shall monitor the effects of the Project on the permafrost along the railway and all other Project affected areas and must implement effective preventative measures to ensure that the integrity of the permafrost is maintained. Based on review of the 2018 annual geotechnical inspections report, CIRNAC notes that permafrost is not a primary focus of the geotechnical inspections undertaken to date. In particular, there appears to be no review or comment on available ground temperature monitoring data. For example, EIS Volume 6 – (Terrestrial Environment, Section 2.1.1.4 Permafrost) makes the following reference *"Between 2006 and 2008 more than fifty ground temperature monitoring instruments (thermistor cables) were installed and sporadically monitored to determine typical ground temperatures in the overburden soils and bedrock across the RSA"*. However, CIRNAC was unable to determine how these ground temperature data are currently being collected, processed, and reported and most importantly, used in current design. Martin 2018b notes the following: As noted last year, there are signs of settlement appearing at Polishing/Waste Stabilization Ponds (PWSPs) 1, 2 and 3. The settlements are not differential settlements of the dykes but are minor overall settlements of the total structures with respect to the surrounding area. These settlements appear to be within the one metre ± active layer above the permafrost and are of little concern as the PWSP's are temporary structures. These settlements have had no effect on the dyke stability. These settlements may also be settlements within a thicker active layer due to the dark fluid in the ponds. CIRNAC concurs with the conclusions drawn in Martin 2018b that settlements noted around PWSPs 1, 2 and 3 are likely the result of permafrost thaw below the ponds due to their dark colour. Although not of immediate concern, this should be closely monitored as the very ice-rich nature of much of the native ground around the mine site could lead to rapid settlement and perhaps compromise the pond's liners. According to Table 2.0 in the annual report, the following was carried out: 2018 Work Plan (Rev. 1) – Item 19 *Continue the development and implementation of a long term multi-year plan to address localized areas of permafrost degradation associated with the current borrow areas, including Km 97.* *Minor infilling work and material stockpiling at historical borrow areas at the Km 97 Borrow Source occurred in 2018. Further reclamation works are planned for 2019.* There were roughly 80 borrow pits used during the initial construction of the Tote Road and for some of the upgrading carried out. Many of these are located immediately beside or in very close proximity to the Tote Road. The excavation of materials from the active layer has led to permafrost degradation (thaw settlement) in many of the borrow sources. In some of the locations, settlement has been significant, and the stability and safety of the Tote Road has been impacted. The annual report indicates that construction materials were only removed from two quarries and the Km 97 borrow source in 2018. This is surprising given all of the upgrading and continued maintenance ongoing on the Tote Road. The annual report only makes note of limited reclamation work in the Km 97 borrow pit but is silent on the numerous other sources. The "Tote Road Earthworks Execution Plan and Design Report (Golder 2017a)" makes little reference to permafrost. Accordingly, seeing that permafrost was apparently not part of the design criteria and assumptions, CIRNAC is unable to confirm if permafrost protection and mitigation were included as part of the plan and design works.	1) CIRNAC recommends that if it does not exist, Baffinland should develop a program to collect data from Ground Temperature Cables installed at the mine site and port site, particularly from any installed to monitor conditions in constructed infrastructure. This information is required to develop appropriate designs for any new infrastructure at the mine, port and certainly for the tote road or proposed railway to Milne Inlet. 2) CIRNAC also recommends that Baffinland move forward with a plan to carry out reclamation of the most problematic of the Tote Road borrow sources to reduce the degradation of permafrost and most importantly improve the stability and safety of the Tote Road. Further, Baffinland and its design team should more fully consider the impact of permafrost on the design and operation of the Tote Road in the future.	Baffinland 2018 Annual Report to NIRB, Section 4 – Project Certificate (PC) Conditions 25 and 28 Baffinland 2018 QIA & NWB Annual Report for Operations Section 2.1, Table 2.0 Annual Geotechnical Inspections (Martin 2018a, b) Tote Road Earthworks Execution Plan (TREEP) and Design Report (Golder 2017a).	Baffinland recognizes that incorporating permafrost and geotechnical stability data is important for infrastructure design. This is part of Baffinland's standard construction tender process. During the modification process for new waste or water retention facilities, Baffinland supplies required construction stability information including testing pitting or bore hole data. All structures undergo bi-annual geotechnical inspections and are reported on. Baffinland does not currently have information from ground temperature cabling on site. A plan was developed in consultation with Tetra Tech in the Early Revenue Phase to begin dewatering borrow pits in order to contour and grade. Significant progress has been made to dewatering the km97 borrow locations. Baffinland will consider actively and progressively reclaiming the unused borrow sources, especially those adjacent to the Tote Road. One option currently being considered is to utilize soil spoils as backfill material. Further assessment of the roadway geotechnical condition and stability is being planned for August 2019 in order to identify further remedial measures and mitigation. As part of the August 2019 site visit with CIRNAC, the quality of the soil spoils materials will be assessed to confirm their suitability as backfill, in addition to identifying the required mitigations for ensuring successful placement of materials.

Baffinland

Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
6	Twenty-two culverts were upgraded or replaced in 2018 to improve fish habitat/passage and to lessen issues with erosion along the Tote Road. Further enhancements to the culverts along the tote road would appear to be required to improve handling of erosion along the Tote Road. The presence of numerous unused borrow sources located immediately at the edge or in very close proximity to the Tote Road continue to be leading to permafrost thaw (thermal erosion), significant settlement and ponding of water along the road. Reclamation of these unused borrow source pits would lessen the potential for release of sediment laden water; hence limiting instability of the Tote Road.	CIRNAC recommends that Baffinland consider actively and progressively reclaiming the problematic borrow sources, especially those near the Tote Road.	Baffinland 2018 Annual Report to NIRB, Section 4 – Project Certificate (PC) Condition 25 Baffinland 2018 QIA & NWB Annual Report for Operations, Section 2.2.2 and Appendix C (Tote Road DFO) and Appendix D Tote Road Earthworks Execution Plan and Design Report (Golder 2017a)	Baffinland will consider actively and progressively reclaiming the unused borrow sources, especially those adjacent to the Tote Road. One option currently being considered is to utilize soil spoils as backfill material. Further assessment of the roadway geotechnical condition and stability is being planned for August 2019 in order to identify further remedial measures and mitigation. As part of the August 2019 site visit with CIRNAC, the quality of the soil spoils materials will be assessed to confirm their suitability as backfill, in addition to identifying the required mitigations for ensuring successful placement of materials.
7	Project Certificate Condition No. 32 states that: “The Proponent shall ensure that equipment and supplies brought to the Project sites are clean and free of soils that could contain plant seeds not naturally occurring in the area. Vehicle tires and treads in particular must be inspected prior to initial use in Project areas” Currently the onus is on the suppliers to ship clean equipment to site with a clause having been added to service agreements and contracts specifying such. On-site inspections of equipment are reported to occur as well, however the results of these inspections have not been presented in any of the documentation reviewed.	CIRNAC recommends that Baffinland provide some form of documentation or summary that allows for the verification that supplier clauses and on-site inspections are effective at preventing the potential introduction and spread of invasive plants. A questionnaire could be formulated for on-site staff to answer questions such as: 1) Is the equipment arriving to site dirty? 2) Which supplier shipped the dirty equipment? 3) Was the relevant supplier informed if equipment arrived at site in an unclean/unacceptable state? 4) How was dirty equipment cleaned? 5) How was dirt and wash water handled/disposed of? These questions could help identify whether the clauses included in supplier service agreements and contracts as well as on-site inspections of equipment arriving at site are effective.	Baffinland 2018 Annual Report to NIRB, Section 4, Project Certificate Condition No. 32 Baffinland 2018 QIA & NWB Annual Report for Operations, Appendix A 2018 Terrestrial Environment Annual Monitoring Report (EDI 2019) 2016 Terrestrial Environment Mitigation and Monitoring Plan (Baffinland 2016)	Mitigation for the potential introduction of invasive species vis-a-vis equipment being brought to site is two-fold. Firstly, as noted by CIRNAC, Baffinland contractually requires contractors to ensure that equipment and supplies brought to the Project sites are clean and free of soils that could contain plant seeds not naturally occurring in the area. Secondly, Baffinland staff conduct equipment inspection upon arrival to verify supplier compliance with these requirements. If upon investigation it is determined that equipment has not been cleaned prior to delivery to Site, Baffinland would follow-up with the contractor directly. Baffinland may consider incorporating the specific questions proposed by CIRNAC into any follow-up discussions with contractors should these be required.

Baffinland

Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
8	Background The Baffinland FEIS Surface Water and Sediment Quality Impact Statement SWSQ-13 noted the potential for surface water impacts from mine contact water, including in the Waste Rock Stockpile Sedimentation Pond (WRSSP), and arrived at a prediction of no significant residual effect due to discharges from the waste rock stockpile. Sampling Point MS-08 is directly downstream of the WRSSP. The Waste Rock Stockpile developed ARD/ML conditions in 2017, which was not anticipated in the FEIS. Water license effluent discharge exceedances of pH, TSS and nickel occurred in 2017 at this sampling site, and ad-hoc responses failed to control the pH of the effluent. Furthermore, seepage through a presumably failed area of the WRSSP liner exacerbated the non- compliant discharge. Among other responses, as noted in the Baffinland 2018 Annual Report to NIRB, a waste water treatment plant (WWTP) was constructed downstream of the WRSSP before freshet 2018. Inspection and repairs of the WRSSP liner continue in 2019. 2018 water quality exceedances for effluents monitored under the Type A Water License were reported to CIRNAC, the NWB and the QIA in the monthly monitoring reports prescribed by the Type A Water License. A more detailed discussion of the Project's 2018 monitoring results under the Type A Water License is provided in the 2018 QIA & NWB Annual Report for Operations and results from both Annual reports are discussed as follows. Ditch Overflow On June 19, 2018, non-compliant runoff occurred from the WRF's West Perimeter ditch due to overflowing of the ditch, which was too small to convey the freshet flows occurring that day (QIA and NWB 2018 Annual Report, Section 7.3.3). Mine staff were able to quickly block the overflow and sampling downstream indicated a potential release of low-pH water. This information represents the only reported data on the pH of the water going into the WRSSP treatment plant. The severity and variability of the ARD/ML issue in the WRS facility is of concern. It is also not clear how often the potential overflow locations around the WRF and WRSSP are monitored, and thus how much spillage may have occurred on June 19 before it was observed and successfully managed. TSS Exceedance The 2018 NIRB Annual Report reported a water quality exceedance at MS-08, downstream of the WWTP, on August 10, 2018 with TSS measured at 19.3 mg/L on August 10, over the guideline value of 15 mg/L. A duplicate sample on the same date was just under the guideline. Table 5.2 of the QIA and NWB Annual Report shows a reduction in daily discharge volume at MS-08 on August 9 to 34 m^3/day, from 1000+ m^3/day over the previous weeks. MS-08 discharge increased on August 10 to 482 m^3/day, and then from August 11-14 returned to 1000+ m^3/day. The Annual Report states that: "discharge of treated effluent from WTTP was halted until subsequent sampling events confirmed that TSS concentrations had returned to concentrations below the applicable discharge criteria." As discharge at MS-08 did not drop to zero until 22 August, (Table 5.2 of the QIA and NWB Annual Report), we assume that it takes 12 days for the results of a water quality sample to be received and acted upon. Changing Chemistry at MS-08 The chemistry of the effluent at MS-08 has changed in other ways. Hardness, nitrate and sulphate levels, for example, are an order of magnitude higher than in 2017 (QIA and NWB 2017 Table 5.2.15, QIA and NWB 2018 Table 7.2). The elevated sulphate levels are explained by the use of ferric sulphate in the WTP, and similarly, hardness by the use of lime. A value of 29.9 mg/L (Nitrate-N) was observed on September 4, 2018 at MS-08. Blasting residue is a potential explanation for increased nitrate levels, but not for the increase relative to 2017. The levels are above the Canadian Water Quality Guideline (CWQG) of 13 mg/L. MS-08 reports to the Mary River eventually, which then hits Mary Lake. Elevated nitrate levels did not appear to reach Mary Lake, although the 2018 CREMP noted some ecological signs of nutrient enrichment at some Mary River stations. The production increase alone (5.44 million tonnes in 2018, up from 4.6 Mt in 2017) does not appear to explain the increase, though altered blasting and/or waste rock management practices have not been reviewed. The treatment of effluent appears to be an effective solution to the prior exceedances of pH, nickel and TSS. A new parameter, nitrate, is over CWQGs although there is not a water license criterion for nitrate, and it is not analyzed in all samples. However, the levels are high enough to be of concern for aquatic life and are greater than any samples discussed in the 2018 CREMP.	CIRNAC recommends that: 1) the ongoing water quality modelling by Golder described in the March 2019 Interim Waste Rock Management Plan should incorporate nitrate sources and loadings to downstream watercourses. This will help understand the potential severity and variability of the ARD/ML issue in the WRF. 2) the water quality monitoring results for water inflow into the WTP should be reported on a similar schedule to the downstream sampling site MS-08. This will help understand the potential severity and variability of the ARD/ML issue in the WRF. 3) freshet monitoring of the WRF be increased in frequency due to the potential severity of a spill from this facility.	Baffinland 2018 Annual Report to NIRB, Section 4, Project Certificate Conditions (PCs) No. 17, 24 and 46. Baffinland Mary River Project – Final Environmental Impact Statement. February 2012. Baffinland 2018 QIA & NWB Annual Report for Operations Interim Waste Rock Management Plan – March 2019 Waste Pond Water Treatment Plant Operations – August 2018 Fresh Water Supply, Sewage and Wastewater Management Plan – March 2019	1) To ensure the protection of sensitive aquatic organisms, Baffinland will continue to monitor water quality of the WRF run-off and discharge from the WRF ponds. As a key environmental performance indicator, water quality of effluent discharges from the waste rock surface water management ponds will be compared to the Type A Water Licence and requirements under MDMER. Early warning indicators including ammonia and nitrate will continue to be monitored to inform any potential effects of remaining explosive residues on water quality. Baffinland will consult with Golder to further discuss additional modeling of nitrate sources and loadings in downstream watercourses. 2) Monitoring results will continue to be reported to the relevant regulatory bodies by Baffinland as required by MDMER, the Type A Water Licence and other authorizations and permits issued to the Project. 3) Baffinland will continue to monitor the WRF on a weekly basis as outlined in the Type A Water Licence and on an increased basis during Freshet and precipitation events. As outlined in the Interim Waste Rock Management Plan, during periods of effluent discharge, the water quality of effluent will be monitored at various stages of the WRF WTP by dedicated water treatment operators to ensure the plant is operating as designed and that treatment processes are achieving the target effluent quality. As outlined in the Project's Fresh Water Supply, Sewage and Wastewater Management Plan (BAF-PH1-830-P16-0010), in the event that water quality monitoring indicated that effluent no longer met the applicable water quality discharge criteria, discharge of effluent will be halted and recirculated back to the WRF Pond. Troubleshooting and further water quality monitoring are implemented in recirculating mode until compliant results are obtained. Baffinland is committed to ensuring effluent from the WRF is compliant with the applicable water quality discharge criteria.

Baffinland

Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
9	The Baffinland FEIS states that erosion and sediment control measures will result in small effects on sedimentation and specifically that "Culvert crossings will be designed to minimize the introduction of sediment from embankments or road drainage, and channel or bank erosion at the inlets, outlets and downstream reaches during the operation phase." The Early Revenue Phase (ERP) FEIS notes in Impact Statement SWSQ-16 that fugitive dust emissions will be generated during the construction phase and can be mitigated with dust suppression techniques. Impact Statements SWSQ-17 and SWSQ-20 refer specifically to ore dust impacts, and also state that they can be mitigated with stormwater management and sediment control techniques. The deposition of dust occurs on both sides of the Tote Road, modified by wind patterns. Erosion and transport of dust fall by water, and transport of dust that falls upon snow, is a classic non- point source of TSS to watercourses adjacent to the road. The effect of road-derived TSS can occur upstream of the watercourse crossing the road via dust fall. The actual environmental impacts, specifically sediment runoff into waterways along the Tote Road, have been greater than indicated in the ERP FEIS. In response to the greater than expected effects, Baffinland has conducted additional monitoring and mitigation of watercourses near the Tote Road. Observations in 2018 indicate that the additional effort has improved compliance. In 2017, 43 TSS exceedances were observed out of 472 samples, with 15 to 18 of these potentially explained by the upstream TSS load (Freshet 2017 Monitoring Report No. 2 Table 5). In 2018, only 4 TSS exceedances were observed downstream of Tote Road water crossings, out of 467 samples, and 1-3 of these may be explained by upstream TSS load. The total volume of water used for dust suppression was similar in 2018 to 2017. Baffinland credits the Tote Road Earthworks Execution Plan (TREEP) for the improvements. The Freshet 2018 Monitoring Report details additional sampling efforts at the Mine Site and along the Tote Road, with daily monitoring at the Mine Site and visual inspections every five days on the Tote Road enabling rapid response to water quality concerns. Spill Report 18-209, regarding TSS exceedances downstream of the Tote Road km 86, is reported about a week after the event once laboratory results were received. The spill report is dated June 5 and discusses a sample that was collected on May 30. The spill reporting is retroactive, and the response to the high-TSS conditions took place within one day. This pattern of sampling and response, repeated over time, will focus mitigation efforts on the crossings of concern. Baffinland's follow-up to the May 16 and 17 sediment guideline exceedance in the Camp and Sheardown Lake watersheds (Spill Reports 18-180 and 18-182) appears to be a good example of rapid response to freshet-related conditions. The mitigations may help contain sediment-laden snowmelt in future years, and the proactive management of sediment-laden snow in this catchment will also help manage freshet runoff water quality. Baffinland plans to continue freshet monitoring and associated reporting. The responses during high sediment events in 2018 included berm and check dam construction, proactive snow removal, riprap armoring of channels and slopes, silt fences and silt curtains. It remains to be seen whether mitigations constructed in 2018 result in improvements in future years, or whether the 'problem spots' remain.	CIRNAC recommends that Baffinland implement their rapid response mitigation measures and any lessons learned to mitigate future freshet-related TSS exceedances along the Tote Road and at the Mine Site. Evaluation of future TSS exceedances relative to historical mitigation efforts will help determine whether effort or annual climate variability explain the improvements in 2018.	Baffinland 2018 Annual Report to NIRB, Section 4, Project Certificate (PC) Conditions No. 17, 24 and 46. Baffinland Mary River Project – Final Environmental Impact Statement. February 2012. Baffinland Mary River Project – Addendum to the Final Environmental Impact Statement. June 2013. Baffinland 2018 QIA & NWB Annual Report for Operations Appendix E. 10 - 2018 Freshet Monitoring Report	In 2019, Baffinland plans to implement the discussed rapid response mitigation measures, and lessons learned from previous years to more effectively mitigate future freshet-related TSS exceedances along the Tote Road and at the Mine Site. Baffinland will continue to implement the Freshet Monitoring Program to address on-going potential sedimentation concerns. In 2018, Baffinland continued to implement corrective and mitigation measures, including initiatives outlined in the Sedimentation Mitigation Action Plan (Golder, 2016), Dust Mitigation Action Plan (Golder, 2016) and Tote Road Earthworks Execution Plan (TREEP; Golder, 2017). Corrective actions and mitigation measures implemented to address sedimentation concerns at the Project are fully discussed in the 2018 Freshet Monitoring Report provided in Appendix E.10 of the QIA-NWB 2018 Annual Report for Operations. Baffinland provided the 2018 Freshet Monitoring Report to the NWB, CIRNAC, ECCC and the QIA in early 2019.

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Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
10	PC Condition No. 64 requires Baffinland to implement systems and procedures regarding waste management to prevent attraction of carnivores to the Project site. Baffinland has prepared a waste management plan (currently on Revision 7, September 25, 2018) and implemented action items to reduce attracting carnivores. The 2018 Annual Report indicates that new fencing and gates were installed in September 2018 downwind of the active portion of the landfill. Photo 11 in Appendix D of the 2018 QIA-NWB Annual Report shows the installed fence at completion. The report further indicates that this fence was developed in consultation with NIRB staff and that it will be progressively expanded as new landfill cells are commissioned. The issue of the fencing and wind-blown litter was highlighted during multiple site visits by NIRB, CIRNAC and QIA inspectors in 2018 as well as in the 2017-2018 NIRB Annual Monitoring Report. Baffinland deems this issue resolved with the installation of the new fence. Wire mesh continues to be installed under new buildings and repaired under existing buildings per project requirements. Per the annual report, landfill waste is covered promptly and notes from CIRNAC inspections agree with this statement. An aerial photo of the landfill from July 2018 shows the majority of the landfill area is well-covered with a small active face open. However, several inspections noted hazardous waste having been dropped off at the landfill site. No mention of food waste was made which would be a potential attractant for carnivores. These instances indicate that some staff may not be familiar with waste disposal protocols developed for the site. Per the annual report, carnivore interactions have been limited to Arctic Fox and have been minimized and were lower in 2018 when compared with 2017. It is noted that the QIA inspection on June 25- 28 provided evidence of a damaged seacan used for storing food waste prior to incineration, with the spillage being eaten by an Arctic Fox. Documentation provided shows that this seacan has since been replaced. The 2018 Terrestrial Environment Annual Monitoring Report highlights that non-fatal wildlife interactions reported (2) involved Arctic Foxes in areas with attractants such as the landfill or garbage bins at the Port site. None of the wildlife fatalities reported are linked to carnivore interaction with waste, but mostly vehicle-wildlife collisions. It has been noted that Arctic foxes appear to be quite habituated to the project site. With regard to proper waste sorting, CIRNAC notes that Baffinland has changed access to the landfill site by installing a gate at the site and tracking staff that drop off waste in an effort to ensure that only acceptable waste is dropped off at the landfill.	1) CIRNAC recommends that further reduction of wildlife interaction at all waste management infrastructure (landfill, waste storage containers) should remain a focus for 2019 and future years in order to reduce attracting carnivores. 2) CIRNAC recommends frequent inspection of all waste management infrastructure and timely repairs, inspection and installation of wire mesh beneath buildings and ensuring compliance with waste management protocols (i.e., continued training of staff).	Baffinland 2018 Annual Report to NIRB, Section 4, Project Certificate Condition No. 64 Baffinland 2018 Annual Report to NIRB, Appendix A and Appendix E Baffinland 2018 QIA & NWB Annual Report for Operations, Appendix D Photo Journal and Appendix E.8 Regulatory Correspondence 2018 Terrestrial Environment Annual Monitoring Report (EDI, 2019)	All waste is sorted and segregated on site and then deposited in the proper waste stream. Food waste is incinerated to reduce animal attractants. All human wildlife interactions are documented and reported on. Environmental Protection Plan training occurs for all Baffinland contractors and employees and teaches the importance of waste sorting. Waste Sorting compliance is inspected on a weekly basis and prioritized on a daily basis by supervisors. A program will be implemented in 2019 to assess the areas needing repair for accommodations skirting and installation actioned on the new Sailivik camp at the Mine Site.
11	As reported by Baffinland, during 2018, thirty-six (36) spills were reported to the Northwest Territories-Nunavut (NT-NU) Spill Line, NWB, CIRNAC and QIA by the Project. These include twenty-three (23) sewage/greywater spills, four (4) sediment releases and nine (9) spills involving other operational effluents and materials. This represented a frequency decrease of 25% when compared to the frequency of reportable spills in 2017. Following review of the initial follow-up spill reports for sewage- related spills provided in Appendix E.8.4, it is apparent that most of the reported spill incidents were the result of human error (housekeeping), mechanical or equipment failure or a combination thereof. CIRNAC is of the view that a more proactive and diligent program of regular inspection and maintenance of the Project's sewage management system would help reduce the frequency of such spill incidents.	CIRNAC recommends that the Baffinland develop and implement a more proactive program of regular inspection and maintenance of the Project's sewage management system to reduce the frequency of sewage spill incidents.	Baffinland 2018 Annual Report to NIRB, Section 4.5.2 Unauthorized Discharges and Spills Baffinland 2018 QIA & NWB Annual Report for Operations, Appendix E.8.4 - Initial Follow-up Spill Reports	Baffinland works to address corrective actions from incidents and releases on an ongoing basis. Data is analyzed to determine root causes and leading and lagging indicators are assessed in efforts to reduce spill frequency. The accommodations sewage systems are continually worked on by housing maintenance and are inspected daily for leaks or overflows. Since the introduction of daily inspections, the volume and frequency of reportable spills has decreased.
12	Pursuant to Condition 145 of its NIRB Project Certificate, Baffinland is encouraged to work with the Government of Nunavut (GN) and the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) to monitor barriers to employment for women, specifically with respect to childcare availability and costs. Although Baffinland provides information related to potential barriers to employment for women through its Socio-economic Monitoring Reports, the company is having difficulty acquiring appropriate community-level indicator data for childcare availability and costs.	To fully satisfy condition 145 of its NIRB Project Certificate, CIRNAC recommends that Baffinland continue to engage with the GN and QSEMC to acquire appropriate community-level indicator data for childcare availability and costs in the North Baffin communities (i.e., Pond Inlet, Arctic Bay, Igloolik, Hall Beach, and Clyde River).	NIRB Project Certificate No. 005, Condition 145 Baffinland's 2018 Annual Report for the Mary River Project Baffinland's 2018 Socio-economic Monitoring Report	Baffinland continues to provide information relevant to this topic in its Socio-Economic Monitoring Reports (i.e. hours worked by Project employees and contractors, by ethnicity and gender). However, appropriate community-level government indicator data are currently unavailable for the topic of childcare availability and costs. As such, this topic continues to be tracked by Baffinland through the QSEMC process and community engagement conducted for the Project (e.g. by documenting and qualitatively reporting stakeholder comments received on this topic). For these reasons, Baffinland is compliant with PC Condition No. 145. Should relevant government data become available on this topic in the future, Baffinland will consider incorporating this into its monitoring program. Baffinland will also continue to engage the GN and QSEMC to investigate appropriate data sources for this topic.

