

General Comments					
Cmt. #	Document File Name	Section	Page	QIA Comment / Supporting Text	QIA Recommendation to Resolve Issue
1	AR 2016	PC 10 and PC 25-75		This report repeats many of the assumptions and conclusions made in previous reports. Generally the text overstates the certainty that there are no project related effects. There are many shortcomings in design related mostly to small sample sizes and not sampling sites most	The Proponent can greatly improve study design and the ability to detect project effects by putting more resources into the terrestrial monitoring program and increasing collaboration with the GN and HTOs.
2	AR 2017	Section 4.3 Examples: PCC 52, PC 70	p.27	In multiple