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Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
13	Pursuant to Condition 148 of its NIRB Project Certificate, Baffinland is encouraged to collaboratively monitor project harvesting interactions and food security with the QSEMC. In its 2018 Annual Report and 2018 Socio-economic Monitoring Report, Baffinland provides considerable information related to these topics. Information is provided on the proportion of tax filers with employment income, median employment income, percentage of population receiving social assistance, number of recorded land use visitor person-days at project sites, and number of Wildlife Compensation Fund claims. However, appropriate community-level indicator data remain unavailable apart from those used for employment income and social assistance data.	To fully satisfy Condition 148 of its NIRB Project Certificate, CIRNAC recommends that Baffinland continue to work with the QSEMC to determine how to best monitor project harvesting interactions and food security with the aim of identifying adequate community-level indicator data.	NIRB Project Certificate No. 005, Condition 148 Baffinland's 2018 Annual Report for the Mary River Project Baffinland's 2018 Socio-economic Monitoring Report	Baffinland continues to provide information relevant to this topic in its Socio-Economic Monitoring Reports. However, appropriate community-level government indicator data are currently unavailable for this topic. As such, this topic continues to be tracked by Baffinland through the QSEMC process and community engagement conducted for the Project (e.g. by documenting and qualitatively reporting stakeholder comments received on this topic), and related information (e.g. territorial-scale data on harvesting and food security for 5-year Census intervals; community-scale data on employment income and social assistance rates; data on recorded land use visitor person-days at Project sites and the number of Wildlife Compensation Fund claims). For these reasons, Baffinland is compliant with PC Condition No. 148. Of note, Baffinland engaged the QSEMC and SEMWG during meetings in May 2019 to gather feedback on the development of new food security monitoring indicators for the Project. Baffinland discussed issues related to food security and the Project, areas of potential monitoring focus, potential data sources, and relevant Project mitigation measures. Various suggestions and ideas were shared by participants in these meetings, and the complex nature of food security monitoring was acknowledged. No issues were identified by the groups with Baffinland advancing its food security monitoring plans further. Baffinland committed to keeping the QSEMC and SEMWG informed of their progress in this area and sharing relevant information/documents as appropriate.
14	Pursuant to Condition 154 of its NIRB Project Certificate, Baffinland is tasked to work with the GN and the QSEMC to monitor potential indirect effects of the project on the health and wellbeing of North Baffin community members. To date, appropriate community-level indicator data are unavailable for four topics identified in this Project Certificate condition (i.e., prevalence of gambling issues; prevalence of family violence; prevalence of marital problems; and rates of teenage pregnancy). Baffinland provides information on the project's potential indirect effects for these topics and continues to seek input from the QSEMC and members of North Baffin communities.	To satisfy Condition 154 of its NIRB Project Certificate, CIRNAC recommends that Baffinland continue to work with the QSEMC to identify adequate indicator data to assess potential indirect impacts from the project on the health and wellbeing of North Baffin community members.	NIRB Project Certificate No. 005, Condition 154 Baffinland's 2018 Annual Report for the Mary River Project Baffinland's 2018 Socio-economic Monitoring Report	Baffinland continues to provide information relevant to potential indirect health and well-being effects of the Project in its Socio-Economic Monitoring Reports. However, appropriate community-level government indicator data are currently unavailable for some topics (i.e. prevalence of gambling issues; prevalence of family violence; prevalence of marital problems; and rates of teenage pregnancy). As such, these topics continue to be tracked by Baffinland through the QSEMC process and community engagement conducted for the Project (e.g. by documenting and qualitatively reporting stakeholder comments received on these topics), and related information where available (e.g. territorial-scale data, or community-scale data obtained for 5-year Census intervals). For these reasons, Baffinland is compliant with PC Condition No. 154. Should appropriate government data become available for these topics in the future, Baffinland will consider incorporating them into its monitoring program. Baffinland will also continue to engage the GN and QSEMC to investigate appropriate data sources for these topics.

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Table A.7 - Response to CIRNAC Comments on Baffinland's 2018 Annual Report to the NIRB

Cmt. #	Reviewer's Detailed Comment	CIRNAC Recommendations	Reference Section	Baffinland's Response
15	Pursuant to Condition 163 of its NIRB Project Certificate, Baffinland is required to, "engage and consult with North Baffin communities to ensure Nunavummiut are kept informed about project activities, and more importantly, in order that Proponent management and monitoring plans continue to evolve in an informed manner." Section 4 of the 2018 Annual Report identifies various public meetings and community group meetings that Baffinland organized in North Baffin communities throughout 2018. The topics for each meeting are presented and general issues/themes are presented (e.g., Employment and Income; Education and Training Opportunities; Marine Environment, etc.). In addition, Community Engagement Records are provided in the form of an appendix. These records summarize stakeholder comments and Baffinland responses. It is not clear whether specific management and monitoring plans were presented to the North Baffin communities and if any revisions were made to these documents/company procedures based on received feedback.	To satisfy Condition 163 of its NIRB Project Certificate, CIRNAC recommends that Baffinland summarize its efforts to engage and consult with North Baffin communities on project management and monitoring plans in future annual report submissions. These summaries should address what management and monitoring plans were reviewed and any revisions made based on received feedback.	NIRB Project Certificate No. 005, Condition 163 Baffinland's 2018 Annual Report for the Mary River Project, Appendix B: Community Engagement Records	Baffinland will consider how to provide additional details regarding community engagement efforts in the NIRB Annual Report beyond what is already included in Section 2, Section 4 and Appendix B, noting that significant details regarding Inuit engagement are already provided in these sections of the Report.

Baffinland

Attachment 2

Inuit Qaujimajatuqangit (IQ) and the Mary River Project – Phase 2 Proposal

Inuit Qaujimajatuqangit (IQ) and the Mary River Project Phase 2 Proposal

March 2019

Baffinland Iron Mines Corporation
Mary River Project
NIRB File No. 08MN053

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Appendix A: Select List of Community Meetings*

1 INTRODUCTION

Baffinland would like to thank reviewers for the technical comments provided on the use of Inuit Qaujimajatuqangit (IQ) in the FEIS Addendum for the Phase 2 Proposal. Through the engagement and consultation process that has been undertaken for the Project, Baffinland has aimed to enhance long-term relationships with QIA and Inuit. This process has also deepened Baffinland's understanding of what IQ is and how this evolving body of knowledge and related Inuit Societal Values (ISV) can enhance Project discussions and processes. Baffinland has relied on QIA's feedback and will continue to request QIA's active involvement in methods for collecting, evaluating and integrating IQ. QIA's technical review comments in particular, contribute to this ongoing and important dialogue.

This report provides an overview of Baffinland's overall approach to the collection, consideration, and use of IQ, and provides specific examples of how IQ was used in the Phase 2 Proposal and how it has influenced Project design. It also looks ahead to the future development of strengthened systems and processes related to IQ.

2 BAFFINLAND'S APPROACH TO IQ

Since inception of the Project in 2004 Baffinland has been proactively engaging with local communities. This has been supported by Baffinland Community Liaison Officers and has included frequent and varied discussions with local stakeholders, and engagement with Inuit communities and organizations (e.g. Hunters and Trappers Organizations and Hamlets), and with QIA as the Designated Inuit Organization representing the North Baffin Inuit. Baffinland's engagement and community research activities have emphasised historic and contemporary land use ties as well as IQ in the Project area, which are critical to the Company's understanding of the environment and landscape in which the Project is located.

The Project Inuit Impact and Benefit Agreement (IIBA) has a definition of IQ relevant to this discussion. Use of the Inuktitut term "Inuit Qaujimajatuqangit" or the acronym "IQ" is broadly intended to mean Inuit Societal Values (ISV) that include traditional, current and evolving bodies of Inuit values, beliefs, experience, perceptions and knowledge regarding the environment, including, land, water, wildlife and people, to the extent that people are part of the environment.

Baffinland acknowledges the different definitions of IQ exist, including those defined by NIRB. While the term 'IQ' is often used by Baffinland, it is typically used in a broad and inclusive manner akin to the NIRB's definition of Inuit Qaujimajatuqangit. Baffinland seeks to gather 'IQ' through frequent and ongoing community engagement, where community members have the opportunity to share their unique knowledge and values in relation to the Project. While it is true that all community engagement cannot be considered IQ (e.g. general comments, clarifications, and questions asked about Project activities or how to access Project benefits and programs), it would not be appropriate to fully separate it from IQ either. In other words, although not always classified as IQ gathering activities, engagement activities do provide important opportunities for Baffinland to acquire IQ and community-based knowledge perspectives relative to the operating Project and future phases. Through community engagement and research, residents have often used their knowledge to share observations about the land, wildlife, and their communities; describe insights and concerns related to Inuit livelihood effects; and suggest ways these issues might be addressed. These valuable comments haven't been dismissed simply because they weren't collected under the auspices of a formal IQ study; rather, Baffinland has used this information to develop a more comprehensive assessment of socio-economic and environmental issues related to the Phase 2 Proposal.

The Mary River Project IIBA with QIA prescribes the objectives for how IQ will be incorporated into the Project, including that Baffinland will consider IQ in relevant decision making (Article 16.2). The IIBA also provides guidance on the collection and use of IQ (Article 16.3), and ownership of IQ (Article 16.4). Baffinland recognizes the importance of IQ to Inuit, understands the importance of IQ in the NIRB regulatory process, and the need to incorporate it into key stages of project decision-making and assessment in order to earn community support for the Project. Since the Project's inception, efforts regarding data collection, evaluation and integration of IQ has been increasing. These ongoing improvements are welcomed by Baffinland, and the Project's Stakeholder Engagement Plan (TSD-04) and Approach to Adaptive Management have been designed as living documents that can be updated to reflect the evolving preferences and needs of regulators and community members.

Baffinland acknowledges concerns have been raised by QIA, through technical comments, on the use of workshops to collect IQ for the Phase 2 Proposal. As identified in the Project's Phase 2 Workshop Report (TSD-03), Baffinland consulted with QIA when developing the community workshop methodology proposals and received formal approval of the final workshop methodology proposals from QIA before the workshops were initiated. Baffinland would also like to highlight that many additional opportunities were available for QIA to offer feedback and/or voice concerns on this approach to-date. To Baffinland's best knowledge, however, no significant concerns were raised by QIA prior to receipt of the information requests. In the technical comments QIA has requested additional IQ to be collected. Baffinland is in the process of collecting additional IQ for the Phase 2 Proposal and this is discussed in additional detail in Section 4.1 below.

2.1 Alignment with Inuit Societal Values

The Phase 2 Proposal will continue to provide sustainable and durable social and economic benefits to Inuit without compromising the integrity of the ecosystem or the right of future generations to the sustainable use of renewable and non-renewable resources. The Project as designed, inherently considers and adheres to Baffinland's understanding of the intent of Inuit Societal Values. Baffinland sees the sustainable development principles that underpin the Company's approach to operating the current Project and planning for the Phase 2 Proposal as complementary to these values. The Government of Nunavut's (2018) mandate document *Turaaqtauvut* describes Inuit Societal Values. A description of how Baffinland has incorporated each of these values into the Mary River Project is found in Table 1.

Table 1 Alignment with Inuit Societal Values

Inuit Societal Value	How Baffinland has Incorporated Each Value into the Mary River Project
Inuuqatigiitsiarniq Respecting others, relationships and caring for people	Baffinland provides a work environment where all workers are treated with respect and dignity. It is the policy of Baffinland to prohibit any form of violence and unlawful harassment, including harassment based on race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, gender identity, gender expression, age, record of offences, marital status, family status, or any other prohibited ground of discrimination. Baffinland respects human rights, the dignity of others, and diversity in our workforce. Baffinland also honours and respects the unique cultural values and traditions of Inuit. People are our greatest asset and nothing is as important as their health and safety. Our motto is 'Safety First, Always'. We foster and maintain a positive culture of shared responsibility based on participation, behaviour, awareness, and promoting courageous leadership. We allow our employees and contractors the right to stop any work if and when they see something that is not safe. We also ensure resources are available to support our employees when needed, including through our Employee and Family Assistance Program, Community Counsellor Program, on-site Inuit Cultural Advisors, and site medic.
Tunnganarniq Fostering good spirits by being open, welcoming and inclusive	Baffinland welcomes workers to the Project from throughout the Qikiqtaaluk Region and elsewhere. We have developed programs and policies to be inclusive of individuals from all walks of life and have zero-tolerance for any form of workplace harassment. Furthermore, we acknowledge the Project is located on Inuit owned lands and recognize we need to be culturally sensitive and aware in our everyday operations. To this end, we support various Inuit cultural events and programs both on-site and in nearby communities. We also deliver mandatory cross-cultural training to our employees and contractors, support the use of Inuktitut in the workplace, and welcome visiting Inuit land users at Project sites. Furthermore, we have implemented several programs to accommodate individuals interested in Project employment, but who may lack formal skills and experience in a mining environment; our goal is to welcome as many interested and qualified Inuit to the Project workforce as possible.
Pijitsirniq Serving and providing for family and/or community	Baffinland views itself as part of the Qikiqtaaluk community and contributes to community development in several ways. This includes providing meaningful employment, training, and contracting opportunities to Inuit, in addition to paying all relevant taxes, royalties, and fees to government agencies and QIA. The mine is also a type community and we therefore work to support our employees' health and well-being by providing a safe, supportive, and inclusive working environment. We acknowledge sustainable development extends beyond our everyday mining operations and will thus continue contributing to various North Baffin community wellness initiatives and programs (e.g. through the INPK Fund and other IIBA commitments, community donations). Serving and providing for the community also extends to the traditional economy and Baffinland has made various commitments in this area as well (e.g. Harvesters Enabling Program in Pond Inlet, Wildlife Compensation Fund, seasonal country food exchange program, and permitting harvesting and establishing country food kitchens at Project sites).
Aajiiqatigiinniq Decision making through discussion and consensus	Baffinland recognizes the valuable insights Inuit and other stakeholders have on the Project, many of which are shared through community engagement and/or review processes (e.g. NIRB environmental assessment process). We are further committed to ongoing IIBA implementation with QIA. We acknowledge the importance of collaboration when making important decisions about Project development. We undertake thorough public engagement to create a shared understanding of relevant social, economic, and environmental concerns and opportunities with communities, regulators, stakeholder organizations, and the public. Our commitments in this area have been formalized in our Stakeholder Engagement Plan, IIBA, and elsewhere. We honour our commitments by being sensitive to local needs and priorities, and we work in active partnership to make decisions where appropriate. Baffinland participates in several collaborative forums for the Project, including various IIBA committees, the Terrestrial Environment Working Group, Marine Environment Working Group, Qikiqtaaluk Socio-Economic Monitoring Committee, and Mary River Socio-Economic Monitoring Working Group. Baffinland remains open to discussing with stakeholders how improved Project outcomes and enhanced community benefits may be achieved.

Pilimmaksarniq/Pijariuqsarniq Development of skills through observation, mentoring, practice, and effort	Baffinland provides significant training and skill development opportunities to Inuit, including through formal work readiness, apprenticeship, heavy equipment operator, and internship training. Training and skill development opportunities also informally occur through everyday work and on-site mentorship. Many of the skills developed by Inuit at the Project are transferable to other work locations, communities, and home life. Baffinland also supports several school-based initiatives in the North Baffin to help promote successful educational outcomes. These include annual laptop donations to secondary school graduates, post secondary school scholarships, a school lunch program, and other relevant education-related donations. However, we recognize education and learning are life-long endeavours and opportunities always exist for improvement at Project sites. Baffinland embraces the concepts of adaptive management and continuous improvement to ensure Project enhancements are regularly being considered.
Piliriqatigiinniq/Ikajuqtigiinniq Working together for a common cause	Baffinland is committed to the common goal of sustainable development in the Qikiqtaaluk Region, but recognizes this will require a collaborative effort. Baffinland contributes to the social, cultural, and economic development of the communities it works with and has developed a Sustainable Development Policy and negotiated an IIBA to support corporate goals and actions in this area. Baffinland also takes steps to understand, evaluate, and manage risks on a continuing basis, including those that may impact the environment, employees, contractors, local communities, customers, and shareholders. More generally, we work with communities and other stakeholders to ensure the delivery of meaningful and lasting benefits in the Qikiqtaaluk Region, while also being protective of the environment. We remain open to suggestions from our employees and stakeholders on how Project operations can be improved. To this end, we have implemented an Employee Concerns Policy, conduct regular evaluations of workplace conditions in cooperation with QIA, participate in several multi-party committees and working groups, in addition to regularly engaging other stakeholders on the Project.
Qanuqtuurniq Being innovative and resourceful	Baffinland's employees are our greatest asset and best resource for advancing the Project daily. Developing a world-class mine in the challenging conditions of the Canadian Arctic requires us to constantly innovate and be resourceful, and Inuit have a key role in our success. Employee feedback is encouraged and regularly solicited, and we strive for continual improvement in all aspects of our work. We continuously seek to use energy, raw materials, and natural resources more efficiently and effectively. We also report, manage, and learn from injuries, illnesses, and high potential incidents to foster a workplace culture focused on safety and the prevention of incidents. More simply, we strive to develop more sustainable practices. Community members have provided valuable input on Project plans and outcomes for many years and we will continue to encourage these contributions. IQ and community input have also informed the baseline environmental and socio-economic data we've collected, effects assessments we've conducted, and the mitigation and monitoring programs we've developed.
Avatittinnik Kamatsiarniq Respect and care for the land, animals and the environment	Baffinland acknowledges the importance of the land, animals, and environment to Inuit and the relevance these have to Inuit culture and well-being. Environmental protection is of the highest priority for Baffinland and we abide by all environmental rules and regulations. Furthermore, Baffinland applies the principles of pollution prevention, waste reduction, and continuous improvement to minimize ecosystem impacts and facilitate biodiversity conservation. We also endeavour to ensure that adequate resources are available and that systems are in place to implement risk-based management systems, including defined standards and objectives for continuous improvement. Furthermore, we ensure that an effective closure strategy is in place at all stages of Project development to ensure reclamation objectives are met. Baffinland has employed a balance of the best scientific and traditional Inuit knowledge to safeguard the environment and several mitigation and management measures have been developed in support of this (e.g. management plans for various wildlife and environmental components). The Company continues to engage Inuit on its environmental monitoring programs (e.g. through terrestrial and marine environment working groups) and employs adaptive management to identify and make improvements to the Project that may be required.

3 HOW IQ WAS INCORPORATED

3.1 Existing Sources of IQ Utilized by Baffinland

IQ has been collected specific to the Project under research licenses issued by the Nunavut Research Institute. As described previously in this document, the term IQ is used in a broad and inclusive manner by Baffinland. As such, Baffinland's understanding of IQ as it relates to the Project has been greatly enhanced by a variety of fora, including workshops, community meetings, and discussions with Elders and IQ holders that have occurred as part of the Mary River Project's broader community engagement program.

A summary of the IQ sources used in the FEIS and in the FEIS Addendum for the Phase 2 Proposal is provided in Table 2, below.

Outside of the formal IQ collection process, input from Inuit communities was gathered through Baffinland's engagement processes. A summary of the participation and engagement that has occurred as part of the Project is provided in Appendix A.

Table 2 Sources of IQ Used by Baffinland

Project Phase	IQ Source	Description	References
FEIS	Land Use Report	Provides an overview of the history of the region, information on land use during the contact-traditional period, and a more detailed overview of current land use activities in the North Baffin and Foxe Basin areas. Published sources, personal communications, and the Project's own IQ study were used to describe land use in the Mary River Project and surrounding areas.	**FEIS Appendix 4C (Baffinland 2012): Land Use Report** **FEIS Appendix 2B (Baffinland 2012): Summary of Community-Based Research Undertaken for the Mary River Project 2006 to 2010** **FEIS Addendum for the Phase 2 Proposal, TSD-05: Mary River Inuit Knowledge Study Mapbook** **IQ Database for the FEIS (Baffinland and QIA internal database)**
	Individual Interviews	IQ interviews were conducted with individuals in Arctic Bay, Igloolik and Pond Inlet from 2006 to 2008. Working groups identified key knowledge holders in the community. Interview questions focused on Inuit use and understanding of the land, caribou, marine mammals, fish, birds, and other land mammals. A total of 45 interviews were completed.	
	Topic-Specific Workshops	From 2007 to 2010, workshops on caribou, marine mammals and Inuit land use were conducted in the North Baffin and South Baffin communities to identify areas of importance and use to Inuit and to identify potential Project interactions with these topics. A total of 15 workshops were completed.	
	Individual Working Group Meetings	Information was collected through the establishment of, and meetings with, individual working groups in each North Baffin community. A total of five working groups were established: • Pisiksik Working Group (Pond Inlet - 2006) • Qaatiliit Working Group (Igloolik - 2007) • Inuksuligarjuk Working Group (Arctic Bay - 2007) • Tikkuu Working Group (Hall Beach - 2008) • Ukkakkut Working Group (Clyde River - 2008)	
	'Kajjuqtikkut' - Arctic Bay Working Group Meeting	In March 2008, Baffinland sponsored a 5-day workshop in Arctic Bay that brought together the working groups from each of the five North Baffin communities to discuss socio-economic issues, caribou, marine mammals, transportation, and the future of the working groups. Participants named the meeting 'Kajjuqtikkut', which means 'the place where everyone comes to meet after traveling', in reference to a place where Inuit traditionally used to meet near Nuluujaak (Mary River).	
	Baffinland - QIA Thematic Workshop	On September 8-12, 2010 Baffinland and the QIA jointly hosted a thematic workshop at Mary River. The QIA selected 3 to 4 representatives from each participating North Baffin and South Baffin community. The agenda included five days of thematic discussions on the EA process for the Project, caribou, marine mammals and shipping, the proposed 3 Mtpa road operation, consisting of year-round haulage of ore over the Milne Inlet Tote Road and open water shipping of ore out of Milne Inlet.	
	Community and Stakeholder Engagement (2006 – Ongoing)	Baffinland has created several opportunities for Inuit community members and other stakeholders to share information with the Company (including IQ, if desired), provide feedback and/or suggestions regarding the Approved Project. Baffinland has organized or participated in various meetings with the public, and community and stakeholder groups (including working groups), as described further in TSD-04. A list of public meetings and community group meetings are provided the Annual Reports to NIRB	
FEIS Addendum for	Community Workshops (2015 to 2016)	Baffinland organized a series of 'invited persons' workshops and public open houses in Pond Inlet and Arctic Bay, Nunavut between March 2015 and May 2016 to discuss the Phase 2 Proposal. These workshops were focused on five main themes:	**FEIS Addendum for the Phase 2 Proposal, TSD-03: Phase 2 Workshop Report**

Project Phase	IQ Source	Description	References
the Phase 2 Proposal		• Contemporary Inuit land use in the Eclipse Sound and Navy Board Inlet areas • Shipping through ice • Open water shipping • Caribou • Phase 2 and Arctic Bay A verification meeting was held in Pond Inlet in May 2016 to confirm accuracy of IQ collected during the workshops and to obtain feedback from community members on the efficacy of the workshops.	**FEIS Addendum for the Phase 2 Proposal, TSD-04: Public Consultation Report**
	Community and Stakeholder Engagement (2014 – Ongoing)	Baffinland has created several opportunities for Inuit community members and other stakeholders to share information with the Company (including IQ, if desired), provide feedback and/or suggestions regarding the Phase 2 Proposal. Baffinland has organized or participated in various meetings with the public, and community and stakeholder groups (including working groups), as described further in TSD-04. A list of public meetings and community group meetings are provided in the Annual Reports to NIRB.	
	Community Risk and Mitigation Workshops (2019 - Ongoing)	The goal of these workshops is to establish community-informed terrestrial and marine environmental protection measures for the Phase 2 Proposal. For greater clarity, 'protection measures' may include management, mitigation, and/or related monitoring initiatives. At the first two workshops, Caribou were primary focus of the terrestrial environment workshop discussions, while narwhal and aquatic invasive species/ballast water discharge were the primary focus of the marine environment workshop discussions. Additional topics were discussed as time allowed. QIA continues to be engaged on the design and execution of these workshops.	

3.2 Influence of IQ on the Project

Baffinland values its relationships with the North Baffin communities and places great importance on the information, concerns, and other feedback that it receives on Project operations. When designing and carrying out Project activities, Baffinland strives to consider, respond to, and incorporate community-based knowledge gained through IQ. Examples of this are ubiquitous in the history of the Project. A few specific examples are described below.

Project Design

- Switch from road to rail to address concerns related to effect of fugitive dust emissions on drinking water sources, vegetation and fish.
- Winter shipping was originally contemplated as part of the Phase 2 Proposal but was removed as a result of IQ input and community feedback that revealed concerns with this approach and its potential effects on marine wildlife and Inuit land use.
- Switch from outdoor secondary crushing at the Mine Site to development of indoor secondary crushing at Milne Port, to address concerns related to effect of fugitive dust emissions on drinking water sources, vegetation and fish.
- The Phase 2 Proposal shipping period was ultimately selected to avoid time periods of critical Inuit land use and harvesting activities.
- While the Steensby Inlet shipping component of the Project has not yet been implemented, IQ played a role in determining the location of the proposed shipping route (to the east of Rowley Island), in order to avoid important marine wildlife habitat and Inuit harvesting areas. IQ also identified important Inuit travel routes through Steensby Inlet, which necessitated the development of land user detour and site access procedures by Baffinland.
- Nominal shipping route for the Northern shipping corridor. Monitored by setting up specific alerts to identify when vessels are travelling close to areas used by hunters (e.g. western shoreline by Bruce Head) and establishment of restricted areas where vessels cannot travel (e.g. Koluktoo Bay).
- As part of the railroad design, IQ will be used to determine the location of wildlife crossings and pedestrian crossings based on travel routes.

Selection of VECs

- The selection of blueberry as an indicator species for Culturally Important Vegetation in the FEIS was based on information gathered in the 2007 Traditional Knowledge Study for Culturally Valued Vegetation, with consideration for the abundance of the species in the Regional Study Area (RSA) and the ability to model species distribution.
- Lichen was selected as a key indicator species in the vegetation program due to its relationship to caribou in the region, which are a species valued by Inuit.

Baseline Studies

IQ has provided a key source of information on environmental baseline conditions in the Project area and has helped fill gaps in scientific knowledge (e.g. knowledge on North Baffin caribou abundance, movement, and ecology):

- IQ based traditional plant use studies
- Information on caribou behavior, movement, and distribution

- Information on birds in the Project area
- Information on fish species in the Project area
- Distribution of marine mammals
- Species important for harvesting activities
- Land use information
- Areas of cultural value

IQ has also informed Baffinland's understanding of historic and/or baseline socio-economic conditions in some instances (e.g. traditional settlement and migration patterns, dimensions and components of Inuit society, traditional approaches to education and skill development, family roles, livelihood pursuits, self-reliance strategies, conceptualizations of health and community well-being). More generally, IQ and community input have provided Baffinland with a deeper context and understanding of socio-economic conditions in the Local Study Area, and of the challenges and opportunities that may be encountered through resource development.

Effects Assessment

Through the IQ data collection and community engagement processes outlined previously, the baseline for the effects assessment was informed by IQ. Impact prediction, including significance assessment, is also inherently based on baseline data. An accurate baseline is necessary to predict the conditions potential effects of the Project. That is to say, a good understand of current conditions allows for the prediction and protection of future conditions. IQ was also used to identify and substantiate the VECs and VSECs to help focus the effects assessment on the issues identified by local communities and knowledge- holders, and in developing mitigations and monitoring plans. The assessment of effects has focused on concerns identified by community members, including:

- Loss or alteration of narwhal habitat due to port construction and shipping;
- Injuries or mortality of marine mammals due to ship strikes; and
- Acoustic disturbance effects on marine mammals from port construction and shipping that may lead to changes in animal distribution, abundance, migration patterns, and subsequent availability of these animals for harvesting.

Spatial boundaries for the assessment were determined in consideration of, for example, the distribution of a species valued by Inuit, which as described above, is often informed by IQ. For fish and fish habitat and the wildlife and wildlife habitat, the spatial boundaries were determined in consideration of IQ regarding the spatial distribution of Artic char in Milne Inlet, and the distribution of caribou on Baffin Island. Spatial boundaries for the socio-economic effects assessment were selected to be inclusive of those communities with strong traditional/current use ties to the Project area. These communities have the potential to be the most affected by the Project and are where Project benefits are subsequently provided and where mitigation is focused.

The assessment of potential Project effects was also influenced by IQ. For example, IQ has informed Baffinland's understanding of caribou distribution and movement patterns. This understanding helped identify effects of the northern railway on caribou movement, which was assessed as a potential effect of the Phase 2 Proposal. To mitigate this potential effect, trails that cross or approach the Northern Transportation Corridor will have modified embankments (if necessary) to confirm the height and slope do not present a barrier to caribou moving through the landscape. If the regional caribou population increases and caribou start to move through the RSA more frequently, as expected based on IQ, these areas will

become more heavily used and monitoring of caribou movement will become increasingly important. Operation of the Northern Transportation Corridor will incorporate IQ into activity planning, particularly in movement areas, and future monitoring. Additional information on how IQ has been incorporated into monitoring programs is provided in Section 4.2 below.

In other cases, IQ and community input have informed Baffinland's understanding of socio-economic effects that may be experienced by Inuit. For example, these sources have clearly demonstrated the complex nature of Inuit livelihoods and the importance of both the wage (e.g. employment-based) and traditional economies (e.g. harvesting, land and marine use, consumption of country food) to current individual/community health and well-being. Ongoing changes in Inuit society (e.g. the transition to a mixed/wage-based economy) have also been considered in how some Project effects may be experienced by Inuit.

IQ was also considered in the determination of some significance thresholds. For example, as discussed in TSD-10 (Wildlife Baseline and Impact Assessment), public concern is a criterion for assessing significance. Public concern, which as described in Section 3.1 of TSD-10, includes IQ as one of the information sources. Significance determinations are made in accordance with the EIS Guidelines, and in compliance with NuPPAA. Significance determinations for the Phase 2 Proposal followed the same methods that were used in the FEIS.

Mitigation

- IQ has identified wildlife species, harvesting locations, and land/marine components of importance to Inuit, and has informed Baffinland's approach to mitigating Project effects in these areas.
- Reduction of speed of Project vessels from 7-10 knots to a maximum speed of 9 knots to address community concerns about the potential for vessel noise on marine mammals
- Identification of community-preferred drifting locations for Project vessels near Ragged Island
- Commitment to have a maximum of three Project-vessels drifting at Ragged Island

Monitoring

- As part of the air monitoring program, the locations of the dust monitors that were installed in 2018 were chosen in consultation with the MHTO.
- Monitoring programs have been expanded and revised based on information from local community members, including the extension of programs to Ragged Island, and the analysis of more fish.
- The 2017 height of land (HOL) surveys were conducted in partnership with the MHTO to incorporate IQ into the surveys. A representative of the MHTO provided valuable IQ on recent and historical caribou use of the Mary River area, as well as information on caribou behaviour and how to look for caribou on the North Baffin landscape during the HOL surveys conducted in April and June. Feedback on the design of the HOL surveys as well as the viewshed mapping methods was provided. Participation of the MHTO in HOL surveys will continue in 2019.

Additional information regarding community input on Project monitoring is provided in Section 4.1.1 below.

4 LOOKING AHEAD

4.1 Additional IQ to be Collected

Baffinland is in the process of undertaking a series of community risk and mitigation workshops with participants from all five North Baffin communities. Before undertaking these workshops Baffinland requested participation and feedback on the design, topics for discussion and undertaking to ensure that they would be culturally appropriate and an effective tool for retrieving and supporting the incorporation of relevant IQ in the Phase 2 Proposal. The specific objective of these workshops is to examine Baffinland's existing and proposed terrestrial and marine mammal monitoring programs and identify improvements to account for the additional terrestrial (rail) and marine (increased frequency) transportation components of Phase 2. The final workshop is planned to take place at the Mary River Mine Site the week of May 6th 2019 and Baffinland encourages QIA's participation. A final report will be issued to the NIRB and interested parties on or before July 10th 2019, and will include a summary of conclusions and recommendations as well as all three individual workshop reports.

Following the April 8-10, 2019 Technical Meeting, Baffinland will also return to the North Baffin communities to present summarized results of its Phase 2 Proposal EIS, alternatives assessment, and to discuss VEC/VSEC significance conclusions with community members. Community feedback and/or IQ obtained during this process may be used to update Baffinland's effects assessments and/or ongoing management of the operating Project and implementation of the Phase 2 Proposal.

Baffinland has an ongoing commitment to the North Baffin communities to continuously seek their feedback and input into the Project at all stages of the Project. The effort to collect IQ for the Project is viewed by Baffinland as a living initiative, not one that is strictly bound by the timelines of the EIS process for the Phase 2 Proposal. Through ongoing community consultations, participation of community members in the environmental and socio-economic working groups, annual site visits, and Inuit participation in the environmental monitoring programs for the Project, Baffinland has the opportunity to utilize community feedback and IQ to continuously improve Project planning and execution (also see Section 4.2).

4.1.1 Process for Including IQ in Monitoring Programs

Baffinland's monitoring programs have been developed with direct consideration of IQ where it is available, and often with direct Inuit input and involvement. Baffinland also funds the cost of a full-time QIA employee to be on site as an Environmental Monitor for the Project as per the IIBA. Additional details on Baffinland's use of IQ in its monitoring programs are provided below.

- Baffinland's monitoring programs incorporate community input and IQ, where appropriate. This occurs primarily through the Mittimatalik Hunters and Trappers Organization's (MHTO) participation in the MEWG, TEWG, and QSEMC/SEMWG processes, when members review Baffinland's monitoring results and comment on Project monitoring plans. Baffinland will continue to participate in these processes moving forward.

- As part of the annual pre and post-shipping meetings in Pond Inlet, an overview of the marine monitoring programs are provided and input from MHTO members into the design of the programs and analysis of the results is gathered. This circular consultation process on the marine monitoring programs has, for example, resulted in improved methods for detecting narwhal during observations, included additional fish capture for body burden analysis, and led to an expansion of the aquatic invasive species program to include sampling locations at Ragged Island.

- Project monitoring/management plans contain adaptive management components and have been designed so that Project programs/performance can be adjusted in response to community input and IQ received as necessary.

- To capture IQ and community feedback received on the monitoring programs, Baffinland has committed to revising applicable monitoring plans to include a section entitled 'Use of Community Input and IQ in the Monitoring Program'. These sections will be updated with each new iteration of the plans, to track the evolution of the plans based on community feedback.

- Baffinland has committed to continue training and hiring Inuit to work on the monitoring programs with the aim of enhancing program design in a manner that best complements a combination of IQ and scientific knowledge.

4.2 Adaptive Management and Future Work

As part of a broader initiative Baffinland commits to review and reconsider its Adaptive Management Memo in light of comments received during the technical review of Phase 2. Building off of the existing adaptive management processes already implemented, Baffinland will reconsider its framework for adaptive management and specifically address how IQ, in all of its forms, will explicitly be used in this process. Components of this framework could include appropriate engagement methods; methods and protocols for the collection of IQ; identification of mechanisms for integrating community feedback including IQ into management documents, decisions, and monitoring; and Project milestones where the inclusion of IQ will be specifically sought. This framework is also anticipated to include a communication plan, so that Baffinland is able to inform communities, QIA and other stakeholders how engagement outcomes continue to influence the Project.

An update on this will be provided in advance of final written submissions and no later than July 10, 2019.

APPENDIX A: SELECT LIST OF COMMUNITY MEETINGS*

Event Name	Community	Meeting Type	Event type (ST)
2014-02-19 - Arctic Bay - Arctic Bay Hamlet Meeting	Arctic Bay	Hamlet	Public Meeting
2014-02-19 - Arctic Bay - Town Hall Meeting	Arctic Bay	Public Meeting	Public Meeting
2015-02-19 - Arctic Bay - Public Forum/Meeting	Arctic Bay	Public Meeting	Public Meeting
2015-02-19 - Arctic Bay Hamlet - Public Forum/Meeting	Arctic Bay	Hamlet	Public Meeting
2016-05-05 - Arctic Bay - Workshop No. 5	Arctic Bay	TK Workshop	TK Workshop
2016-05-07 - Arctic Bay - Workshop No. 5 - Phase 2 Open House	Arctic Bay	TK Workshop	TK Workshop
2016-11-23 - Arctic Bay - Hamlet Meeting	Arctic Bay	Hamlet	Community Group Meeting
2016-11-23 - Arctic Bay - Public Forum/Meeting	Arctic Bay	Public Meeting	Public Meeting
2016-11-23 - Arctic Bay HTO - Meeting with AB HTO (Nov Community Tours)	Arctic Bay	HTO	Community Group Meeting
2017-05-31 - Arctic Bay - Community Meeting	Arctic Bay	Public Meeting	Public Meeting
2017-05-31 - Arctic Bay - Hamlet Meeting	Arctic Bay	Hamlet	Community Group Meeting
2017-05-31 - Arctic Bay - HTO Meeting	Arctic Bay	HTO	Community Group Meeting
2018-06-13 - Arctic Bay - Workshop	Arctic Bay	Other Community Groups	Meeting – Group
2018-11-19 - Phase II Consultation Meeting - Arctic Bay	Arctic Bay	Other Community Groups	Community Group Meeting
2019-01-09 - Arctic Bay - Phase II Community Consultation	Arctic Bay	Other Community Groups	Community Group Meeting
2014-02-17 - Baffinland Community Tour Pond Inlet - Clyde River (2)	Clyde River	Public Meeting	Public Meeting

Event Name	Community	Meeting Type	Event type (ST)
2015-02-17 - Clyde River Community - Public Forum/Meeting	Clyde River	Public Meeting	Public Meeting
2016-11-21 - Clyde River - Hamlet Meeting	Clyde River	Hamlet	Community Group Meeting
2016-11-21 - Clyde River - Public Forum/Meeting	Clyde River	Public Meeting	Public Meeting
2017-05-29 - Clyde River - Community Meeting	Clyde River	Public Meeting	Public Meeting
2017-05-29 - Clyde River - Hamlet and HTO Meeting	Clyde River	Hamlet	Community Group Meeting
2017-05-29 - Clyde River - Hamlet and HTO Meeting (2)	Clyde River	HTO	Community Group Meeting
2018-06-11 - Clyde River - Workshop	Clyde River	Other Community Groups	Meeting – Group
2019-01-11 - Clyde River - Phase II Community Consultation	Clyde River	Other Community Groups	Community Group Meeting
2014-02-20 - Hall Beach - Town Hall	Hall Beach	Public Meeting	Public Meeting
2015-02-20 - Hall Beach Community - Public Forum/Meeting	Hall Beach	Public Meeting	Public Meeting
2016-11-25 - Hall Beach - Hamlet Meeting	Hall Beach	Hamlet	Community Group Meeting
2016-11-25 - Hall Beach - Public Forum/Meeting	Hall Beach	Public Meeting	Public Meeting
2017-06-02 - Hall Beach - Community Meeting	Hall Beach	Public Meeting	Public Meeting
2017-06-02 - Hall Beach - HTO and Hamlet Meeting	Hall Beach	HTO	Community Group Meeting
2018-06-15 - Hall Beach - Workshop	Hall Beach	Other Community Groups	Meeting – Group
2019-01-07 - Hall Beach - Phase II Community Consultation	Hall Beach	Other Community Groups	Community Group Meeting

Event Name	Community	Meeting Type	Event type (ST)
2014-02-20 - Igloolik - Town Hall	Igloolik	Public Meeting	Public Meeting
2015-02-20 - Igloolik Community - Public Forum/Meeting	Igloolik	Public Meeting	Public Meeting
2016-11-24 - Igloolik - Hamlet Meeting	Igloolik	Hamlet	Community Group Meeting
2016-11-24 - Igloolik - Public Forum/Meeting	Igloolik	Public Meeting	Public Meeting
2017-06-01 - Igloolik - Community Meeting	Igloolik	Public Meeting	Public Meeting
2017-06-01 - Igloolik - Hamlet Meeting	Igloolik	Hamlet	Community Group Meeting
2017-06-01 - Igloolik - HTO Meeting	Igloolik	HTO	Community Group Meeting
2018-01-08 - Igloolik - Phase II Community Consultation	Igloolik	Other Community Groups	Community Group Meeting
2018-06-14 - Igloolik - Workshop	Igloolik	Other Community Groups	Meeting – Group
2014-02-17 - Baffinland Community Tour Pond Inlet - Clyde River	Pond Inlet	Public Meeting	Public Meeting
2014-02-17 - Baffinland Community Tour Pond Inlet - Pond Inlet/HTO Meeting	Pond Inlet	HTO	Public Meeting
2014-02-18 - Pond Inlet - Community Meeting	Pond Inlet	Public Meeting	Public Meeting
2014-02-18 - Pond Inlet - HTO Meeting	Pond Inlet	HTO	Community Group Meeting
2014-12-02 - Pisiksik - Pond Inlet CAG Meeting	Pond Inlet	Other Community Groups	Community Group Meeting
2015-02-18 - Pond Inlet Community - Public Forum/Meeting	Pond Inlet	Public Meeting	Public Meeting
2015-02-18 - Pond Inlet Hamlet - Public Forum/Meeting	Pond Inlet	Hamlet	Public Meeting

Event Name	Community	Meeting Type	Event type (ST)
2015-02-18 - Pond Inlet Hunters and Trappers Organization - Public Forum/Meeting	Pond Inlet	Other Community Groups	Community Group Meeting
2015-03-03 - Pond Inlet - Workshop No. 1	Pond Inlet	TK Workshop	TK Workshop
2015-04-27 - Pond Inlet - Workshop No. 2	Pond Inlet	TK Workshop	TK Workshop
2015-04-30 - Pond Inlet - Workshop No. 2 - Shipping Through Ice Open House	Pond Inlet	TK Workshop	TK Workshop
2015-10-26 - Pond Inlet - Workshop No. 3	Pond Inlet	TK Workshop	TK Workshop
2015-10-28 - Pond Inlet - Workshop No. 3 - Open Water Shipping	Pond Inlet	TK Workshop	TK Workshop
2015-11-20 - Pond Inlet - Workshop No. 4	Pond Inlet	TK Workshop	TK Workshop
2016-05-08 - Pond Inlet - Workshop No. 4 - Caribou Open House	Pond Inlet	TK Workshop	TK Workshop
2016-05-09 - Pond Inlet - Verification Meeting	Pond Inlet	TK Workshop	TK Workshop
2016-11-22 - Pond Inlet - Hamlet Meeting	Pond Inlet	Hamlet	Community Group Meeting
2016-11-22 - Pond Inlet - Public Forum/Meeting	Pond Inlet	Public Meeting	Public Meeting
2016-11-22 - Pond Inlet HTO - Meeting with HTO (Nov Community Tour)	Pond Inlet	HTO	Community Group Meeting
2016-12-06 - Pond Inlet - Winter Shipping and Resupply	Pond Inlet	Public Meeting	Public Meeting
2017-05-30 - Pond Inlet - Community Meeting	Pond Inlet	Public Meeting	Public Meeting
2017-05-30 - Pond Inlet - Hamlet Meeting	Pond Inlet	Hamlet	Community Group Meeting
2017-05-30 - Pond Inlet - HTO Meeting	Pond Inlet	HTO	Community Group Meeting
2017-11-10 Pond Inlet Health Fair	Pond Inlet	Public Meeting	Public Meeting
2017-12-04/05- NPC NBRLUP Amendment- Public Hearing- Pond Inlet	Pond Inlet	Public Meeting	Public Meeting

Event Name	Community	Meeting Type	Event type (ST)
2018-06-07 - HTO Pond Inlet	Pond Inlet	HTO	Community Group Meeting
2018-06-12 - Pond Inlet - Workshop	Pond Inlet	Other Community Groups	Meeting – Group
2018-08-30 - Pond Inlet HTO - Meeting	Pond Inlet	HTO	Meeting – Group
2018-08-31 - Pond Inlet HTO - Meeting	Pond Inlet	HTO	Meeting – Group
2018-11-21 - Phase II Consultation - Pond Inlet	Pond Inlet	Other Community Groups	Community Group Meeting
2018-11-28-29 - Pond Inlet HTO Meeting	Pond Inlet	HTO	Meeting – Group
2019-January Phase II Community Consultation	Pond Inlet Arctic Bay Clyde River Hall Beach Igloolik	Other Community Groups	Community Group Meeting
2019-01-14 - North Baffin Communities - Impact and Mitigation Workshop at Mary River Site	Various	Mary River Mine Site	Risk and Mitigation Community Workshop
2019-01-30 Baffinland and MHTO	Pond Inlet	Community Groups	Community Group Meeting
2019-02-11 to 14 - North Baffin Communities - Impact and Mitigation Workshop at Trois Rivieres	Various	Community Groups	Risk and Mitigation Community Workshop

*Baffinland is providing this list of community meetings as examples, this is not a comprehensive list of all meetings or meeting-types that Baffinland participates in. Additional details on Baffinlands engagement efforts are outlined in the Annual Reports to NIRB

Baffinland

Attachment 3

Memo – Re: Energy-Protein Model and Population Results to Address GN TRC-18

Memorandum

To:	Lou Kamermans
From:	Mike Setterington
Date:	July 9, 2019
Project No:	19Y0006
Re:	Energy-Protein Model and Population Model Results to Address GN TRC-18

As a follow-up to the Government of Nunavut (GN) on the energy-protein model used for the caribou effects/cumulative effects for the Phase 2 Project (e.g., GN TRC-18) and follow-up discussions during the technical review period, we have the following responses to the two outstanding questions.

1. ***Clarify that the scenarios used in the 2014 report were the same as used in the 2011 report. The 2011 scenarios seem to suggest more extreme examples (exclusion, corridor as a barrier) that may be even more relevant to the Phase 2 Proposal (combined rail and road).***

This question is first answered by a more detailed background on previous requests (A), followed by a descriptive answer to the question (B).

A.

The scenarios used in the 2014 report were finalized based on input from QIA consultants, Kim Poole and Anne Gunn. They reviewed the initial draft of the 2014 report (January 2014) and presented four points to be considered (attached 6 February 2014 correspondence). Don Russell's response to that request (12 February 2014) is attached.

Several changes were made to model capability between 2011 and 2014 as well as better information of caribou abundance in the ZOI and knowledge of caribou use of ZOIs (Boulanger et al. 2012). Those changes and better information on the use of the RSA and ZOI were incorporated into the development of the final scenarios (May 2014 report), incorporating the points made by Gunn and Poole. In the initial 2011 report, scenario 4 (abandonment of the entire range north and west of the road/railway) was meant to test the extremes of the energy/protein model. The greatest deficiency in the 2011 report was that the results of the energy-protein runs assumed that the entire population was subjected to either disturbance or displacement and thus results were not weighted by the proportion of the population encountering the ZOI. Those deficiencies were better handled in the 2014 report and thus translated to impacts of the populations, including consideration of the Phase 2 project.

6 February 2014
A. Gunn and K. Poole, consultants to QIA
Comments on Russell (2014) – reassessment of energy-protein model for Baffinland

We have reviewed the updated energy-protein model (22 January 2014), and offer the following comments.
The revised energy-protein model is useful for projecting cumulative effects of the Baffinland project, especially in the context of future monitoring and mitigation. We suggest that once the report is completed, it should be made available on NIRB's Public Registry because it is such an important contribution.
Overall, the scenarios presented are logical based on modeling the Zone of Influence (ZOI) relative to hunting mortality given the lack of demographic data. The report suggests its projections over-estimate the cumulative effects because the development scenarios were complete displacement from the ZOI and behavioral responses within the entire 14 km ZOI. However, we suggest the data used and assumptions of the proportion of caribou exposed and the duration of exposure may instead lead to an under-estimation of cumulative effects. We offer 4 main points for consideration.

1. *The proportion of North Baffin Island (NBI) caribou exposed to the ZOI (5.7%) is based on the proportion of area within the revised ZOI to the entire herd range. This assumes comparatively even distribution of caribou within the entire NBI herd range, but could result in an under-estimate of the cumulative effects if the proportion of caribou cows within the herd exposed to the revised ZOI is higher. Surveys conducted during captures in 2008 and 2009 suggest that caribou densities within the capture area (blue outline in the figure below) and in the Regional Study Area (RSA) are likely higher than found in other areas of the NBI caribou range (Jenkins and Goorts 2011). Based on the data provided in the revised Table 6-5.8 in the Volume 6 ERP Addendum to the FEIS, 22 collared caribou or nearly 70% of the animals collared (n = 32) interacted with some portion of the revised ZOI (including along the Tote Road, mine sites, railway, and Steensby Port Site). If the 2008-09 sample of collared caribou better represents caribou distribution within the NBI herd range than area alone, then the proportion of caribou potentially exposed to the revised ZOI is likely much greater than 5.7% of the herd and may be as high as 50%. We recognize that the proportional distribution of the collars may not completely reflect the distribution of the NBI herd, but Jenkins and Goorts (2001) suggest that there is a high degree of representation within the collar distribution.*

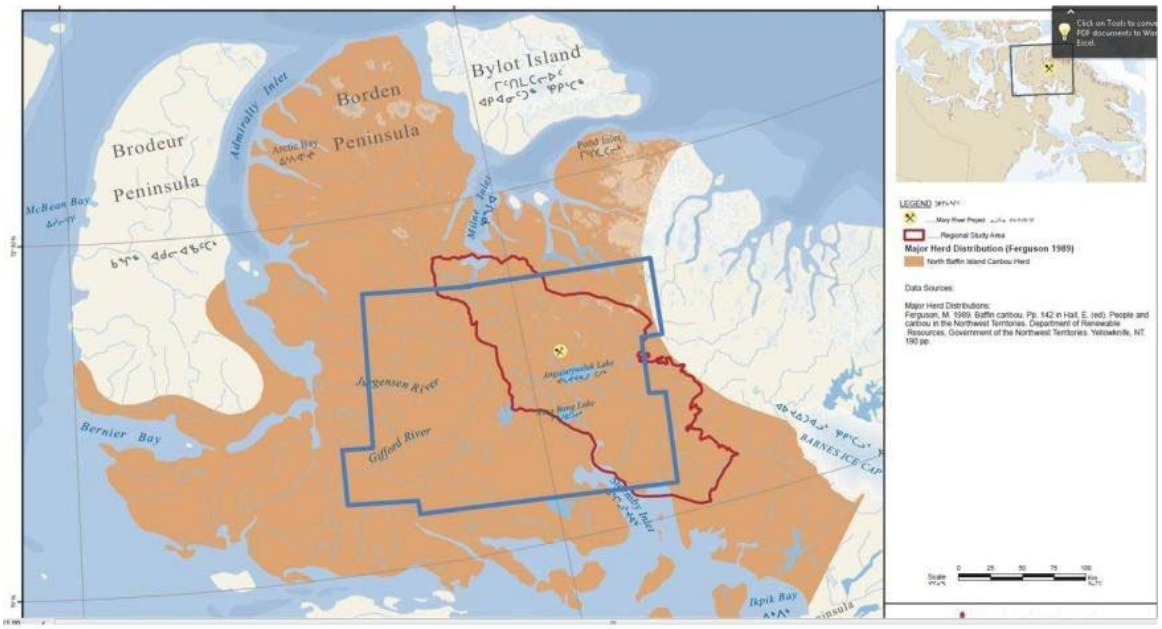

FIGURE 6-5.1 FEIS

Outline (blue line) of 2008 survey area used for capture of collared cows (Jenkins, D.A., and J. Goorts. 2011. Space use and movement patterns of North Baffin caribou. NWMB Project No. 03-09-01, Field Summary and Progress Report, Department of Environment, Government of Nunavut.

2. *Revised Table 6-5.8 (EPR Vol. 6 addendum to FEIS) stated that 22 different collared caribou had part of their home range within the ZOI, including the section along the Tote Road. On average nearly one quarter of the home range of these caribou occurred within the ZOI ($\bar{x}$ = 24.9%, SE = 4.0; range 0.5-67.8%). We therefore suggest the duration of exposure is more realistically 25%, rather than the 11% used in modeling, which was based on fewer collared caribou that intersected with a smaller ZOI (Table 6-5.8 in the Approved FEIS).*

3. *Forcing the modeling to use an inflated starting population estimate (2,500) introduces an unrealistic assumption that the population is higher than the density recorded for South Baffin. The low number of sightings during the 2008 and 2009 collaring support the lower density for northern Baffin. Using data provided in Jenkins and Goorts (2011) for the 2008 and 2009 reconnaissance survey caribou sightings, and assuming a 4,587 km transect study area, a 1 km transect width (likely conservative given the unbounded transects), including animals observed on ferry, and removing the Borden Peninsula area and sightings (3/23 caribou groups) from the 2009 survey, estimated densities in 2008 were 0.01 caribou km^{-2} and in 2009 were 0.02 caribou km^{-2}. A midpoint between these 2 densities results in roughly 1,500 caribou in the NBI herd. The delayed (absent) recovery in the modeling using the lower estimate based on densities observed in the South Baffin in 2012 emphasizes the vulnerability of the NBI caribou to increased mortality. This, in turn translates into the need for*

intensified mitigation to prevent any effect of the Tote Road on caribou mortality. We recommend the use of 1,500 as a starting population level for the model based on the South Baffin Island densities and the 2008 and 2009 density calculations.

4. *The modeling assumes that a 1 kg change in calf body weight is equivalent to a 1% increase in overwinter mortality. Acknowledging that it may depend where on the curve of fall weight versus the probability of mortality the change occurs, this seems a bit arbitrary and on the low side. Although many studies of ungulates acknowledge that low birth weight or late birth date affects overwinter mortality, we were unable to find any studies of wild herds where fall calf weight was compared with overwinter mortality. If a 1 kg change in fall calf body weight is equivalent to a roughly 2% change in fall body weight, it would seem more realistic to equate a 2% difference in fall calf weight with 2% difference in mortality (assuming for simplicity a linear relationship), rather than a 1 kg to 1% relationship. This would tend to increase the impact of decreased fall calf body weight on over-winter mortality.*

We suggest that these four points raise questions about the model assumptions and contribute to an under-estimation of cumulative effects. We request that the model be rerun based on revised assumptions and a comparison provided with the original assumptions. The consequent uncertainties can be addressed through adaptive mitigation and monitoring. We welcome future opportunities to work with Baffinland on ensuring the efficiency of mitigation and monitoring.

Literature cited:

Jenkins, D.A., and J. Goorts. 2011. Space use and movement patterns of North Baffin caribou. NWMB Project No. 03-09-01, Field Summary and Progress Report, Department of Environment, Government of Nunavut.

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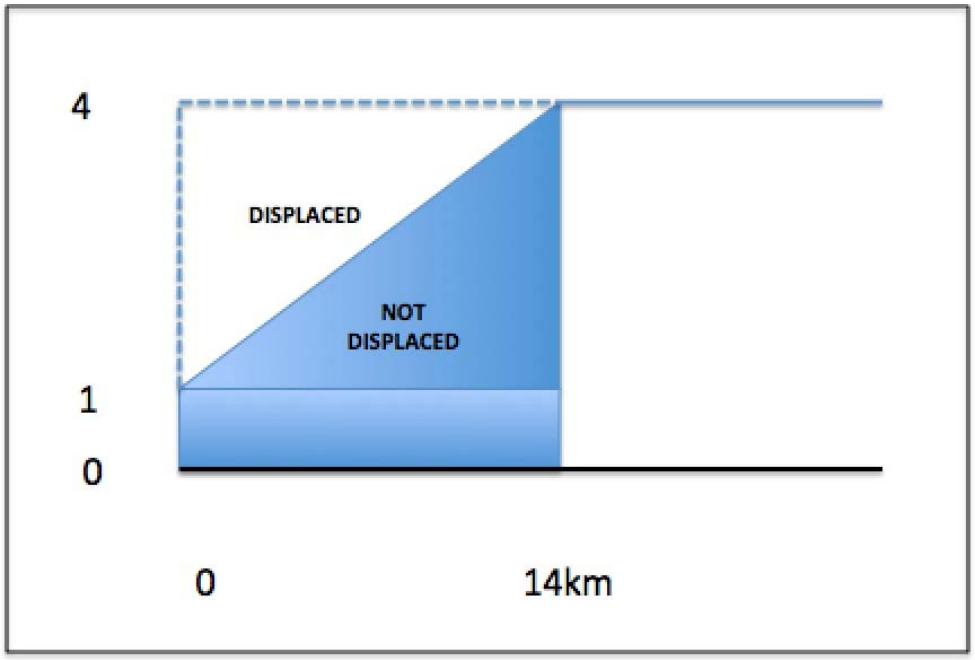
12 February 2014
Don Russell
Response to Gunn and Poole (QIA) Comments 6 February 2014

Kim/Anne;

Thanks for your comments they help a lot. Below I address the 4 points you make with respect to displacement, disturbance, calf mortality and starting population. I am sorry I never got my hands on the updated Figure 6-5.8 which dramatically changed the ZOI picture. So generally my approach is to accept your 70% of animals in ZOI and 25% time in ZOI and then be a lot more rigorous with respect to realistic number of animals displaced (rather than 100% in my original analysis) and number of animals disturbed (again 100 % in ZOI). I welcome any feedback before I launch into the re-analysis.

DISPLACEMENT

- *70% of animals use the ZOI 25% of the time*
- *therefore 70% of animals out of ZOI 75% of time and 30% of animals out of ZOI 100% of time* ***i.e. 70*.75+30*1,0 = 82.5% of time animals not in ZOI and 17.5 % of time in ZOI***
- *Boulanger derived a 14 KM ZOI with an odds ratio of 4 times relative increase in habitat selection at distances further than the ZOI relative to the disturbance site and increasing from 1 to 4 more or less linearly out to 14 km, something like this:*



- *Therefore if we assume this figure is synonymous with displacement then - there is potentially 14*4=56 caribou "units" in the ZOI from the figure above the amount displaced is the area of the displaced triangle = .5*14*3=21 caribou units = 37.5%*
- *So given all the assumptions above the effective potential displacement is 17.5% of use of ZOI * 37.5% displacement =* ***6.6%***

DISTURBANCE

- *From above 70% of animals use ZOI 25% of time.*
- *Literature is equivocal on if there is a measurable difference in behavior in the ZOI. However for those that do measure a difference the distance caribou are impacted are generally no more than 500 m from the source of disturbance.*
- *If we assume that disturbance will occur out to 1 km, especially with heavy traffic from the source than the % of time an animal is disturbed in the ZOI (assume evenly distributed in the*

*ZOI, i.e. no displacement from the source of disturbance) = 25% of time/14 (only impacts 1 km) = **1.7%** of their time.*

CALF MORTALITY

- *Agreed I will assume a 1 kg drop in body weight = a 2% higher probability of mortality*

STARTING POPULATION

- *Agreed so I ran the model with a new starting population of 1500 animals*
- *For no harvest the herd recovers to **~50,000 animals***
- *With a steady harvest of 125 animals annually (60%) cows the herd only recovers to **~10,000 animals***
- *Given my assumption that displacement won't kick in until half saturation (of historic levels, 30,000), than for the harvest scenario ZOI displacement doesn't kick in and ZOI disturbance is trivial...*

B.

In the 2011 report, we modelled a worst-case scenario — assuming that the northern transportation corridor (then just the tote road) acted as a barrier to movement. We emphasized in that report that we did not consider this a likely outcome.

In that 2011 analysis, in lieu of no population model, we artificially forced the base population to grow to 50,000 animals, increasing the density of the population at a fixed percentage. As impact scenarios became more severe, the Energy-Protein (E-P) model was employed to determine impacts on pregnancy rates assuming the increased caribou density was associated with reduced forage availability. We thus produced a feedback between forage available and density (i.e., the higher the density of caribou, the lower the forage availability per individual). Thus, we modelled the impact of lower forage availability through the E-P model at 5-year intervals through 50 years. At high densities, in the final interval of the simulation, the impact on pregnancy rates was determined to be 17%. We realized that this was an artificial situation as it was impossible for the population to grow at 7% per year with a reduction in pregnancy rates of 17%.

In 2014 we used a population model linked to the E-P model; however, the linkage is in one direction: The E-P model informs the Population model. The impact associated with getting to a 17% reduction in pregnancy rates never occurs, as the population never increases to high density if associated with 17% reduction in pregnancy.

To model the possibility that caribou would view the northern transportation corridor as a barrier to movement, using a starting population of 1,500 caribou, we consider the range according to Figure 1 — where 69% of the range is north and west (purple) of the transportation corridors and 31% is south and east (green).

Given that all 1,500 caribou would not be exclusively in either zone at the beginning of the simulation, we have to assume the impact of the rail and road results in the creation of a north/west sub-population and a south/east sub-population with little mixing (the barrier effect). We assume this would be an extreme worst case because it assumes that, even if the rail was considered a barrier, there is no existing evidence that the road to the north is currently a barrier. If the road is not a barrier than there would be a significant potential that sub-populations would mix. Moreover, Inuit Qaujimajatuqangit (IQ) and contemporary knowledge indicates that the western zone is often augmented from caribou on the mainland (e.g., Prno 2017) reflected in the north/south oriented movement west and north of the mine site.

However, if we assume no mixing, given populations are growing within each sub-population and being displaced or disturbed by a zone of influence around the road/rail, then the impact on each sub-population would be equivalent to impacts modelled in 2014 using the four disturbance/development scenarios presented (see answer to Q2 below). Essentially the barrier effect would reduce mixing and disturbance and/or displacement in the vicinity of the road and rail (as modelled in 2014 scenarios) would be applied to the two sub-populations separately. So, given this reasoning — Our 2014 model approach is applicable to whether the road/rail acted as a barrier or not. The four development scenario results of the 2014 report can be considered as either a total population count (assuming no barrier effect) or total sub-population count (assuming a barrier effect).

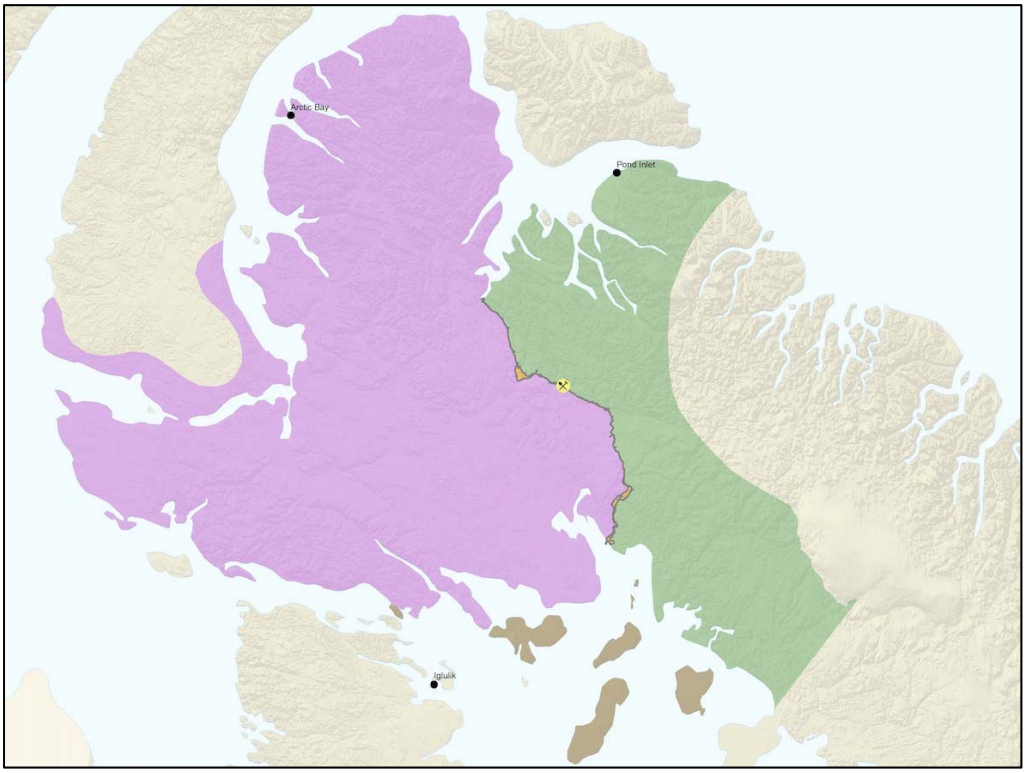


Figure 1. North Baffin herd range (purple - north and west of road/rail and green - south and east of road/rail)

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Q2 Determine what the population needs to be to support a reasonable historical harvest (maybe 2,000–2,500 caribou). Based on existing model results, discuss how long it takes to get to that population to support harvest, with the scenarios that were used in the 2011 report.

We calculated the growth rate, without harvests from initial population to final population size associated with the scenarios presented in Russell (2014) [orange bars in Figure 2].

- Base– no development (ND-NH): 7.41% / year
- Moderate displacement and disturbance (MD-NH): 7.31% / year
- Moderate displacement/High disturbance (M/H-NH): 7.042% / year
- High displacement and disturbance (HD-HD): 7.21% / year

From the Nunavut Wildlife Harvest Study (Priest and Usher 2004), the average harvest of NBC between 1996–2001 was 2,099 caribou / year.

Thus, we determined the population size that would sustain a 7% harvest (reflecting growth rates to achieve 50,000 in 50 years) of 2,100 caribou per year (assuming harvest was in proportion to age/sex distribution in the population). The number of years to reach that sustainable harvest was determined to be:

- Base — no development: 42 years
- Moderate displacement and disturbance: 43 years
- Moderate displacement/High disturbance: 45 years
- High displacement and disturbance: 44 years

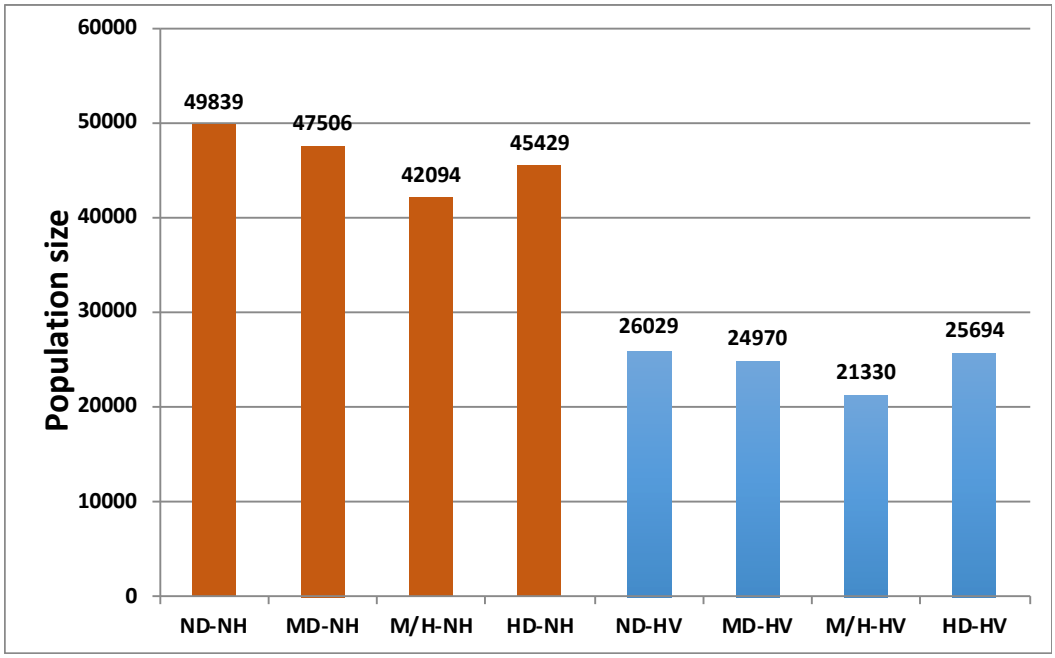

Figure 2. Final population size among variable disturbance development scenarios without (orange) and with (blue) harvest (from Russell 2014).

Literature Cited:

Boulanger, J., Poole, K.G., Gunn, A., and Wierzchowski, J. 2012. Estimating the zone of influence of industrial developments on wildlife: a migratory caribou *Rangifer tarandus groenlandicus* and diamond mine case study. Wildlife Biology 18(2):164–179. DOI: 10.2981/11-045

Priest, H. and Usher, P.J. 2004. Nunavut wildlife harvest study. Nunavut Wildlife Management Board, Iqaluit, Nunavut. 822 pp. (http://www.nwmb.com/inu/publications/harvest-study/1824-156-nwhs-report-2004-156-0003/file)

Prno, J. 2017. Mary River Project — phase 2 proposal, technical supporting document no. 03: results of community workshops conducted for Baffinland Iron Mines Corporation's phase 2 proposal. Prepared for Baffinland Iron Mines Corporation by Jason Prno Consulting Services Ltd., Peterborough, Ontario.

Baffinland

Attachment 4

Mittimatalik Hunters & Trappers Organization Site Tour Report – August 30-31, 2018

Baffinland Iron Mines – Mary River Project
Mittimatalik Hunters & Trappers Organization Site Tour Report
August 30-31, 2018

Abbreviations

AGM	Annual General Meeting
QIA	Qikiqtani Inuit Association
Baffinland	Baffinland Iron Mines Corporation
MHTO	Mittimatalik Hunters & Trappers Organization
HTO	Hunters & Trappers Organization

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1. Introduction

Baffinland Iron Mines Corporation (Baffinland) was pleased to welcome representatives from the Mittimatalik Hunters & Trappers Organization (MHTO), Qikiqtani Inuit Association (QIA), and the Hamlet of Pond Inlet (collectively referred to as community representatives) to visit the Mary River Project Site on August 30-31, 2018. This site visit provided a valuable opportunity for local community members to see Baffinland's operations firsthand, ask questions, and provide feedback. We wish to thank the representatives from the MHTO, Pond Inlet and the QIA for joining this site visit and sharing their thoughts and concerns.

The following community representatives were present for the site visit:

- Billy Merkosak- Mittimatalik Hunters & Trappers Organization
- Elijah Panipakoocho- Mittimatalik Hunters & Trappers Organization
- Nina Kautuq- Mittimatalik Hunters & Trappers Organization
- Leo Maktar- Mittimatalik Hunters & Trappers Organization
- Phanuel Enooagak - Mittimatalik Hunters & Trappers Organization
- Levi Barnabas, Qikiqtani Inuit Association Community Director, Arctic Bay
- Boazie Ootoova- Hamlet of Pond Inlet

The community representatives were primarily escorted at site by Connor Devereaux (Environmental Superintendent), Lou Kamermans (Approvals Manager), and Megan Lord-Hoyle (Director, Corporate Sustainability). Other Baffinland staff attended selected portions of the site visit in-person or by telephone.

2. Summary of Site Tour

A brief summary of the events that took place during the site visit is presented below:

Thursday August 30, 2018

Community representatives arrived by plane from Pond Inlet and went through a site orientation and safety briefing. Representatives then toured the site via helicopter, seeing the Mine Site, Tote Road, Milne Port, Bruce Head, and the HTO cabin at Mary River. Following lunch, Baffinland staff and community representatives met to discuss Tote Road crossings, the HTO cabin at Mary River, and to review the Hunters and Site Visitors Access Policy. Following dinner, a meet and greet was held with the community representatives.

Friday August 31, 2018

Community representatives travelled from the Mine Site to Milne Port via helicopter, and then conducted an on-the-ground tour of the shiploader and ore handling facilities at Milne Port. Baffinland staff and community members then met to receive an update on shipping activities to date, review ship loading activities, and review the Community Shipping fact sheet. Following lunch, the group travelled back to the Mine Site via the Tote Road, and reviewed hunter crossings, potential dustfall monitoring

locations, and observed the hunter trail west of the Tote Road. A close out meeting was held after dinner and community representatives travelled by plane from the Mine Site to Pond Inlet.

3. Action Items

A brief summary of the action items identified during the discussion meetings is provided below.

Thursday Meeting – August 30, 2018

- Baffinland will relocate, stabilize, and paint the Mary River HTO cabin (Mine Site)
- HTO to designate the location and orientation of the Mine Site HTO cabin (accounting for wind direction)
- Baffinland will place a sea can container next to the Mine Site HTO cabin to provide an enclosed space for hunters
- Baffinland will build a new HTO cabin and relocate it east of the existing location (Milne Port), MHTO has requested it be larger than the current cabin
- HTO to designate location and orientation of new Milne Port HTO cabin
- Baffinland will build and locate a garbage storage bin next to the Milne Port HTO cabin, Baffinland will not be responsible for removing garbage
- HTO to designate locations of known archaeological sites along transportation corridor
- Baffinland to update HTO on status of archaeological program (current program and plans for Phase 2)
- Baffinland/HTO to identify user-friendly and operationally feasible crossing locations for Tote Road
- Baffinland to construct Tote Road crossings at agreed-upon locations for 2018/2019 winter season
- Baffinland to develop and solicit feedback from HTO on options for crossing procedures/protocols
- HTO members to follow selected crossing procedures
- Baffinland/HTO to communicate crossing procedures to community members
- Baffinland will investigate feasibility of offering hunter transportation along Tote Road
- HTO to invite Baffinland to present at Annual General Meeting (AGM) in November 2018
- Baffinland will present proposed vessel drifting operations to Shipping and Logistics team (Jared Gardner) and respond back to the HTO.
- Vessel drifting areas to be finalized at the HTO AGM, it is suggested we agree to a long term (5 year) agreement once a drifting protocol has been finalized
- AGM to be used to reach agreement between parties on new procedures
- HTO/Baffinland to meet before the AGM to discuss improvements made, will aim to schedule meeting for end of September 2018
- HTO will provide input on agreeable times to meet and exchange information around Baffinland's annual reporting

Friday Meeting – August 31, 2018

- Baffinland to update designated drifting locations based on HTO input
- Baffinland to present updated drifting locations at next HTO AGM
- HTO to review and approve vessel drifting locations at next AGM
- HTO to consider getting a voicemail system for their office
- Baffinland to provide options for HTO consideration with respect to communications between Baffinland, HTO and transiting vessels

3.1. Baffinland Response to Action Items

Work Carried Out to Date

In response to the action items identified during the site visit, Baffinland has begun work to address some of the key issues identified during the site visit. Immediately after the site visit, Baffinland's Road Maintenance department completed grading and restoration work at the Tote Road crossings identified during the site visit. These improvements will make crossing safer and easier for hunters in the area.

Baffinland has also begun discussions with the internal Shipping and Logistics team, as well as ship captains to determine where appropriate vessel drifting areas may be located.

Work Planned

The following work is planned as Baffinland continues to implement the action items described above:

- Relocate, stabilize and paint the Mary River HTO Cabin, and place a sea can container at the cabin
- Build a new HTO Cabin at Milne Port, east of the existing location
- Build and locate a garbage bin at the Milne Port HTO Cabin
- Finalize proposed vessel drifting locations and provide these to the MHTO for review
- Develop proposed Tote Road crossing procedures for review by MHTO

3.1. Key Requirements of the MHTO

To facilitate the implementation of the action items identified during the site visit, Baffinland will require input from MHTO members. The following requirements have been identified:

- Confirm date/time of meeting with Baffinland to occur before the 2018 MHTO AGM
- Inform Baffinland of the date/time for the 2018 MHTO AGM, and identify how much time will be available for Baffinland staff to present to the AGM and answer questions
- Confirm the desired location and orientation for the Mary River HTO Cabin
- Confirm the desired location and orientation for the Milne Port HTO Cabin
- Review and approve vessel drifting locations at the next AGM
- Consider implementing a voicemail system at the MHTO office to facilitate communications from Baffinland staff
- Provide input on agreeable times to meet and exchange information around Baffinland's annual reporting
- Designate locations of known archaeological sites along transportation corridor

- Review proposed Tote Road crossing procedures to be provided by Baffinland, and communicate new procedures to the community

4. Conclusion

The site visit and meetings held on August 30-31, 2018 at the Mary River Project site provided local community members an opportunity to observe Baffinland's mining operations firsthand. The thoughtful observations and comments provided by the community representatives will help Baffinland improve their policies, procedures and operations. Baffinland looks forward to working closely and collaboratively with the MHTO, QIA and north Baffin communities in the future as the Mary River project evolves.

Appendix A: Site Visit Agenda

Pond Inlet MHTO Site Visit Agenda
August 30-31, 2018

Participants

Baffinland Head Office:
Megan Lord-Hoyle, Director Corporate Sustainability
Lou Kamermans, Approvals Manager
Tina Enookolo, Pond Inlet Community Liaison Officer

Baffinland Site:
Francois Gaudreau, General Manager, Operations
Lee Dixon, Acting General Manager
Loseosie Paneak, Elder
Tim Sewell, Head of Health, Safety and Environment
Shawn Stevens, Health and Safety Superintendent
Connor Devereaux, Environmental Superintendent
Shawn Parry, Manager, Road Maintenance
Sangjin Yun, OHT and Shiploading Manager
Shawn LeBlanc, Apprenticeship Coordinator

Mittimatalik Hunters and Trappers Organization:
Billy Merkosak
Elijah Panipakoocho
Nina Kautuq
Leo Maktar
Phanuel Enooagak

QIA:
Levi Barnabas, Community Director Arctic Bay

Hamlet of Pond Inlet:
Boazie Ootoova

Thursday August 30, 2018 **BIM Leads**

7:00am Dornier departs Pond Inlet with MHTO Members.
Note: Tina will be on Dornier with MHTO Members.

7:30am MHTO Members arrive at Site and are greeted by Megan, Lou and Loseosie.
Bus flight Ops to MSC

8:30am	MHTO Members participate in Site Orientation and Safety Briefing. *Note: PPE is distributed at this time.*	Tim Sewell
9:30am	Helicopter tour of the Mary River Project Mine Site, Tote Road, Milne Port, Bruce Head, HTO cabin at Mine Site *Note: Bus from MSC to helipad. If helicopters are grounded tour of areas using bus.* *2 Helicopter rides at 2 hours each = 2 hours for Helicopter tour approx.* *2 helicopters available*	Shawn Parry, Connor Devereaux
12:00pm	Lunch Break *Note: Bus pickup from helipad to MSC.*	
1:00pm	Baffinland staff and MHTO Members meet to discuss Day 1 Agenda Items. • Community Feedback on Tote Road crossings • Mine Site HTO cabin location and condition • Review of Hunters and Site Visitors Access Policy	Francois Gaudreau, Shawn Perry, Connor Devereaux, Lee Dixon, Tim Sewell
5:30pm	Dinner	
6:30pm	Meet and greet with community members	Megan Lord-Hoyle

Friday August 31, 2018

7:30am	Meet at MSC security for transit to helipad *Note: Bus pick-up helipad MP for shiploader tour*	
8:00am	Helicopter to the Port 25 minutes each + 3 trips = 2.5hours *2 Helicopters needed to complete in 2 hours*	Connor Devereaux
10:30am	Tour of the Shiploader TBD on ground *Note: Bus for transportation and tour*	Sangjin Yun
11:00am	Baffinland staff and MHTO Members meet to discuss shipping agenda items. • Review of ship loading activities • Update of shipping activities to date • Review Community Shipping fact sheet *Note: Jared to call in for this meeting*	Sangjin Yun, Jared Gardner, Megan
12:30pm	Lunch Break	

1:30pm	Tote Road Tour on the way back to Mine Site. • Review of Hunter crossings • Review of potential dust fall locations • Observe Hunter trail west of tote road *Note: Bus for Tote Road tour from MP to MS*	Connor Devereaux, Shawn Parry
5:30pm	Arrive at Mine Site and have Dinner *Note: Drop off PPE and grab luggage* *Transportation to airport*	
6:30pm	Close out meeting	
7:30pm	Charter Aircraft departs Mary River to Pond Inlet	
8:15pm	Charter Aircraft arrives in Pond Inlet	

***

Appendix B: Meeting Minutes (August 30, 2018)

Meeting Notes – Thursday, August 30 @ 1:30

PARTICIPANTS

Present (Baffinland): Francois, Tim, Connor, Lisa, Sean, Megan, Lou, Lee; Loseosie;

Phone (Baffinland): Sanjin, Andrew, Devin

Present (QIA): Levi;

Present (HTO): Elijah, Phanuel, Billy, Nina, Leo;

Present (Hamlet): Boasie

MEETING NOTES

Megan – before we get started can we hear any feedback from the helicopter tour?

Connor – why don't we start with the HTO cabin, I think we came to a resolution with it, which is to move it 300m

Phanuel – thanks to the chair, we would like the cabin at a higher location, foundations are bending, we need it to be cribbed up

Connor – we can crib it and move it to a higher location in the winter

Phanuel – if you move it without an HTO member around, be aware that the doorway should be faced away from the prevailing winds

Levi – just thinking out loud, maybe an HTO board member should be present

Elijah – would be good to communicate with Pond Inlet members to make sure it's done properly

Connor – we can provide final drawings if no one is going to be there

Billy – the ventilation system has been modified by a hunter and needs to be fixed

Elijah – HTO can take care of the venting

Billy – we need a berm next to the cabin to make sure any fuel spills are contained

Connor – yes

Billy – what about the cabin at Milne Inlet?

Megan – we have questions about that, we've never heard anything

Billy – we've been talking about having a new cabin built and moved further to the east, the original has been where it is from the 1960s

Megan – we can access that site tomorrow and take a look at some preferred locations

Phanuel – we would like to find out tomorrow if it can be replaced because it has a moldy smell to it

Megan – Okay

Phanuel – people suspect their kids have been getting sick after staying there (colds) because of the smell inside

Levi – just thinking, it's really close to a lake, garbage creation is common and maybe there should be a bin for hunters to use

Connor – we had a program before but because we don't know the garbage source we can't take it anymore

Levi – understood, the bin would be for hunters only

Conor – okay

Elijah – [not-translated]

Levi – [not-translated]

Billy – a suitable sea can should be built next to the cabin so hunters can work on their snowmobiles so people can work on their snowmobiles; cold temps require enclosed areas

Tim – that's a good idea, we can relocate a sea can

Megan – this is for the Mary River cabin?

Billy – Yes

Elijah – [not-translated]

Phanuel – [not-translated]

Loseosie – they are trying to find the correct word for container

Elijah – are we going to look at the cabin at the port tomorrow?

Megan – yes

Elijah – if possible, could you connect a power line to the Milne Port, when it is dark all the time we cannot find it all the time

Levi – even just an emergency light

Sean – batteries would freeze pretty quickly

Phanuel – I want to mention the artifacts around the cabins, I noticed at the Mine Site cabin the meat storage, sod houses, tent rings have been destroyed and doesn't want to see that happen anymore

Connor – we would need to know the exact coordinates to tell you what happened to the site

Phanuel – what's destroyed is destroyed, future development should avoid having to mitigate sites as much as possible

Phanuel – we can identify the places we know of tomorrow on the way to Milne Port

Levi/Billy – a year ago the HTO asked to have some area close to the waterfall bulldozed to make crossing easier

Steve – we're very interested in working something out with the HTO tomorrow for that area

Leo – if the railway route has already been finalized we would like to know so we can identify more archaeological sites

Megan – the route is generally known and we would like to have another visit to discuss the rail line and find locations of importance to make sure they are avoided

Phanuel – as hunters we want to be able to cross through all the hunting areas and we don't want the railroad to block access

Billy – we're don't want anything blocking us on our way to hunt or between Igloolik/Hall Beach and Pond Inlet

Elijah – Mary River is not the only place Inuit hunt and we want to make sure people can still access those sites with easy crossings

Sean – we are definitely interested in hearing about where these preferred crossings are

Phanuel – I appreciate that we're having these conversations

Sean – we can talk about signage and other specifics tomorrow

Levi – I'm also happy with the discussions because hunters should have the right to use their traditional trails, even though caribou numbers are low we know they will come back, this has happened near Tuktoyaktuk and the Dempster Highway, I think this can be properly planned between the HTO and Baffinland

Billy – whenever construction is going to happen, I want the HTO to be involved in the planning to make sure hunters are accommodated, in the past, Baffinland has not communicated well and it has inconvenienced hunters, after the fact isn't helpful

Megan – the comment is appreciated and it's important that we work together to avoid inconveniencing anyone, as we develop the railway we will work with the HTO

Elijah – that will be the best way to go if you work with the HTO to plan the crossings, sometimes hunters don't go out with a lot of planning, they don't even call the Milne Port site, so the more we work together to facilitate easy use of crossings the better

Megan – this is a good segue into our site access presentation

Elijah – if a hunter sees a caribou across the railway they're going to want to cross it at that spot, this is the HTO's goal, but the hunters already know where they would cross and can identify those easily

Tim – that would be tremendous if we could work with the HTO to plan out how to facilitate crossings in a way that works for everyone, including a notification system to warn drivers in the area when crossings are going to occur

[PRESENTATION ON SITE ACCESS – Presented by Andrew Moore (Phone)]

Levi – we are not like southerners, we don't make appointments, if Tina isn't available, what are we supposed to do? We just like to go

Tim – I agree things are different here, we could have drivers always be aware hunters could be in the area, we need to find something that works for everyone, I'm thinking a flagging/light system that hunters can press at the crossing locations would be better, we need to keep working together

Andrew – I couldn't agree more, one thing we talked about previously is letting people at site security know you're staying at the cabin with a pop-in

Tim – we'll come up with some options for your consideration, but we know there's one crossing before you get to security, so we still need a system that doesn't require planning when still at the community

Billy – is the access road going to be built this year or the next?

Tim – something like that takes planning so it's unlikely to happen this year

Billy – hunters have difficulty coming up this way, they usually cross to get to the river that makes it easier to travel on, some machines were damaged last year with hunters having to travel on bedrock, some hunters have suggested getting ferried down the road with their machines, these hunters have been denied in the past, would be good to consider before building

Tim – is the issue that the road is causing people to sled where they wouldn't sled?

Billy – yes, the trail we used to use, near the waterfall, goes up a steep hill and used to hit the road that we would crossover, and then cross over again, to get to the trail along the river, so my question is to avoid travelling along the road and damaging our machines, can we work out a system to get people moved by vehicle from the Port to the Mine Site

Tim – we can look into this but at present vehicles may not be available for this service to be regularly available

Billy – if I boat to Milne Inlet and then want to get my quad to the mine site to go out from there, can I get a ride with my quad from Milne Inlet to the Mine

Tim – our priority is to retain the traditional travel routes, but if the trail can't be travelled any more then we're here to help, that's the bottom line

Connor – there's some issues to consider with ammo in company vehicles

Tim – there's other issues with wild meat in company property, we would have to look into this all further

Levi – to me as a hunter, safety first is priority one, I have to make sure my route is safe, if safety first is Baffinland's priority too, then why not help the hunters be safe?

Tim – we don't disagree, but these things take time, in the meantime we need to plan for a safe season this year; for the ammunition, the rules don't mean we can't do it, we just need to develop the right policies

[BREAK 3-3:15]

Megan – I think these conversations have been really good, especially around crossings, and I'd like to move forward with a mapping exercise to sort out where the areas of concern are, that we can look into further on the ground tomorrow

Billy – we don't want any more policies that impact our hunting

Billy – we have board meetings in the winter and it would be good to have Baffinland come and present the rules around travel through the project (AGM for Pond Inlet is held each winter)

Tim – I agree that's a great idea, we want to be able to communicate

Levi – I would like to see the color coded map available in places outside of AGMs, hunters don't necessarily go to meetings, so setting them up in public areas in all 5 communities would be helpful

Megan – yes, communicating this information to the general public is the next step, we'll also be looking to HTO members to circulate the plans and policies we've mutually agreed to

Andrew – we're working on information boards for the 5 communities in relation to the IIBA and this information would be good to include in those sessions

Levi – someone had an accident last Spring (2018 – dog team race) and we want to make sure people are well aware of what is happening along their travel routes

Elijah – give us the equipment and we can do it

Phanuel – ever since Baffinland started constructing the road they've promised crossings and they're still not built, and this is why we've been thinking about building these crossings ourselves

Tim – are we talking about a new trail or specific areas?

Billy – it's not a trail, we've marked the specific areas on the map

Tim – great

Nina – we may need more time to pick the crossing areas, we don't want to be rushed

Tim – if we can get an idea of where you want the crossings we can put timelines together to advance the conversation

Nina – I felt we were rushed at the cabin this morning and I don't want to be rushed again

Megan – we have the right people here and should take advantage of the time we have to move this forward

Phanuel – I'm sorry about the misunderstanding around the whole trail vs crossings, I think we have a good understanding now, we don't want to interfere with the road building, we just want to be accommodated

Sean – we just need to see the spaces where we need crossings and we can tell you what it will take on our end

Billy – we're supposed to be doing something we're not on the agenda right now

Megan – yes we're at the end of the agenda but I'd like to go through a presentation on dust that we gave earlier this summer, it's only 12 slides but could generate some discussion

Group – yes let's keep going, as long as we can have a break before we start

[BREAK 3:45-4]

Megan – I would like to set up some times and meetings to exchange information from our annual reports and I have some ideas already but I'd like to discuss that with you after the presentation

[PRESENTATION on DUST MONITORING – Presented by Megan]

Levi – was Road Warrior ever applied to the road?

Sean – no, it was found to not be economically feasible, would have cost us as much as another road to apply it to the entire length

Boazie – I would like to know how acid rock drainage (ARD) is managed

Connor – some rock has sulphides and that can generate acid under the right conditions, we do geochemical tests on the rock in our waste rock stockpile to see if it has sulphides and could be acid generating. Some rock in our waste rock pile is potentially acid generating (PAG) and to manage acid rock drainage (ARD) we have ditches surrounding our waste rock stockpile to make sure any water that has contact with the PAG material goes to a pond that is treated

Megan – it's important to note that ARD only happens under the right conditions – heat, air, water – and that its naturally generating, it's not because of a residue from the explosives used to blast the rock, sulfur is a natural element in the environment

Connor – to manage ARD, we have to remove one of the ingredients – heat, air, water – so we encapsulate our waste rock stockpile with non-potentially acid generating rock (NPAG) and let it freeze

Elijah – is it good for batteries?

Group – no

Elijah – does the dust get into lakes through streams close to the project?

Megan – we have a water monitoring program to determine how much dust is getting into streams and if it's changing the quality of the water

Elijah – could this could contaminate other lakes and make it undrinkable?

Megan – you're right, the water systems are connected and they can transfer contaminants, but our monitoring program hasn't shown any changes to water quality, TSS, etc. in the areas where you think you would be most likely to see effects

Billy – do you take samples from the lakes Baffinland takes drinking water from?

Megan – yes we do sample our water intake lakes, and we do have a water treatment system to be compliant with regulations, meaning we would have the treatment regardless of the lakes interactions with dust fall

Billy – can that filtering system used to clean the rivers?

Megan – the filtering is only done for water brought into camp, the entire lake is not treated

Billy – it would be beneficial to filter all the water going to the lakes from the streams receiving the dust

Megan – the dust is not making the mine site's water undrinkable

Leo – there are areas up to 25km away from Milne Port where prevailing winds (blowing west) are dropping dust and turning the snow a pinkish red

Megan – we don't have dust collectors in that area but we have discussed doing some photo reconnaissance to try and confirm if it is dust and how to continue monitoring and managing it

Billy – what we want to know is will the dust be managed at the Port?

Levi – what way does the wind blow?

Megan – the wind runs parallel with the road which is why we have dust collectors on either side of the road

Megan – we've run out of time today so we'll pick up the conversation about dust during tomorrow's tour of the port.

Appendix C: Meeting Minutes (August 31, 2018)

Meeting Notes – Friday, August 31, 2018 @ 11am

PARTICIPANTS

Present (Baffinland) – Megan, Lou, Sanjin, Tina, Connor, Loseosie, Sean

Phone (Baffinland) – Jared, Devin

Present (QIA): Levi;

Present (HTO): Elijah, Phanuel, Billy, Nina, Leo;

Present (Hamlet): Boazie

MEETING NOTES

Elijah – When the project first started the community indicated they wanted drifting to only happen in certain areas, the drifting area on the map is a critical narwhal hunting area [points to hand out], the drifting area should be around 'these two islands'. On another note the ship loading dock looks like its improved a lot from last year.

Megan – at the beginning of the season the HTO had identified they wanted drifting to happen around Ragged Island and the adjacent part of the inlet. We want to make sure our operations are not interfering with harvesting practices and we can move the designated drifting area but we need the right feedback. When we were in Pond Inlet in June we discussed issues with drifting and we may have misunderstood that the area around ragged Island was sensitive and to be avoided, and the red box we have on the map was the preferred area to drift.

Jared – drifting only happens when anchorages are full or a captain determines it is safer to do so than anchoring, the need to drift can't go away, but where we drift is up for discussion

Elijah – the red area should be moved to the two islands or in between, Pond Inlet people do their narwhal hunting in the red area of the map

Group – [identifies preferred area on the map IMG_0043, IMG_0044, IMG_0045)

Megan – I'm going to bring this back a bit and ask a few question in an effort to get to a solution, I understand a lot of personal preference can be brought into this, keep in mind that there are operational constraints to consider as we identify an agreeable area, and with that I'll ask Billy to provide some commentary to the detailed map [drew map on whiteboard, picture taken]

Billy – I would prefer to have ships wait at the mouth of Eclipse Sound/Baffin Bay when the anchorage locations at Ragged island and Port are full (Megan has photo)

Megan – [describes map to Jared], I also want to point out that we can only manage our own vessels, other vessels will require separate management. It may not be possible to find a resolution today but we can try

Jared – I'll repeat that we have operational requirements and we can try as much as possible to accommodate hunters with our shipping practices. I don't mean to talk a lot on not provide action, but we have to take a serious look at the map and speak with captains to make sure all of the areas are safe. I do want to mention that we have an alert system and a case this year where a ship began drifting in an area they weren't supposed to and we corrected that within 2 hours, so understand we do take actions and we do take this seriously. It would be helpful if the HTO got a voice messaging system so when these incidents occur we can call and leave a message if no one is around to answer.

Megan – Is there an option where we can have some boats wait closer to Port? Is there a compromise?

Phanuel – Baffinland has ships transit to make money, hunters go hunting to make money, we really hope we can both do what we need to do without hurting each other's ability to make money

Phanuel – I understand you need deep enough water to drift the boats but Baffinland needs to listen to our recommendations

Megan – I'm sorry if it hasn't been made clear but our intent is to locate our operations where the HTO recommends

Billy – every year we have a situation with ships, and every year we try and fix the situation, but there's always a problem, the red box drifting area was approved but I wasn't there when it was approved, if the drifting area was further down around the islands where the two ships can anchor that would be best, this area has already been approved, when ships are too close to the red box area it always creates problems, at the AGM last year HTO voted by motion to ban cruise ships from entering inlets, we couldn't extend this to yachts because they have international banners, this is in the works, we would like to set something up and not have to discuss it each year, keep it for 5 years

Megan – would it work if we revised the map based on the recommendations we've heard (stopping around Ragged Island and the eastern/northern shoreline versus staying in Baffin Bay) and bring it back to you to vote on during the next AGM?

Billy – this is just my recommendation, I'm not certain everyone agrees with me

Billy – we already had an agreement and it was broken so let's something up for the next 5 years and see if Baffinland can be compliant

Megan – are there other activities we should be aware of in the suggested drifting locations?

Group – [draws out preferred anchorage and drifting areas]

Billy – two years ago we noticed the ore carriers would wait around Bylot Island (north east of Pond Inlet) to seek shelter from bad weather and that was good

Megan – as a result of this conversation I can take the maps and preferences and speak with Jared to see if there are operational constraints and then come back to the HTO with something. As a plan, we'll also look forward to put forward a new map and present it to the HTO at the AGM for approval.

Megan – I want to come back to Jared's comment about the ship that was outside of a designated area that we radioed and had moved within two hours, is this system working for people?

Billy – that was the only incident in my area

Megan – the final question I wanted to put forward, we've heard that hunters are looking for better communication on the water, I personally hadn't heard that before so I'm wondering if this is something the HTO is looking for?

Billy – for Pond Inlet we have VHF radio's and use channel 26, in the past we've had discussions about better communication, to this day there is no definite solution to that, we know that this has to be improved somehow, if there was something in the community that could let the community know when the ships are coming, if there out of compliance, there are some good examples of how this could improve, maybe Leo could pitch in on that…

Leo – communicating with the ships directly, an example, in Alaska Inuit HTO's have authority and communicate with each ship and can tell them if they're going to fast or into restricted areas, and the ship captains have to listen to what the ships do

Megan – Is this management supposed to happen from ship to boat (hunters) or does the HTO want to control shipping from the community?

Leo – we want to be able to address issues of compliance directly with the ships

Megan – is a workable solution what we have now where the HTO contacts Baffinland and Baffinland contacts the vessel and Baffinland reports back to the HTO? In the case that happened this year Mona reach out to Jared and Alyssa about the vessel that was near the cabin and the vessel moved within a couple hours,

Bill – HTO has contact with all of the hunters with VHF 26, is it possible for Baffinland and the vessel to get on the same communication system to address issues based on a multi tired level of concern system (Level I, Level II, Level III – IMG_0042)

Elijah – Ships are going 24/7 and the HTO is open 8 hours a day, if it's going to be the way Baffinland is proposing someone with the HTO needs access to a radio 24/7, this would be good for emergencies as well if something were to happen with a ship

Billy – this is a good way to take it to the next level

Megan – I have a couple solutions in my head, one is to hire something to do this in the community during the shipping season, or paying someone from the HTO to be 'on-call' outside of work hours in case something was to happen

Megan – in the interim, what we have now on the sheet is two different contacts to receive 24/7 notifications, and that can come directly from an individual with a phone.

Billy – I would suggest the 800 number be for one hunter to be responsible for calling, otherwise Baffinland could get too many calls

Megan – this is our preference as well

Jared – to improve the communications now I have two points, 1) we need the HTO to get voicemail so I can leave messages, and 2) I need to know who is in charge in Pond Inlet so we can communicate at the beginning of a season

Levi –

Megan – Boasie, do you know who is in charge of sealift for the community

Boasie – the hamlet council has been discussing how to address these situations, I don't have many comments right now, I only have power when I'm back in Pond Inlet

[meeting formally ends, summary of action items and thank yous follow]

Megan – Baffinland can look into rebuilding and relocating the HTO cabin at Milne Port

Billy – [draws preferred location and orientation IMG_0061]

Appendix D: Site Visit Photographs

Figure 1: Community representatives and Baffinland staff at Mary River Mine Site Complex

Figure 2: Community representatives at Mary River HTO Cabin

Figure 3: Inspection of Dustfall Monitoring Station

Figure 4: Inspection of shiploading operation at Milne Port

Figure 5: Inspection of Tote Road crossing at KM 90

Figure 6: Tote Road crossing at KM 90 following trail improvement works after site visit

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Baffinland

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ᑭ ᐅᓗᑎᑦ ᐱᓕᕆᔨᒃ ᓴ ᐅᐊᑦ ᓇᓗᓇᐃᖅᑕᐅᓯᒪ ᐊᑦ ᐳᓕᕋᓪ ᓂᖅᑎᓪ ᓗᑎᑦ ᐱᓕᕆᖅ ᐃᐅᐊᒍ ᒧᑦ , ᓄᓕᒃ ᓚᓂᔨᒃ ᑯᑦ ᐱᐅᑦ ᕐᒃᑐᑦ ᐱᓕᕆᔨᖅ ᐅᓪᓗᓇᐃᖅᑕᐅᑭᐅᓂᒃ ᐱᓪ ᓗᐊᑕᐅᔨᓂᒃ ᐳᓕᕋᓪ ᓂᖅᑎᓪ ᑎᑦ ᒧᑦ ᐱᓕᕆᖅ ᐃᐅᐊᒍ ᒧᑦ ᐱᓕᕆᖅ ᑎᑎᖅᑐᑦ ᒪᑕ ᑕᒪ ᐅᓂᖅᓴᐃᓕᓚᖅᑐᑦ ᐳᓕᕋᓪ ᓂᖅᑎᓪ ᑎᑦ ᒪᓗ ᓗᐊᑕᐅᔨᓂᒃ

ᐃᓕᒍᑕᖅ A: ᐱᓕᓇᕐᐃᐅᔨᒍᑦ ᐅᓕᕆᓂᕆᒍᑦ ᑲᑎᒪᔨᐊᑎᒃᓴᖅ

ᒥᕐᑎᒪᒋᓕᐅᕆᓂ ᐊᖏᓇᓱᐊᑐᓕᕆᔨᒃᑯᓂ ᑲᑎᒪᔨᖅᑕᒥᓂ ᐱᓕᕆᖏᑦᑐᒪᔪᓂ ᐅᓪᓗᕆᓂᖅᓯᕐᓗᒋᑦ ᑲᑎᒪᔨᐅᑎᓴᖅ
ᐋᒋᔭᓂ 30-31, 2018

ᐱᖅᑕᐅᔪᑦ:

ᓄᓇᕗᓕᕆᔨᒃᑯᑦ ᐊᑦᓚᖑᓪᓚᑦ:
ᒥᐊᒌᵒ ᓗᐊᑦ–ᕼᐅᐃᐅᑦ, ᐊᐅᓚᕐᕆᔨᖏᓪ ᑎᒥᐅᔪᑦ ᐊᑐᐃᵒᓇᓂᓇᖏᓪᓕᓂ
ᓗ ᑲᐃᒧᖏᓵᵒ, ᐊᖏᕐᕋᑕᐅᖅᓴᐊᓚᵒᓄᑦ ᐊᖏᑎᔪᖅᑲᖅ
ᑕᐃᓇ ᐃᓄᐩᓗᵇ, ᒥᕐᑎᒪᒋᓚᵇᒥ ᑐᓴᐅᒪᑕᕐᕕᖏᑦ

ᓄᓇᕗᓕᕆᔨᒃᑯᑦ ᐱᓚᖓᓵᓂᑦ:
ᐅᑦᐊᓯᔪᐊ ᑲᑐᖓᐊ, ᐊᖏᑎᔪᖅᑲᖅᖏᑲ, ᐊᐅᓚᕐᔪᕈᑎᓄᑦ
ᓪᓗ ᑕᐃᵇᓴᵒ, ᐊᖏᑎᔪᖅᑲᖅᑲᐅᑲᐃᓇᓇᖅᑐᑐᖅ
ᑐᓴᐅᒃᑯᑦ, ᐊᐧᓇᓂᖅᑐᑐᖅ ᐊᖏᑎᔪᖅᑲᖅᖏᑲ, ᐊᕐᑕᓇᖅᑐᒃᑲᓚᓂᕐᓂᑦ ᐊᓪᒪᓗ ᐊᐅᑎᓚᖅᓂᕐᓂᑦ
ᐱᓇ ᔪᐃᐅᐅᓇ, ᐊᐧᓇᓂᖅᑐᑐᖅᓂᖅ ᐊᓪᒪᓗ ᐊᕐᑕᓇᖅᑐᒃᑲᓚᓂᒪᓂᑦ ᐊᖏᑎᔪᖅᑲᖅᑲᓪᒪᓇᑦ
ᑲᓇ ᑎᑎᐅᓇ, ᐊᐧᓇᓂᖅᑐᑐᖅᓂᖅ ᐊᓪᒪᓗ ᐊᕐᑕᓇᖅᑐᒃᑲᓚᓂᒪᓂᑦ ᐊᖏᑎᔪᖅᑲᖅᑲᓪᒪᓇᑦ
ᑲᓇ ᐱᐅᒪ, ᐊᖏᑎᔪᖅᑲᖅ, ᐊᑐᓪᐊᕐᓚᓂᓕᓂᑦ
ᑲᓇᔨᓇ ᓂᓇ, OHT ᐊᓪᒪᓗ ᐅᒥᐊᕐᔪᐊᖅ ᐅᔪᓕᖅᔪᕈᐅᓂᖓᓇᓄᑦ ᐊᖏᑎᔪᖅᑲᖅ
ᑲᓇ ᓕᔨᓴᓇᵒ, ᐃᖅᑲᓇᐃᑦᔨᑐᑎᒥᓂ ᐱᓕᕆᓚᑲᔪᐊᕐᓂᓕᓂᑦ ᐊᐧᖅᑭᑲᔪᐃᐸ

ᒥᕐᑎᒪᒋᓕᓚᵇ ᐊᖏᓇᓱᐊᑐᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖅᑕᒥᓂ:
ᐃᓕᓕ ᒥᖓᑯᑲᖅ
ᐃᓕᐃᑦᔭ ᔨᓂᑲᓕᑯᑐᑲᑦ
ᑯᓇ ᒪᑲᑦ
ᔨᓂᐃᓕᓕ ᐃᓂᐊᕐᔪᐊᖅ

ᖃᑭᖓᑕᓂᓕ ᐃᓂᐃᐃᑦ ᑲᑐᐃᓴᖅᑎᑎᑦᓴᑦ:
ᓕᕐᐳᐃ ᔨᓇᓪᓚᕐᔪᐊᕐᑎᑐᖅ ᐃᓕᓴᕐᔪᐊᓘᓐᓃᑦ ᐊᑐᐃᓐᓇᖅᑐᖅ

ᕼᐊᑲᓕᵇᑯᑦ ᒥᕐᑎᒪᒋᓕᓚᵇᒥᑦ:
ᔨᐊᓗ ᐅᑐᑐᖅ

ᖃᑭᑎᖅᑯᑦ ᐋᒋᔭᓂ 30, 2018 **BIM–ᑯᑦ ᓯᑭᖅᑲᑦᑕᐃᔨᑦ**

7:00ᐅᓪᓚᑲᖅᑯᑦ Dornier ᐊᐅᓚᓪᓗᑎᒃ ᒥᕐᑎᒪᒋᓕᓚᵇᒥᑦ ᐊᖏᓇᓱᐊᑐᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖅᑕᒥᓂ.
ᓇᓗᓇᐃᖅᓯᔨᔪᑎᑎ: ᑕᐃᓇ ᐃᑭᒪᓂᐊᖏᑐᓂ Dornier–ᑯᑦ ᐊᖏᓇᓱᐊᑐᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖅᑕᒥᓂᓵᓂᒃ ᐃᓕᓴᕐᓗᓂ.

7:30ᐅᓪᓚᑲᖅᑯᑦ ᒥᕐᑎᒪᒋᓕᓚᵇᒥᑦ ᐊᖏᓇᓱᐊᑐᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖅᑕᒥᓂ ᑎᑭᓪᓗᑎᒃ ᐱᓕᕆᖏᑦᑐᒪᔪᓂ ᐊᐅᓚᖅᓂᕐᓂᑦ
ᑐᓴᖏᓱᓂᑕᐅᓪᓚᑎᒃ ᒥᐊᒌᵒᒧᑦ, ᓗ ᐊᓚᒪᓗ ᓄᓇᕗᓕᕆᔨᒃᑯᑦ.

ᓴᓇᓱᑯᓪᓗᑎᒃ ᐅᑭᖏᖓ MSC

8:30ᐅᕐᓂᒃᑯᓄᑦ ᒥᕎᒪᒋᓕᐅᑦ ᐊᖏᔪᓄᖅᑐᑕᓇᔭᒃᑯᓄᑦ ᑲᑎᒪᔨᖏᑦ ᐃᓕᐅᔪᓂᑎᒃ ᐱᓕᕆᖓᒪᖅᑕᒃ
ᓇᓗᓇᐃᔨᐃᔾᔪᖏᕐᓂᓪᓗᔪ ᐊᒻᒪᓗ ᐊᑦᑕᓇᐃᖅᓭᒪᑎᕐᑎᓂᔾᔪᑦ ᐅᓂᒃᑲᑐᖅᓂᓪᓗ.
ᑎᑦ ᓯᖓᐅᓪ
ᓇᓗᓇᐃᖅᓭᔪᐊᑎ: PPE ᑐᓂᐅᖅᑲᕐᑕᐅᔾᔨᑦ ᒧᐟᓇᐅᔾᔪᖅ

9:30ᐅᕐᓂᒃᑯᓄᑦ ᖃᓄᐃᒍᒃᑯᑦ ᑕᓄᓇᒃᑎᑕᐅᓗᑎᒃ ᓇᓗᓴᓂ ᐱᑕᓚᖓᔾᔪᒥ ᓴᓐᖏᓐᓂᒃ ᐃᓐᓇᑦᑎᐊᓐᓂᒃ
ᐅᓴᖏᓐᓂᐊᖅᖢᒃ, ᐊᑐᓚᐊᖅ, ᖃᐅᓐᖓᔪᐊ, ᐃᓗᖢᑕᓂᒃ, ᐊᒻᒪᓗᓄᑐᑕᓇᔭᒃᑯᓄᑦ ᐃᓐᓗᑎᓂᓐᖓ
ᐅᓴᖏᓐᓂᐊᖅᖢᓪᓕᒥ
ᐅᓗᓇᐃᖅᓭᔪᐊᑎ: ᓴᖅᓴᖅᑕᐅᑎᒃᑯᓄᑦ ᑕᕐᖤᓐᖓᑦ MSC-ᒥᑦ ᖃᓄᐃᒍᒃᑯᑦ ᒥᒃᖢᓐᖓᓂᓐᓄᑦ.
ᖃᓄᐃᒍᓕᓂᑦ ᓄᖅᑲᓐᖓᑦᑦᑕ ᑕᓄᓇᒃᑎᓐᓂᑐᑦ ᖁᓴᒃᑯᑦ.

ᒪᖃᐊᖅᑎᑯ ᖃᓄᐃᒍᒃᑯᑦ ᐃᑭᒪᖃᐅᔾᔪᖅᑐᑦ ᐃᑲᖃᖁᓇᓂᑦ ᒪᖃᓇᓂᑦ ᐊᑐᓂᒃ = ᒪᖃᓇᓂᑦ ᐃᑲᖃᖁᓇᓂᑦ ᖃᓄᐃᒍᒃᑯᑦ ᑕᓄᓇᓕᓪᓗᒃ.
ᒪᖃᓇᒃ ᖃᓄᐃᒍᓕᒃ ᐊᑐᐃᓇᓇᐅᔾᔨᒃ

12:00 ᐅᓇᓂᕐᑯᓄᑦ ᖃᓄᐃᓂᓂ ᓂᓚᓇᓇᖅ
ᖃᐅᔾᔨᒪᔨᔾᔪᑎ: ᓴᖅᓴᖅᑕᐅᑦ ᐊᐃᔭᖃᑦᑐᓂ ᖃᓄᐃᒍᓕᒃᑯᑦ ᒥᒃᖢᓐᖓᓂᓂᑦ ᑕᐃᓄᕐᓗᒃ MSC-ᒍᑦ.

1:00 ᐅᓇᓂᕐᑯᓄᑦ ᓄᓇᕗᒻᒥᔪᓄᑦ ᐃᖅᑲᓇᐃᔾᔪᖅᑎᖓᑦ ᐊᒻᒪᓗ ᒥᑎᒪᑕᐅᑦ ᐊᒻᒪᓚᐅᖏᓐᓄᑦ ᐅᖃᓕᓂᖅᓴᖅ ᐅᑭᐅᓂᖅᓴᖅᑐᑦ
ᓴᓇᑦᑕᖅᓴᖅ ᐅᑦᑐᓐᖓᑕ ᑲᑎᒪᔨᔾᔪᑎᑎᖓᓂᓗᒃ. ᑭᖑᓴᓇᐊ ᐃᑦᓇᐃ, ᐊᑯ ᐱᐅᓪ, ᑲᓇ ᑎᑭᓐᖓ, ᓂ ᑎᓴᓴᑯ,
- ᓄᓇᕗᑯᓗ ᑐᓴᖅᑕᐅᔾᔨᒃ ᐊᑐᓚᐊᒃᑯᑦ ᐃᑲᓚᐊᖁᓕᓄᑦ ᑎᑎ ᓯᖓᐅᓪ
- ᖃᓄᐃᒍᐊᓗ ᐊᒻᒪᓗᓄᑐᑕᓇᔭᒃᑯᑦ ᐃᑦᑐᓂᓕᖅᑕ ᓇᑲᑯᓗᖓᓐᖓ ᐊᒻᒪᓚᐅ ᖃᓄᐃᖅᓯᕐᓚᓄᑦ ᐊᑐᐊᖓᖅ
- ᑕᑯᓇᑯᓗᖅ ᐊᒻᒪᓗᓄᑦᑎᑦ ᐊᒻᒪᓚᐅ ᐱᑕᓚᖓᔾᔪᐊᔪᑦ ᑎᑭᖅᑕᕐᖅᑐᓄᑦ ᐊᖅᑯᖓᓕᕐᓂᓄᑦ ᐊᑐᐊᖓᔪᖅ

5:30 ᐅᓇᓂᕐᑯᓄᑦ ᐅᓇᓄᒃᑯᑦ ᓂᓚᓇᓇᖅ

6:30 ᐅᕐᓂᒃᑯᑦ ᑲᑎᓐᓂᒃ ᐊᒻᒪᓚᐅ ᑐᓴᖓᓕᑦᑎᓐᓂᑦ ᓄᓇᕗᓇᓄᖅᖢᖓᓕᖅᓭᓕᐊᔪᑦ
ᒪᐃᑦᓴ ᓗᐃᑦ-ᕼᐅᐃᐅᕐᑦ

ᐅᕐᓂᐅᑐᐃᓇᖅᑐᒃ ᐊᑭᓕ 31, 2018

7:30 ᐅᕐᓂᒃᑯᑦ ᑲᑎᓐᓂᒃ MSC-ᒥ ᐅᓴᓴᐅᓂᐊᖏᒪᑦ ᖃᓄᐃᒍᓕᒃᑯᑦ ᒥᒃᖢᓐᖓᓂᑦ
ᖃᐅᔾᔨᒪᔨᔾᔪᑎ: ᑭᓴᓄᑦ ᐊᐃᔨᐅᓗᓂᒃ ᖃᓄᐃᒍᓕᒃᑯᑦ ᒥᒃᖢᓐᖓᓂᓂᑦ ᑕᓄᓇᓕᓂᐊᖏᒪᑦ ᐅᒥᐊᖅᐸᐊᖅᓭᔪᑦ ᐅᓴᓕᖅᓴᓴᐃᖃᒪᓕᖅᑐᒃ

8:00 ᐅᕐᓂᒃᑯᑦ ᖃᓄᐃᒍᒃᑯᑦ ᑐᓕᒃᑕᐃᒪᓕᒧᑦ
ᑲᓇ ᑎᑭᓐᖓ

25 ᒥᓂᕐᒥᒃ ᐊᑐᓂᒃ + ᐱᖓᓱᓴᖅᑎᑦᓗᓂ = 2.5ᐃᑲᖅᓗᓂᑦ
2 ᖃᓄᐃᒍᓕᒃ ᐊᑐᖅᑕᐅᔾᔨᓴᐊᖅᑎᑦᑕᒃ ᐱᔾᓱᓐᓂᐊᖅᓭᓂᓂ ᒪᖃᓇᓂᑦ ᐃᑲᖅᓗᓂᑦ

10:30 ᐅᓪᓚᒃᑯᑦ ᑕᓄᓇᓂᓂᒃ ᐅᒥᐊᖅᐸᐊᖅᓭᓕᒥᑦ ᓄᓇᒋᑦᓂᓪᓗᒃ
ᓱᓐᓇᓂ ᑲᓂ

ᖃᐅᔾᔨᒪᔨᔾᔪᑎ: ᑭᓴᓄᑦ ᐃᓐᓂᖅᓴᓪᓗᒃ ᐊᒻᒪᓚᐅ ᑕᓄᓇᒃᑎᓪᓗᒃ

11:00 ᐅᕐᓂᒃᑯᑦ ᓄᓇᕗᒻᒥᔪᓄᑦ ᐃᖅᑲᓇᐃᔾᔪᖅᑎᖓᑦ ᐊᒻᒪᓗ ᒥᑎᒪᑕᐅᑦ ᐊᒻᒪᓚᐅᖏᓐᓄᑦ ᐅᖃᓕᓂᖅᓴᖅ
ᐅᓴᖃᑦᓴᖅᑎᑯᓂᓂᒃᑐᓂᒃᑎᑦᑕᒃ ᐅᒥᐊᖅᐸᐊᓕᖅᑭᓂᓂᒃ ᐅᑭᐅᓂᖅᓴᖅᑐᑦ ᑲᑎᒪᔨᔾᔪᑎᑎᖓᓂᒃᑯᑦ. ᓱᓐᓇᓂ ᑲᓂ, ᓴᓇᑦ ᐃᑦᓇᓄ, ᒪᐃᑦᓴ
- ᑕᑯᓇᑯᓗᖅ ᐅᒥᐊᖅᐸᐊᖁᓕᓄᑦ ᐅᓴᓕᖅᓴᓴᐃᖃᒪᓕᖅᑐᒃᑯᓄᑦ
- ᐅᑦᑐᓗᒥᑦ ᑐᓴᖅᑕᐅᔾᔨᒃᑯᑦ ᐅᒥᐊᖅᐸᐊᓕᕆᓂᐅᑦᑐᒃᑯᓄᑦ
- ᑕᑯᓇᑯᓗᒍ ᓄᓇᕗᒻᒥᓂ ᐅᒥᐊᖅᐸᐊᓄᑦ ᑎᑎᕋᖅᖢᓐᖓ

ᖃᐅᔾᔨᒪᔨᔾᔪᑎ: ᓴᓇᑦ ᐅᓂᒃᓴᒥᐊᓕᒃ ᒪᑎᓂᖅᑕᐅᔾᔨᓴᓂᓂ

12:30 ᐅᓇᓂᕐᑯᓄᑦᖃᓄᐃᓂᓂ ᓂᓚᓇᓇᖅ

1:30 ᐅᵒᓄᓴᐢᑯᑦ ᐊᑐᓕᐊᒥᐢ ᑕᑯᓇᵒᓂᖅ ᐅᑎᖅᐸᑦᑕᐊᓗᑐᐢ ᖃᐅᵒᖏᐢᐋᓄᑦ.

ᑲᓄ ᑎᐅᓕ, ᓴᵒ ᐱᐅᓕ

- ᖃᑭᒥᖃᓂᖅ ᐊᖏᔪᓚᐢᑎᓄᑦ ᐃᑲᖅᘐᐅᐅᕐᑕᑐᓂᒃ
- ᖃᑭᒥᖃᓂᖅ ᐳᔪᒥᐢ ᑲᑕᒪᐃᘐᐅᔪᵒᓇᖅᑕᑐᓂᒃ
- ᐅᑦᔨᓚᒥᓗᔪ ᐊᖏᔪᓚᐢᑎᓄᑦ ᐊᖅᑯᑎᐅᕐᑕᑐᖅ ᐱᖏᑲᵒᓇᖏᓂ ᐊᖅᑯᑎᐅᐳᐢ

ᖃᐅᐅᓚᒪᔨᐊᑎ: *ᓚᖓᓚᖅᑕᐅᑎᒃᑯᑦ ᑕᑯᓇᵒᓂᐊᖅᓗᓂ ᐊᖅᑯᑎᒥᐢ ᑕᖅᓀᵒᓇᖏᑦ ᑎᑦ–ᒥᑦ MS-ᒧᑦ*

5:30 ᐅᵒᓄᓴᐢᑯᑦ ᑎᑭᑦᓗᑎᒃ ᖃᐅᵒᖏᐢᐋᓄᑦ ᐊᓱᒪᓗ ᓂᓚᑦᓗᑎᒃ

ᖃᐅᐅᓚᒪᔨᐊᑎ: *ᓂᐅᔨᐅᓗᑎᒃ PPE ᐊᓱᒪᓗ ᐃᕐᑎᖃᕕᒥᓂᒃ ᐊᐃᔨᔪᖅᓗᑎᒃ ᐅᓪᓴᐅᓗᑎᒃ ᖃᑲᖏᑕᓚᑦᑯᓕᕕᒪᒧᑦ*

6:30 ᐅᵒᓄᑲᑯᑦ ᒪᑐᓴᓂᖏᓐ ᑲᑎᒪᓂᐅᐸ

7:30 ᐅᵒᓄᑲᑯᑦ ᐊᑭᓕᖅᑕᐅᔪᒪᔨᖅ ᖃᑲᖏᑕᔪᓕᖅ ᐊᐅᓕᖅᓗᓂ ᓄᓗᓴᓂᓂ ᒥᕆᑎᒪᑕᓕᖅᓚᒧᑦ

8:15 ᐅᵒᓄᑲᑯᑦ ᐊᑭᓕᖅᑕᐅᔪᒪᔨᖅ ᖃᑲᖏᑕᔪᓕᖅ ᑎᑭᑦᓗᑎᒃ ᒥᕆᑎᒪᑕᓕᖅᓚᒧᑦ

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ᐃᓕᒍᑕᖅ B: ᑲᑎᒪᓴᐊᑎᕃᓚᕐᓂᖅ (ᐋᒃᑲᓂᓗ 30, 2018)

ᑲᑎᒪᑎᓪᓗᑎᑦ ᐅᖃᖅᐅᓱᑦ – ᖃᑎᖅᑯᑦ, ᐊᑭᓯ 30 @ 1:30

ᑲᑎᒪᖃᑕᐅᔪᑦ

ᐅᕐᓴᒻᒪᔪᑦ (ᓇᓗᓴᓕᓐᓇᕆᐅᑯᑦ): ᑭᖅᓯᓱᐊ, ᑎᑦ, ᑲᓇ, ᓕᓴᖅ, ᓴᐃᓐ, ᒪᐃᑐᓐ, ᓗ, ᓕ, ᓗᓱᐅᓱ;

ᐅᖃᓕᐅᑎᕆᑯᑦ (ᓇᓗᓴᓕᓐᓇᕆᐅᑯᑦ): ᓴᓐᔨᓐ, ᐊᑐᓗ, ᑎᐊᐃᖅ

ᐅᕐᓴᒻᒪᔪᖅ (QIA): ᓕᕐᐃᐃ;

ᐅᕐᓴᒻᒪᔪᑦ (HTO): ᐃᓕᐅᖏᓐ, <ᓇᐃᓕᓕ, ᐃᓕᓕ, ᑯᓇ, ᓕᐅ;

ᐅᕐᓴᒻᒪᔪᖅ (Hᐊᓚᒪᓕᑯᑦ): >ᐊᓱ

ᑲᑎᒪᓪᓗᑎᑦ ᐅᖃᖅᐅᓱᑦ

ᒪᐃᑎᓐ – ᐱᑎᐊᓕᐅᕐᓂᑎᓐᓂ ᑐᓴᕐᓐᓇᖅᑐᑐᒍᑦ ᖃᖅᓄᐃᕋᑦᑦᓚᖏᓪᓕ ᖃᑯᓴᒧᓕᕐᓂᑯᑦ ᑕᑯᓇᓐᓂᖅ?

ᑲᓇ – ᐱᑎᐊᕈᑎᖃᖅᑲᓪᓚᑕᓕᐅᐊᖅ ᐊᖏᔪᓇᓕᑐᑐᓗᓕᕆᐊᖅᑯᑦ ᐃᓪᓚᑦᑕᓐᓇᖏᓐᓄᖅ, ᐊᑦᖁᓕᑦᓕᐃᕋᑦᑦᑕᑦᑕ ᐊᖓᑎᖃᑎᑎᑦᑐᑐᑕ ᑕᖅᓯᒧᖏᓐ, ᓄᑕᐅᑦᑯᓪᓚᒍ 300m –ᒧᑦ

<ᓇᐃᓕᓕ – ᖃᐅᔪᓇᒋᒃ ᐃᖅᓯᖅᐅᑦᖅ, ᑕᓐᓇ ᐃᓪᓚᑕᓕᓪᖅ ᖃᐅᑎᓂᖅᓴᒋᖃᐅᔪᖅᑦ, ᑐᓐᖏᓚᐅᑎᔪᖓᑎ ᓴᖏᓕᖏᒪᑦ, ᑐᓐᖏᓚᐃᑦᖅᑎᑎᐊᓚᐊᖃᑦᑕᖅᑦ

ᑲᖏᒪᓕᑦᓗᓂ ᐊᓚᓕᓐᓇᖅᑐᑦ

ᓕᕐᓂᑯᑦ – ᐃᓯᒪᑐᑐᑕᓐᓄᑦ, ᐃᓗᒪᖅᑲᒃ ᐊᖏᔪᓇᒋᓕᕆᔨᓐᓇᕆᐅᑯᓂᓐᓄᖅᑐᒃ, ᖃᐅᔨᒪᓂᐊᖅᐳᓱ ᒪᑐᖏᓐ ᓴᓐᖏᓴᓚᐊᖅᑲᑎᑦᑎᑐᑐᖅ ᐊᖏᔪᖃᓐᓂᐊᖅᑐᑐᓂ ᐊᓇᓚᒍᒪᑦ

ᑕᓐᓇᕆᐅᑯᑦ – ᐃᓱᒪᒪᑐᐃᓐᖏᑐᖓ, ᐃᓗᒪᖅᑲᒃ ᐊᖏᔪᓇᒋᓕᕆᔨᓐᓇᕆᐅᑯᓂᓐᓄᖅᑐᒃ ᑕᒪᓂᑐᑐᖅᑲᐊᖅᑎᑦᑕᖅᑦ

ᐃᓕᐃᕐᓴᖅ – ᐱᐅᑦᔪᖅᑐᑦ ᐅᖅᑲᓕᔪᖅᑎᖅᑭᓐᓇᓪᓗᑎᒃ ᒥᑎᒪᒃᓕᒥᓂᖅᑐᒃ ᐱᓕᓕᖅᐸᐊᓚᐅᑎᖅᑎᑦᓇᓪᓗᒍ

ᑲᓇ – ᐃᓕᓴᕐᓂᖅᑐᒃ ᑎᑎᖅᐅᔪᓂᒃ ᑐᓂᓴᕐᓂᖅᑐᒃᑭᓐᓇᓪᓗᑎᑦ ᐊᖏᔪᓇᒋᑎᒧᑦ ᐊᓚᒪᓗ ᓴᓇᔪᐅᑎᖅᑎᑦᑕᑐᓂ

ᐃᓕᐃᕐᓴᖅ – ᐊᐅᑦᒪᔪᖅᑕᐅᔪᓚᐅᕐᓂᖅᑐᑦ ᐊᖏᔪᓇᒋᑎᒧᑦ ᐊᓚᒪᓗ ᓴᓇᔪᐅᑎᖅᑎᑦᑕᑐᓂ

ᐃᓚᐃᓕᓴᕐᓂᖅᑐᑦ ᐅᖅᑲᓕᓂᖅᑲᐅᓕᓪᓗᑎᒃ ᒥᑎᒪᒪᓕᓕᒫᓂᖅᑐᒃ ᐱᓕᓕᖅᐸᐊᓚᐅᑎᖅᑎᑦᑕᑐᓂ

ᐃᓗᓐ – ᑭᖓᔪᓕᓕᒫᓂᖅᑐᒃ ᐅᑎᖅᑯᓂᖅᑐᑦ ᑐᓂᓴᕐᓂᖅᑐᒃᑭᓐᓇᓪᓗᑎᑦ ᐊᖏᔪᓇᒋᑎᒧᑦ ᐊᓚᒪᓗ ᓴᓇᔪᐅᑎᖅᑎᑦᑕᑐᓂ

ᐃᓕᐃᕐᓴᖅ – ᐊᖏᔪᓇᒋᑎᒧᑦ ᑲᒪᔨᓐᓇᖅᑐᑦ ᐊᓕᐊᓐᓇᖅᑲᓂᖅᑐᒃ

ᓄᓕ – ᑭᑦᑕᓕᐅᓚᐊᖅᑲᑕᐅᔪᑦ ᖃᐅᓕᑦᓴᓐᓂᒃ ᐃᓕᓴᕐᓂᑦᑦ ᐅᖅᓯᐊᓗᓴᒥᒃ ᑯᓄᔨᖅᑦᑕᑦ ᓇᒧᓐᓄᑦᓯᐊᕐᓂᖅᓴᖅᓂᒪᒪᓕᑦ

ᐃᓗᓐ – ᐃ

ᓄᓕ – ᑕᐃᓐᓇᕈᑎᖅ ᖁᓐᓴᐃᐊᓕᑦᑐᖅ ᐃᓕᓴᕐᓂᑦᖅ?

ᒪᐃᑎᓐ – ᐊᐱᖅᑯᑎᖃᑦᓱᔪᑦᑕᐅᖅ ᑕᓐᓇᒪᓐᓄᖅ, ᑐᓴᕈᐅᖅᓯᒪᓐᓇᕆᑕ ᖃᖅᓇᑐᐃᓐᓇᖅ

ᓄᓕ – ᐅᖅᑲᑎᑎᑦᑕᖅᓯᒪᓕᕐᓂᑦ ᓇᑕᒥᖅ ᐃᓕᓴᕐᓂᑦᑦᓂᑐ ᐊᖅᓯᓴᒪᓗᒥᖅ ᑯᓄᔨᖅᑦᑕᑦᑦᓂᑐ ᐃᓕᓴᕐᓂᑦᖅ ᐃᓂᓐᓇᕐᓂᖅᑐᑦ ᐃᓕᓴᕐᓂᑦᑦᓂᑐ ᐊᖏᔪᓇᒋᑎᒧᑦ ᐃᓪᓚᑕᓗ ᓇᓕᐅᑎᑦᑕᑐᓂ ᐃᓕᓴᕐᓂᑦᖅ ᐃᓂᓐᓇᕐᓂᖅᑐᑦ 1960-ᒥᓂᑦ

ᒪᐃᑎᓐ – ᖃᖅᐅᑦᑦᓂ ᐃᓂᓐᓄ ᑕᑯᔪᓐᓇᖅᑕᑦᑦ ᐊᖏᔪᓇᒋᑎᒧᑦ ᑕᑯᓇᓕᓂᒃ ᓇᒫᓴᑯᐅᑎᓴᖏᓐᓄᑦ

<ᓇᐃᓕᓕ – ᖃᖅᐅᓴᒪᓕᐊᖅᑐᒍᑦ ᖃᖅᐅᑦᑦᓂ ᐊᓱᔨᖅᑕᐅᔪᓐᓇᖏᓐᓄᑦ ᐅᖅᑯᓯᓐᓂᒋᓕᖏᓐᓄᑦ

ᒪᐃᑎᓐ – ᐃᓕᓴᒃ

<ᓴᓂᐃᓕ – ᐃᓂᓂᐃᑦ ᐃᓱᒪᖏᑦᑕᖅᓱᒪᒻᒪᒃᑕ ᖃᑐᐊᖅᑲᒃ ᐊᐢᓂᓕᓴᖏᑦᑕᕆᐊᖅᑭᓂᓂᓄᖅ ᑕᐃᑲᑯᓪᓕᐅᕙᖅᑐᑎᖅ (ᓂᐲᓴᖅᑐᑎᖅ) ᐅᕐᑯᓱᓂᓂᖅᓱᓂᓄᑦ ᐃᓗᐊᓂ

ᓴᐲᐃ – ᐃᓱᒪᑐᐃᓐᓇᖅᑐᖅ, ᖃᓄᓂᖅᑐᑯᔪᒪᒃᑦ ᑕᓱᕐᒧᑦ, ᓴᐢᓂᓕᑕᐅᓂᐅᓴᖅᑐᐃᓐᓇᖅᑐᓂ ᐊᒻᒪᓗᖅᑲᐃ ᐱᑕᖅᖃᐊᓴᓄ ᓴᓂᖅᑯᑯᒪᓕᒃᑦ ᐊᑐᐃᓇᓱᑎᓄᑦ ᐊᑐᖅᑕᐅᖅᑲᖅᑕᑭᓐᓇᕐᓗᖅᑐᒥᓄᖅ

ᑲᓄ – ᐱᓕᖃᐊᖅᑲᐅᖅᓱᒪᒪᓗᐊᖅᑐᑯᑦ ᑭᓱᐊᓂ ᖃᐅᐅᒪᐢᑎᑕᑦ ᓴᓂᕈᑕᖅᑲᖅᑕᖅᓂᖅᓄᖅ ᐱᓕᖃᓴᓐᓇᕐᓗᑦᑯᑦ

ᓴᐲᐃ – ᑐᓕᓴᖅᑐᑯᔪᒪᓗᐊᖅᑐᑯᑦ ᓴᓂᕈᑕᖅᑲᖅᑕᖅᓂᖅᓄᖅ ᐊᒻᒪᓗᓴᖅᑐᑯᑦ ᐊᑐᖅᑕᐅᖅᑲᖅᑕᖅᓂᖅᓄᖅ

ᑲᓄ – ᐃᓐᓴᓄ

ᐃᓕᐃᓴᒃ – [ᑐᑭᓕᐅᖅᑕᐅᖅᑎᑦᑐᖅ]

ᓴᐲᐃ – [ᑐᑭᓕᐅᖅᑕᐅᖅᑎᑦᑐᖅ]

ᓇᓕ – ᓄᓚᒪᑦᑐᒥᓄ ᐅᒥᐊᖅᓴᐊᓂᓄ ᐅᓱᓴᐊᑎᐅᖅᓂᕆᖅᑕᖅᑐᒥᓄ ᓴᓇᕆᒃᓚᒪᑦᑐᒥᓄ ᓴᓂᐊᓂᑦᑐᖅᑲᓚᐊᓕᓄ ᐃᓕᓴᖅᑐᓗᒃᑐᓄ ᐱᑕᖅᑲᓂᓴᓄᓚᐊᓕᒪᓕᒡᓗᑎᑦ ᐊᒻᒪᓗᐊᖅᑎᑦᑐᓄ ᓴᓇᓕᐅᖅᑐᓂᐊᖅᓯᒪᓕᖅᑐᑦ ᓴᓂᓕᓴᖅᑐᑦᑕᓂᐊᖅᓯᒪᓕᖅᑐᑦ; ᓂᓕᓕᓱᑎᓕᓴᐃᓗ ᐅᓱᖅᓱᒪᓇᐅᓴᖅᑕᖅᑐᓕᓴᐃᓗᓂ

ᑎᒃ – ᐅᓱᒪᔭᓴᖅᓱᐅᕈᑎᓕᑎᐊᐅᖅ, ᓄᓕᖅᑎᔪᓐᓇᖅᑐᑯᑦ ᑕᐃᒪᓕᐅᑐᒥᓄ ᓴᓇᓕᓴᓐᓇᕐᓗᑦᑯᑦ

ᒪᐃᐅᓐ – ᑕᓐᓇᓗ ᓄᓗᑦᓴᓂᓄ ᐃᓕᓴᖅᑐᐃᓐᓇᖅᑐᑯᑦ

ᓴᐲᐃ – [ᑐᑭᓕᐅᖅᑕᐅᖅᑎᑦᑐᖅ]

<ᓄᐃᓕ – [ᑐᑭᓕᐅᖅᑕᐅᖅᑎᑦᑐᖅ]

ᑐᓱᐅᓱ – ᐅᓴᖅᐅᓱᓕᐊᐅᒪᒥᑦ ᓇᓂᓱᑎᓱᐊᖅᑐᑯᖅ ᖃᓄᖅ ᑕᐃᓴᐅᓂᐊᓕᓐᓂᑦ ᓴᓇᓕᓴᓐᓇᕐᓗᑦᑯᑦ

ᐃᓕᐃᓴᒃ – ᑕᓀᓇᓐᓂᐊᐅᖅᑭᒃ ᐃᓐᓇᓕᓐᓂᒃ ᑐᓚᐅᑕᖅᓚᒪᒻᒥ ᖃᐅᖅᓯᓯᑦ?

ᒪᐃᑎᓐ – ᐃ

ᐃᓕᐃᓴᒃ – [ᑐᑭᓕᐅᖅᑕᐅᖅᑎᑦᑐᖅ]

<ᓄᐃᓕ – [ᑐᑭᓕᐅᖅᑕᐅᖅᑎᑦᑐᖅ]

ᑐᓱᐅᓱ – ᐅᓴᖅᐅᓱᓂᑎᐊᐅᒪᒥᑦ ᓇᓂᓱᑎᓱᐊᖅᑐᑯᖅ ᖃᓄᖅ ᑕᐃᓴᐅᓂᐊᓕᓐᓂᑦ ᓴᓇᓕᓴᓐᓇᕐᓗᑦᑯᑦ

ᐃᓕᐃᓴᒃ – ᑕᑯᓇᓐᓂᐊᖅᑭᒃ ᐃᓐᓇᓕᓐᓂᒃ ᑐᓕᑦᑕᖅᓚᒪᒻᒥ ᖃᐅᖅᑕᓯᓯᑦ?

ᒪᐃᑎᓐ – ᐃ

ᐃᓕᐃᓴᒃ – ᐊᐢᓇᓐᓚᑦᑯᓯᑦ, ᐅᐊᓴᓕᖅᑕᐅᐢᓇᓐᓚᖅᑲ ᖃᓄᓐᓚᔪᐊᓂᑦ, ᑕᓐᓂᓐᓇᓕᖅᑎᑦᑐᓄᖅᑐᑦ ᓄᓇᕗᑦᑐᓂᓕᓚᐅᖅᑐᑦ

ᓴᐲᐃ – ᐃᓐᓇᓕᓐᓂᐊᖅᑐᑯᑦ ᐃᓐᓇᓕᓐᓂᐊᖅᑐᑯᑦ

ᓴᓂᐃᓕ – ᐅᓂᐊᓕᖅᑐᑯᑦ ᐃᓐᓇᓕᓐᓂᐊᖅᑐᑯᑦ ᐃᓐᓇᓕᓐᓂᐊᖅᑐᑯᑦ ᐃᓐᓇᓕᓐᓂᐊᖅᑐᑯᑦ

ᓴᐲᐃ – ᐃᓐᓇᓕᓐᓂᐊ

ᓂᑎᵒ – ᐊᖅᑭᒃᓂᕆᑎᖅᑕᒪᓕᕐᑎᐊᖅᑐᑐᒍᑦ ᐊᖏᓚᓂᒃᑐᓕᕐᓗᓴᒃᑯᓐᓂᑦ ᖃᐅᔨᑦᑐᑦ ᑕᕐᓂᓂᒍᖏᑐ ᓄᓇᖏᓄᓐ

ᓕᐅ – ᓄᓇᓂᐅᑎᑯᑦᑕᑦ ᐊᖅᑯᑎᐅᖏᑐ ᐱᐊᓂᑕᐅᓂᒪᓕᓕᓚᖅᐸᑦ ᖃᐅᔨᒪᔪᒪᓚᔪᑦ ᐅᓗᓇᐃᖅᓂᕐᓇᖅᓯᐊᕐᓇᖅᑐᑦ ᐃᑦᑕᕐᓂᓴᖃᐅᔨᑐᑐᓂᓂᓕᓂ.

ᒪᐃᐅᓵ – ᐊᖅᑯᑎᖏᑐ ᖃᐅᔨᒪᓴᐅᑦᑎᐊᖅᑐᖅ ᐊᓚᒪᓗ ᑕᑯᓇᖅᓵᓂᕐᒪᑐᓴᖅᑐᒍᑦ ᐅᖅᑲᑎᑎᓂᐊᕐᔪᓗ ᓄᓇᓂᐅᑎᑯᑦᑕᑦ ᐊᖅᑯᑎᖏᑐ ᐊᓚᒪᓗ ᓇᓂᓚᖏᓐᒥ ᐃᑦᑕᕐᓂᓴᖃᐅᔨᑐᑐᓂᓂᓕᓂ ᖃᐅᔨᓴᓂᑦ ᐊᐅᑐᑕᐅᖅᖃᖅᑕᓂᐊᖅᑐᒥᓚᒪᑕ

ᕿᓄᐃᓕᓕ – ᐊᖏᓚᓂᒃᑎᐅᓕᖅᑕᑕ ᐃᐅᕐᓇᕈᓚᓚᑦᑕ ᐃᔭᵒᓇᖅᑭᑎᔪᑦ ᐊᖏᓚᓂᖅᐸᐅᖅᑕᖅᑐᓄᑦ ᐊᓚᒪᓗ ᓄᓇᓂᐅᑎᑯᑦᑕᑦ ᐊᖅᑯᑎᖏᑐ ᒪᑐᔾᔨᖏᓐᓂᒃᑯᑦ ᐊᖅᑯᑎᖏᑐᑎᑎᓂᐊᕐᓂᖅᐳᖅ

ᕿᒪ – ᐊᖅᘻᐊᖅᑐᖅᑐᓂᒃ ᐱᑕᖅᑲᑯᔨᓴᑭᑎᐊᖅᑕᑦ ᐊᑐᖅᑕᑦᑕᑎᔪᑦ ᐊᖏᓚᓂᕐᑎᐊᖅᑐᑐᒍᑦ ᐅᕐᖓᑖᓂᓕᑦ ᑕᒪᐅᓇ ᖃᑎᑎᒍᔪᑦ ᐃᓚᖏᑐᒃ/ᓴᓕᕋᖅᓴᒃ ᐊᓚᒪᓗ ᒥᕐᑎᒪᑕᓕᐳᖅ

ᐃᓕᐃᔅᓴ – ᓄᓵᑦᑦ ᐊᖏᓚᓂᘻᐊᑐᖅᑕᖅᑭᒪᓕᑦ ᐃᓄᖅᓄᑦ ᐊᓚᒪᓗ ᐃᓄᖅᓂᖅ ᓄᖅᑲᖏᓐᓇᑯᓂᕐᑎᐊᖅᑕᑦ ᐅᐸᓴᔪᖅᓇᑦᓵᓗᑎᒃ ᑕᒪᑲᔨᓄᖏᓐ ᐊᖅᘻᐊᖅᑕᐅᖅᑭᓕᓗᑎᒃ

ᓵᓄᖅ – ᑐᑎᓴᒪᑦᑎᐊᖅᓴᒍᑦ ᓄᓇᓂᐅᑎᑯᑦᑕᑦ ᐃᓚᒪᓗ ᐊᓯᖏᑐᓂᓂᒃ ᐱᓕᕐᓂᖅᑐᓂᒃ ᐃᓕᓴᐅᓂᒃ ᐊᖅᑯᑎᖏᑐᑎᑎᓂᐊᕐᓂᖅᑐᓂᒃ ᐃᓕᓴᐅᓂᒃ ᓄᓇᓂᐅᑎᑯᑦᑕᑦ ᐊᖅᑯᑎᖏᑐᑎᑎᓂᐊᕐᓂᖅᑐᓂᒃ ᑕᒪᐃᓐᓇᖅᑐᑦ ᐊᖅᑯᑎᖏᑐᑎᑎᓂᐊᕐᓂᖅᑐᓂᒃ ᐃᓕᓴᐅᓂᒃ

ᑎᒪ– ᐊᖏᕐᕋᓱᖏᑦ ᑕᒪᓂ ᐊᖅᓴᖏᕐᓚᒪᔪ, ᐊᖅᑯᑎᐅᑦ ᖃᐅᔨᒪᑎᑕᐃᓇᖅᑕᐅᑦ ᐊᖏᔪᓂᓴᙳᑎᓂᒃ ᑕᒪᓂᐅᑐᑦᑐᖃᐅᓇᖅᑐᓂᒃ, ᓇᓂᓂᐅᐊᕐᕋᖅᑕᕐᑕ ᐊᑲᐅᓪᓚᕐᒥᐊᒋᑦᒃ Δ.ᔨᐅᓇᖏᓐᓄᑦ, Δᓂᒪᖃᑎᑐᖓ ᖃᐅᔨᔭᖅᐃᔨᔪᑎᒋᑦᒃ/ᖃᐅᔨᒪᖅᑯᑎᒋᒃ ᐊᖏᔪᓂᓴᙳᑎᓄᑦ ᓇᖏᑕᐅᔪᐅᓇᔭᖅᑐᒋᒃ Δᐅᐢᓂᓂᐊᓕᕆᑎᒃ ᐱᐊᓂᖅᓴᐅᑎᒪᔭᖅᑎᓪᓗᑎᑦ, ᐱᓕᕆᖅᑎᑦᖏᕐᓂᓇᕆᐊᖅᑕᕐᑕ

ᐊᑐᓗ – ᐊᖏᕐᖅᑎᑕᑎᐊᖅᐸᑎᑦ, Δᓕᓪᓚᑕᐅᖅ ᐅᖅᐅᓂᕆᖅᑕᕐᕋᓂᒪᒥᔭᖓᑦ ᓂᖓᓂᐊᔪᑦ ᖃᐅᐅᔨᒪᑎᑦᑎᓂᖅᑕᑦᔪᓕᑦ ᑕΔᐅᓂᓂᐅᑐᖓᓂᖅ ᐅᐸᐅᑎᓇᖅᑐᓂᒃ ᐱᑦᓴᕐᑕᐅᓂᖓᓂᒃ ᐱᓕᕆᓂᖅᑐᑦ ᐊᑐᓂᖅᑐᓂᒃ ᐱᓕᕆᓂᖅᑐᑦ ᐊᖏᔪᓂᓴᙳᑎᓄᑦ

ᒪΔᑕᓗ – ᐊᐳᓯᐊᓗᓄ ᐅᖃᖅᑕᓯᖃᑎᒋᓐᓂᐅᕐᓂ ᐱᐅᕐᓂ, ᐱᓗᐊᖅᑐᒥᓄ ᑕᒪᑐᑎᔪᖓ ᐃᑲᓚᐊᖃᖅᖃᖅᑕᑎᓕᕐᓂᒧᑦ, ᐊᖏᒪᓗ ᓯᕐᒪᒧᐊᔪᒪᓪᓗᓐᓄᖓ ᓄᓇᓕᖓᔪᐊᓕᓚᐅᔪᓕᕐᓂᒧᑦ ᓇᒻᒥᑦᑎᓐᓕ ᐃᓯᒪᓗᑐᑎᑦᑎᓐᓂᒃ ᐊᖅᑭᖅᑎᓚᓕᐊᕐᕕᖅᑕᕐᓂᒧᑦ ᓇᓕᓕᐅᕐᓂ ᓄᓇᓕᖓᔪᐊᓕᓚᐅᔪᓕᕐᓂᒧᑦ ᐃᓕᓴᐅᔪᖓᓂᒃ ᐃᓕᓴᐅᔪᖓᓂᒃ ᐃᓕᓴᐅᔪᖓᓂᒃ

ᒪᐃᑌᓱ – ᐊ ᐃᓯᐊᐅᓪᓕᕆᑕ ᑲᑎᒪᔨᕎᑲᓕᐅᑦ ᑭᓯᐊᓂ ᐅᑯᐅᓂᖅ ᐅᓂᒃᑲᓂᖅ ᑲᔪᓯᐅᒪᔨᖅ ᒥᖅᓴᓄᑦ >ᐊᖅᔨᑦ ᐅᖅᑲᐅᓯᓚᐅᖅᑕᐅᑦ ᐊᐅᔭᖅ ᐱᑎᐊᓕᕆᖅᑎᑦᓗᔪᑐ, 12-ᑐᐃᓱᓀᐃᑦ ᓀᓗᓀᐃᖅᓯᔨᑎᑦ ᑕᑯᐅᑦᑯᔭᐅᑦ ᑭᓯᐊᓂ ᐅᖅᑲᐅᓯᖅᖁᐃᑎᔨᓱᓀᐃᖅᑕᐅᑦ

ᑲᑎᵒᖅᓴᓂᑦ – ᐊ ᑲᔪᓯᓪᐅᖅᑕ, ᓄᖅᑲᖅᓴᑲᐃᓱᓀᐅᔪᓱᓂᐊᕐᑕᑦ ᐱᑎᐊᓪᐅᖅᓴᑎᓂᑎᵒᓂ

[ᓄᖅᑲᖅᓴᑲᐃᓱᓀᖅᑐᑦ 3:45-4]

ᒪᐃᑌᓱ – ᐋᑦᖁᑲᓯᔨᓴᒪ ᖃᖅᓴᑲᑯᓂ ᐱᐃᖅᓴᖅᑲᖃᕆᔨᖅᓴᑦ ᐊᓴᒪᓗ ᑲᑎᒪᓂᐅᔪᓂ ᑐᓴᓯᐊᖅᑲᓂᑕᐅᑎᓗᑦ ᐅᓂᒃᑲᑎᵒᓂᵒ ᐊᓴᒪᓗ ᐱᑦᖃᕆᑦᑐᓴᖅᑐᓂᓂᑦ ᑲᓯᐊᓂ ᐅᖅᑲᐅᓯᓚᔨᓴᒃᑲ ᐃᓕᓯᐊᖅᑲᓯᐅᑎᓴᓂᓂ ᑲᑦᑕᐅᓴᖅᑐᑦ ᐱᐅᓯᖅᑐᓂᓂᑦ ᐱᑦᖃᕆᑦᑐᓴᖅᑐᑦ ᐃᓕᓴᐅᓂᖅᑐᑦ ᐅᓂᒃᑲᑎᵒᓂᵒ

[ᐅᓂᒃᑲᑦ >ᐊᕐᔨᒥᑲ ᖃᑲᐅᓕᓇᓯᐊᖅᓂᓪᓗᑦ – ᐅᓂᒃᑲᖅᑐᖅ ᒪᐃᑌᓱ]

ᓪᓚᐃ – ᐊᖅᑯᓘᓗᑦ >ᐋᓴᐃᒃᑯᑎᑎᑲ ᐊᑐᓪᐅᖅᑲᑭᓱ?

ᐊᓘᵒ – ᐋᐠᑎ, ᖃᑲᐅᓴᐅᓪᓚᐅᖅᓯᓪᓚᑦ ᒪᑭᒪᑎᑕᐅᔪᓴᐃᓚᐅᖅᓯᓪᓚᑦ, ᐊᑭᑐᑐᐊᖅᓴᓪᓚᐅᖅᓯᓪᓚᑦ ᐅᓚᖅᑎᵒᓄᑦ ᐊᓯᓗᓘᓪᓚᑦ ᐊᑐᖅᑕᐅᓂᓪᓚᑦ ᐊᑐᖅᑕᐅᓂᓪᓚᑦ ᐊᑕᖅᑎᓂᐅᔪᖅᑕᐅᓂᓪᓚᑦ ᐊᑕᖅᑕᐅᓂᓪᓚᑦ ᐊᑕᖅᑎᓂᐅᔪ

ᕕᓕ – ᑕᐃᵒᓇ ᓴᓗᒪᓴᓴᐅᑎ ᐊᑐᖏᑕᐅᔨᓇᖏᐸ ᓴᓗᒪᓴᖏᑕᐅᓗᑎᒃ ძᑦ?

ᒪᐃᑌᵒ – ᓴᓗᒪᓴᓴᐃᕐᖏᕐᕋᑦ ᑕᐃᵇძᓇᖅᑐᑐᐊᖏᖅ ᐃᒥᖏᑕᖏᑕᐅᔨᓇᑦ ᓇᓇᓕᕆᓪᓕᑎᓇᑦ, ᐃᓗᵒᓇᓂ ᑕᓯᖏᖅ ᓴᓗᒪᓴᓴᐅᑎᓕᖏᑕᐅᔨᵒᓇᖅᑎᑐᑐᖏᖅ

ᕕᓕ – ᐊᐅᑎᖏᕆᖅᑦᓕᓭᑦᑐᓗᓕᐊᖏᖅ ᑕᒪᖏᒃ ᐃᒋᑦ ᑕᓯᕐᓀᑦᓕᐊᔨᑦ ძᐅᓭᓂᒃ ᐅᔨᓗᑕᖏᖅᑕᑐᑐᑦ

ᒪᐃᑌᵒ – ᐅᔨᓗᒃ ᐅᓴᕐᵒᓂᐊᖏᖅᕕᐅᐸ ᐃᒪᖅᑐᓂᒃ ᐱᐅᖅᑕᓂᑎᑎᖅᑎᑐᑐᖏᖅ

ᓕᐅ – ᓇᓇᑕᖏᑐᓂᒃ 25 ᓇᒪ ᐅᖅᑐᓯᵒᓂᖏᑐᑐᓂᒃ ᖁᵒᖅᔪᐊᓂᑦ ᐊᓇᓱᑦ (ᐱᖅᑐᵒᓇᒥᑦ ᐊᓇᕐᖏᖅᑎᑦᓗᑐᑑ) ᐅᔨᓗᒥᒃ ᑎᑦᑕᐅᑎᑦᑎᐊᑦ ᐊᖏᒪᓗ ᐊᐅᑎᒥᒃ ᐊᐅᐸᑭᔨᖅᑎᑎᑦᓗᑎᒃ

ᒪᐃᑌᵒ – ᐅᔨᓗᒥᒃ ᓇᐊᑦᑎᐅᔨᖅᑎᖅᑕᓂᑦ ᑕᕐᓂ ᑭᓯᐊᓂ ᐅᖅᑲᐅᓯᖏᓐᓂᒃᑐᑦ ᐊᑦᓴᓕᐅᓗᖅᑕᖅᑐᑦᑕᖅᑐᑐᑦ ᓭᓗᓭᐃᖅᓯᓭᒪᓕᑦᓗᑐ ᐅᔨᓗᑦᓗᒪᖏᑦ ᐊᖏᒪᓗ ᖁᓇᓂᒃ ᖁᑲᐅᓴᐃᵒᓇᓂᐊᖏᒪᖏᑦ ᐊᖏᒪᓗ ᑲᒪᑎᖅᑕᖅᑦᓗᑐ

ᕕᓕ – ᖁᑲᐅᓴᐅᒪᓴᐅᑦᓕ ᑕᒪᵒᓇ ᐅᔨᓗᒃ ᑲᒪᑎᐅᔨᓇᖏᓐᓂᒃ ᑐᐱᓇᓂᒃ ᐅᓐᓇᓕᑦ?

ᓕᕐᐃᐃ – ᓇᒧᑦ ᐊᓇᕐᖏᕆᖅᑦᒪᑦ?

ᒪᐃᑌᵒ – ᐊᓇᕐᖏᕆᖅᑦᑐᑐᖏᖅ ᒪᓕᵇᑐᓂ ᐊᑐᓚᐊᒥᒃ ᑕᐃᒪᵒᓇ ᐅᔨᓗᑦᓗᒧᑦ ᓇᐊᑦᑎᐅᔨᑎᖅᑎᑦᓗᑦᑐᑦ ᑕᵇძᓇᓂ ᓴᓂᕐᖏᵒᓂ ᐊᑐᓚᐊᑦ

ᒪᐃᑌᵒ – ᐱᕕᖅᓴᖅᑭᑐᓂᑦ ᐅᓪᓗᒥ ᑲᓱᓂᑲᖅᓂᓪᓚᖅᑕᑦ ᐅᖅᑲᐅᓂᓚᑐᑐ ᐅᔨᓕᓕᓚᓂᖅᑐᑐᖏᖅ ᖁᑲᐅᓪᓚᖅᑕᑦ ᑕძᓇᓕᓂᑦᑕ ᑐᓕᐅᖅᑕᕐᓗᒃᕕᒪᒥᑦ.

ᐃᓕᒍᑕᖅ ᑕ: ᑲᑎᒪᓴᐊᑎᕕᓂᕐᓂᑦ (ᐋᒃᑭᓯ 31, 2018)

ᑲᑎᒪᑎᓪᓗᑎᑦ ᐅᖃᐅᓯᑦ – ᐅᓪᓗᑐᐃᓐᓇᖅ, ᐊᑭᓱ 31, 2018 @ 11am

ᑲᑎᒪᖃᑕᐅᔪᑦ

ᐅᕙᓯᒪᔪᑦ (ᓇᓗᓴᕐᓂᓚᐅᖅᓯᑦ) – ᒪᐃᑲᓐ, ᓗ, ᐃᓐᔨᓐ, ᑕᐃᓇ, ᑲᓇ, ᓗᓄᐅᓯ, ᐃᓐ

ᐅᖃᓗᑕᐅᑎᖅᓯᑦ (ᓇᓗᓴᕐᓂᓚᐅᖅᓯᑦ) – ᓴᓂᑦ, ᑎᐊᐅᓐ

ᐅᕙᓯᒪᔪᖅ (ᖁᑭᖅᑕᓂ ᐃᓇᐃᑦ ᑲᑐᔨᖁᑎᑎᑦ): ᓕᐅᐃ;

ᐅᕙᓯᒪᔪᑦ (ᐊᖏᔪᓇᓄᑕᓂᓚᐅᖅᓯᑦ ᑲᑎᒪᔨᖓᑎᑦ): ᐃᓕᐃᔭᖅ, ᕿᓇᐃᓕᓂ, ᖃᓕᓂ, ᑯᓇ, ᓕᐅ;

ᐅᕙᓯᒪᔪᖅ (ᕼᐊᓚᒐᖅᓯᑦ): ᐳᐊᓯ

<u>ᑲᑎᒪᓪᓗᑎᑦ ᐅᖃᐅᓯᑦ</u>

ᐃᓕᐃᔭᖅ – ᑕᐃᑲᓯᒪᓂ ᐱᑎᐊᖏᒪᑕ ᐱᓕᓚᔪᑦ ᓇᓐᑦᓯ ᓇᓗᓇᐃᖅᓯᓕᐅᖅᓯᒪᔪᑦ ᓇᖅᑲᖏᓐᓄᑦᑕᖅᓯᐅᔭᓪᓗᑎᑎᑲ ᓇᓗᓇᐃᖅᑕᐅᓯᒪᔪᐃᓐᓇᖅᑎᑦ, ᓇᖅᑲᖏᓐᓄᐃᐅᔪᑦ ᓇᓇᵒᖏᐊᒥ ᖁᓕᓚᑎᔭᓐᓂᑦ ᐊᖏᓕᓇᓂᑲᑦᑐᖅᑕᐅᓯᒪᔪᑦ [ᑎᑲᔨᐊᖅᑐᓂ ᑐᓂᐅᖅᑕᐅᓯᒪᔪᓇᓇᓂᑦ], ᓇᖅᑲᖏᓐᓄᐃᓐᓇᖅᓱᑦ ᓯᓂᕈᑕᓚᐊᓂᓪ ‘ᐅᔨᐊ ᒪᔭᐅᖅ ᖁᑭᖅᑕᒃ’. ᐊᓯᐊᔪᑦᑕᐅᖅ ᐅᖃᓄᑐᓂ ᐅᒥᐊᔪᐊᓇᑦ ᐅᓯᓕᖅᓯᐃᓇᐃᖅ ᐱᐅᓯᖏᓐᓕᓕᖅᓯᒪᔪᓚᓚᐅᔭᓕᓕᖅᑐᖅ ᐊᖃᖏᑦᓯᓚᖅ.

ᒪᐃᑲᖅ – ᐱᑎᐊᖅᑎᓪᓗᐊ ᐊᖃᖏᔪᑦ ᐃᓗᐊᓂ ᐊᖏᓐᓄᐃᓐᓇᖅᑎᑦ ᓇᓗᓇᐃᖅᓯᓕᐅᖅᓯᒪᔪᑦ ᓇᖅᑲᖏᓐᓄᐃᓇᖅᐳᖅᑕᐅᓯᒪᔪᓕᐅᖅᓯᑦᓯᐅᒥᓂ ᑕᐃᓂᐅᓂ ᐃᒥᒋᓪᓂ ᐊᓚᒪᓗ ᐃᓕᓴᐲᓂᓗ ᑲᖅᑎᓂᒃᑯᖏᑦ. ᖃᓄᖅᑐᖅᑕᐅᓯᒪᔪᓂᓗ ᐊᓚᒪᓗ ᐊᓯᐊᓇᖅᓯᔨᓴᓇᖅᑐᑦ ᓇᖅᑲᖏᓐᓄᐃᓇᖅᑐᖅᑕᐅᓯᒪᔪᓂᓗ ᐊᓚᒪᓗ ᐊᓯᐊᓇᖅᓯᒪᔪᓇᖅᑐᑦ ᑭᓚᒪᓂᑦᑎᐅᓯᒪᔪᑦ. ᒥᑦᑎᒪᑕᓂᑲᒋᑲᑦᑕ ᓴᓂᒥ ᐅᖃᐅᓯᖅᑕᒪᐅᕐᓂᑦ ᐃᓯᓚᑦᑕᐅᔪᓂᓪ ᐊᓚᒪᓗ ᑐᐱᓯᑲᓕᐅᖅᓯᒪᔪᓂᓪ ᑭᓚᒪᓗ ᑐᐱᓯᑲᓕᐅᖅᓯᒪᔪᓂᓪ ᑭᓚᒪᓗ ᐅ

ᒪᐃᑌᓵ – [ᐅᓪᓗᐃᓴᖅᓯᔾᔨᖅ ᓄᓇᕗᒻᒥᐅᑉ ᐊᓂᔪᒥᑦ], ᐅᓪᓗᐃᓴᖅᓯᒍᓪᓕᕐᓂᑦᑕᖅ ᑲᒪᔨᓇᕐᓂᑦ ᑭᓯᐊᓂ ᐅᒥᐊᖏᔪᐊᖏᑎᑦᑎᓂᓵᓂᒃ, ᐊᓯᖏᑦ ᐅᒥᐊᖏᔪᐊᑦ ᐊᓯᓕᔪᑦ ᑲᒪᒋᐅᕆᓚᐊᖅᓚᒪᑦ ᐊᔨᓇᑕᐃᓇᓚᐊᓕᒃ ᓇᓂᓯᒍᓐᓇᐊᑎᓂᓪᓗᒥᑦ ᐃᓕᓴᕐᓯᒪᔪᑦ ᐊᓯᓕᔪᑦ ᐱᓕᕆᔨᒃᑲᓚᐊᖅᑐᑦ ᐃᓕᓴᕐᓯᒪᔪᑦ ᐱᒋᐊᕐᓂᒃ

ᒪᐃᑌᓵ – ᐅᑎᕈᒪᓪᓗᓐᓄ ᓴᖅᑭᑦ ᐅᖅᑲᐅᓱᒪᔪᓄᑦᓂᓄᑦ ᒥᐊᓗᓂ ᐅᒥᐊᕐᕕᖅ ᓯᓚᑦᓂᓕᕆᖅᑐᖅ ᓇᓗᓇᐃᖅᑕᐅᓯᒪᔨᑦ ᐅᓵᖅᓄᑕᐅᖅᑕᕐᓂᑦ ᐊᒪᓕᓗ ᓄᑦᑐᐊᓄᑦ ᒪᖅᔪᓂᖅ ᐃᑲᔪᖅ, ᑕᒪᓐᓇ ᐊᑐᖅᑕᐅᖅᑎᖅᑕᖅᑐᖅ ᐃᓄᓐᓄᑦ ᐃᑲᔪᑎᑐᓂᖅᓯᐊᖅᑐᑦ?

ᓇᓕ – ᐊᑕᐅᓯᐊᑐᐃᓇᓕᐅᖅᑐᖅ ᓄᓇᕗᑦᑎᓐᓂᖅ

ᒪᐃᑌᓵ – ᑭᖓᓕᓚᖅᓯᒥᒃ ᐊᐱᖅᑯᑎᑎᓴᒪᕐᓂ, ᑐᓴᓕᐅᕐᓂᑕ ᐊᖓᔪᓇᓗᑎᑦ ᐱᐅᓂᖅᖄᑦ ᖃᐅᐅᓵᒪᖅᑎᖅᑎᖅᑕᑕᖅᑕᒪᒻᒪᒪᑕ ᐃᒪᐅᓯ ᒥᐊᓗᓂ, ᐅᕙᖓᓕᓂ ᑐᓴᖅᓯᒪᓕᕐᓂᖓᓕ ᑕᒪᑐᖓ ᐊᖓᔪᓇᓗᑎᑦ ᑕᒪᓐᓇ ᐊᖓᔪᓇᓗᑐᓂᖅᓴᐅᑉᓂᑦ ᑕᑯᓇᐅᑦᓂᑦ ᑕᒪᓐᓇ ᐊᖓᔪᓇᓗᑎᑦ ᐊᑐᖅᑕᐅᔪᓇᓗᑎᒃᓴᓕᖅᑐᖅ?

ᓄᓇ – ᒥᑎᒪᒪᑕᓕᒧᑦᓕᓗ ᐱᖃᑎᖅᑎᑦ VHF ᐅᙵᕆᓪᓚᕆ ᐊᒻᒪᓗ ᐊᑐᖅᓯᖅᑎᑐᒍ 26-ᒥᑎᑎᑐᒍ, ᖃᑭᒪᑕᑎᓐᓂ ᐅᖅᑲᐅᓱᖅᑎᖅᑎᖅᑕᓕᐅᖅᑐᖅᑐᒍᑦ ᐱᐅᓂᖅᑲᖅᑎᖅᑕᐅᖅᑐᖅᑐᒍᑦ ᐱᐅᓂᖅᑲᖅᑎᖅᑕᐅᖅᑐᖅᑐᒍᑦ ᐃᓕᓴᕐᓂᖅ ᐊᑐᖅᑕᐅᔪᓂᓐᓄᑦᓂᑦ ᑕᒪᑐᒍᓐᓇ, ᐅᑭᒪᑕᑎᓐᓂ ᐅᑐᓂᖅᑐᒍᑦ ᐱᐅᓂᖅᑲᖅᑎᖅᑕᐅᖅᑐᖅᑐᒍᑦ ᐃᓕᓴᕐᓂᖅ ᐊᑐᖅᑕᐅᔪᓂᓐᓄᑦᓂᑦ ᑕᒪᑐᒍᓐᓇ ᐊᑐᖅᑕᐅᔪᓂᓐᓄᑦᓂᑦ ᐱᐅᓂᖅᑲᖅᑎᖅᑕᐅᖅᑐᖅᑐᒍᑦ ᐃᓕᓴᕐᓂᖅ

ᐊᓗᑦ – ᐱᐅᓯᖏᓪᓕᐅᑎᓂᐅᑉᓗᒋᑦ ᑐᓴᐅᒪᓂᕆᐅᑎᓪᓗᒍᑦ ᐃᓐᓇ ᒪᓕᒐᓂᒃ ᐅᖃᐅᓯᖃᕈᒪᔨᖏᑐᒃ, 1) ᑕᒃᑯᐊ ᐊᖏᔪᖅᑐᑦᓯᓚᐅᑉᐸᒃᑯᑦ ᐱᓴᓗᐊᓕᓪᓕ ᓂᐱᓕᐅᖅᖃᓴᕐᔪᐊᓘᓐᓃᑦᑐᒃ ᐅᖃᐅᓕᓚᐃᔪᒪ ᓂᐱᓕᐅᖅᑎᑕᐃᓐᓇᖅᑐᓂᐊᖅᑐᒥ, ᐊᒻᒪᓗ 2)ᖃᐅᐸᒪᐊᖅᑎᑐᖏᑲ ᕈᓗ ᒃᒪᓕᒍᓗᑕᐅᓪᓚᑦᓯᓚ ᒥᑎᒪᒋᓕᓪᒥ ᑐᓴᐅᒪᓂᖅᑎᓯᖅᑕᐃᓐᓇᖅᑐᓂᐊᖅᑐᓂᓗ ᐱᖓᒋᐊᓂᖏᓐᓄᑦ ᐊᐅᓚᖅ

ᓕᖅᐃᐃ –

ᒪᐃᑕᵒ – ᐳᐊᓱ, ᖃᐅᐸᒪᓚᕐᑦ ᕈᓗ ᒃᒪᓕᒍᓗᑕᐅᓪᓚᑦᓯᓚ ᐅᒥᐊᖏᐊᒃᑯᑦ ᑎᑭᕿᕿᑐᑐᒍᒃ ᓄᓇᓕᖅᓄᑦ

ᐳᐊᓱ – ᕼᐊᓪᓕᒃᑯᑦ ᒃᑎᒪᓴᖅᑎᑦ ᐅᖃᒃᑕᓕᐅᓱᖃᖅᑎᑕᖃᖅᓱᒪᓕᐊᑦ ᖃᓄᖅ ᒃᒪᑎᕆᐅᐊᖅᓇᖏᓪᓕᒪᓂᑕ ᑕᒃᑯᐊ ᖃᒃᓄᐃᒍᑎᑎᐅᓕᐅᖅᑐᒍᖅ, ᐅᖃᒃᐅᓱᖃᓗᐊᕈᑲᖅᓇᒪᓇᒪᓕᒪ ᐃᓐᓇ, ᐱᐊᖅᓇᖅᑎᖃᕆᒪ ᕈᓱᐊᓂ ᐅᑎᕈᒪ ᒥᕐᑎᒪᒋᑕᓕᒪᒍᑦ

[ᒃᑎᒪᓂᖅ ᐃᓱᓕᐸᖅ, ᓇᐃᐧᐊᖅᓱᒪᓕᐊᑦ ᐱᓕᓚᐊᐳᕆᓂᒃ ᐊᒻᒪᓗ ᖁᔭᖅᓇᒋᖅᑐᑎᒃ]

ᒪᐃᑕᵒ – ᓄᓗᑦᑕᓚᓴᒃᑯᑦ ᑕᑯᓇᔪᖅᓇᖅᑐᑦ ᓴᓇᕈᐊᖅᑕᐅᒃᖅᓂᖅᓂᖓᓂᒃ ᐊᒻᒪᓗ ᓅᑕᐅᓂᖓᓂᒃ ᐊᖏᔪᖅᑐᑎᓪᓚᑦᓯᓚᑦᑕᓕᒪᒍᑦ ᐃᓕᓗᑎᒋᓪᓗᒍᑦ ᓴᐳᖅᓯᒪᓂᖅ

ᕕᓕ – [ᑎᑎᕋᐅᓴᖅᑐᖅ ᐃᓂᒃᓴᐅᑎᐸᐅᔨᓂᒃ ᐊᒻᒪᓗ ᓇᓗᓇᐃᓴᐅᓴᐅᖅᖅ IMG_0061]

ᐃᓕᒍᑕᖅ D: ᓄᓇᓄᑦ ᐳᓂᓚᐊᖅᓱᒪᑎᑦᓗᑎᑦ ᐊᑦᔨᵒᖏᐊᑦ

ᐊᕆᓵᖅᓯᐊᖅ 1: ᓄᓇᓕᓂ ᑭᓱᖏᑐᐃᓵᖅᑎᓂ ᐊᓪᓚᓗ ᓄᓖᑦᓕᓪᓕᕆᔨᖅᑕᓂ ᐃᖅᑲᓇᐃᔨᖅᑎᓂᒃᑯᓂ ᓄᓖᑦᓂ ᐱᓕᕆᖕᒪᑦᓯᐊᓖᑦᓯ

ᐊᕆᓵᖅᓯᐊᖅ 2: ᓄᓇᓕᓂ ᑭᓱᖏᑐᐃᓵᖅᑎᓂ ᓄᓖᑦᓂ ᐃᓕᓴᕐᓂᒃ ᐊᖏᓚᑲᓕᕆᔨᖅᑕᓂ

ᐊᓕᓐᓂᕐᒪᐊᖅ 3: ᖃᐅᔨᓴᓂᓕᒃ ᑐᓴᕐᒥᒃ ᖃᐅᔨᓴᒪᓐᓇᓕᕆᔨᖅᑐᑦᑕᕐᓗᒍᒃ

ᐊᓕᓐᓂᕐᒪᐊᖅ 4: ᖃᓄᖅᑭᐅᓂᓕᒃ ᐅᒥᐊᓕᐊᒪᓪᓚ ᐅᓱᓪᓗᑎᐊᒍᓐᓃᒃ ᐊᐅᓪᓚᑕᐅᖅᑐᑦᑕᕐᓂᓚᕆᓕᒃᓂᒃ ᖃᓂᓕᒃᓂᐊᓂ

ᐊᕆᓚᐅᒍᐊᖅ 5: ᖃᑎᖅᑕᕆᔨᓂᖏᑐ ᐊᑐᓕᐊᔪᓂ ᐃᑲᐃᐅᓯᖅ KM 90–Γ

ᐊᕆᓚᐅᒍᐊᖅ 6: ᐊᖅᑯᑎᔪᓂ ᐃᑲᓕᐊᖏᑐ KM 90–Γ ᐊᖅᑯᑎ ᓴᓇᕆᐅᐊᕐᑎᐊᐊᓪᓚᑦᓂᓕᐊᖅᑐᓄ ᑭᖏᓂᐊᒍᓂ ᐳᓪᕎᖅᓂᐅᕆᐸ

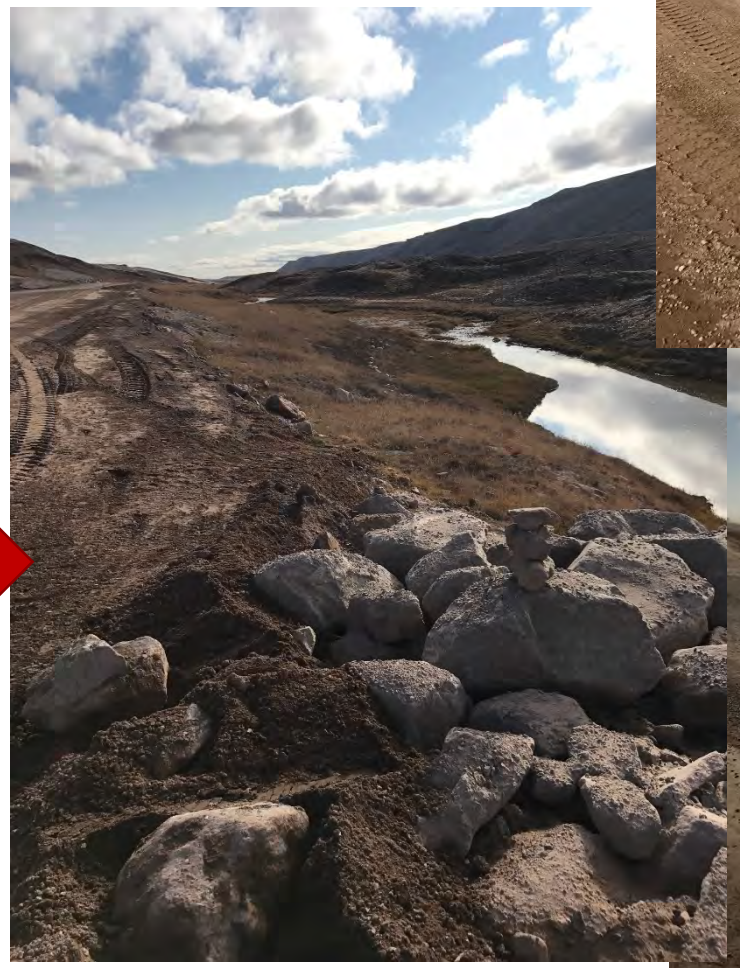
August 30/31,2018

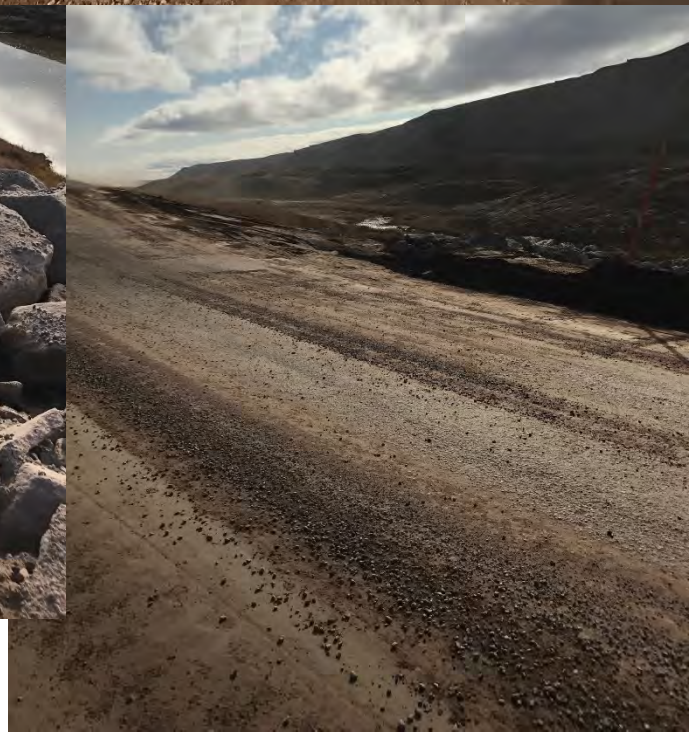
- Qujannamiik!

Baffinland

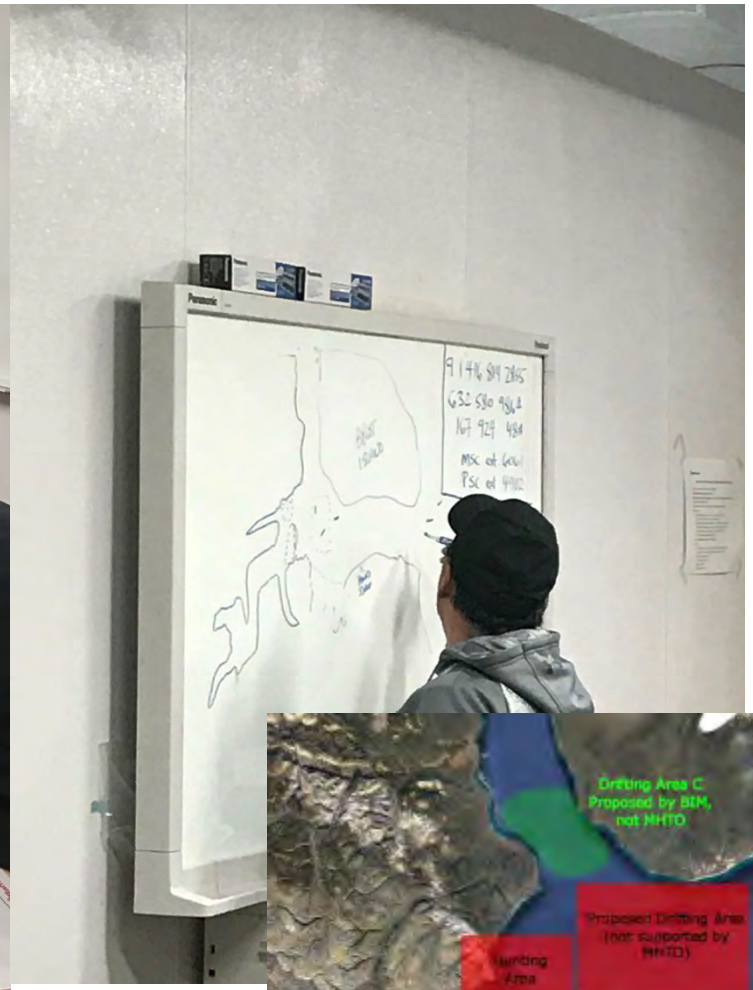
Baffinland

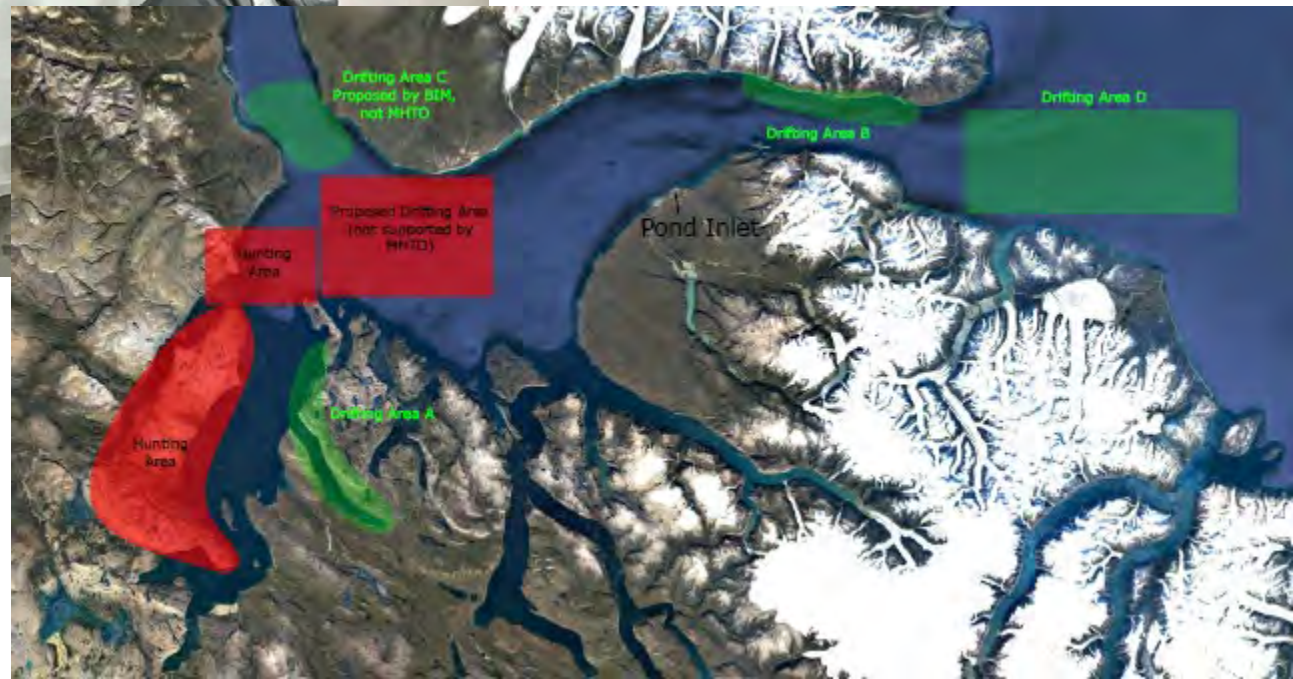
Km 90



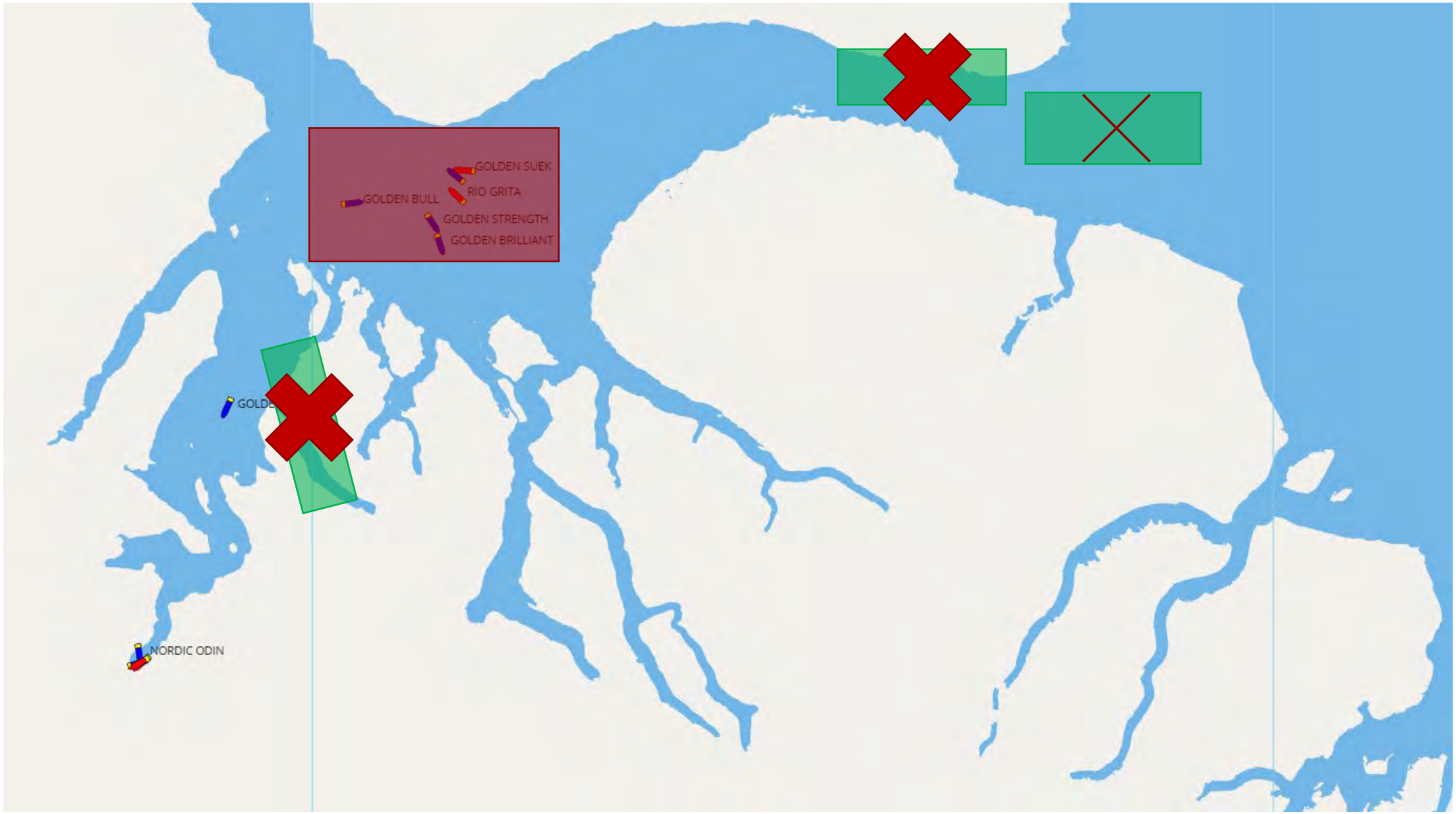


Baffinland




Drifting Area C
Proposed by BIM,
not NHTO
Drifting Area D
Drifting Area B
Proposed Drifting Area
(not supported by
NHTO)
Pond Inlet
Hunting
Area
Drifting Area A
Hunting
Area

Baffinland


GOLDEN SUEK
RIO GRITA
GOLDEN BULL
GOLDEN STRENGTH
GOLDEN BRILLIANT
NORDIC ODIN

Baffinland

Baffinland

Next Steps

- November AGM
- HTO cabins (Winter and Summer 2019)
- Areas off Tote Road (QIA)
- Tote road crossing procedure
- Shipping communication procedure

Baffinland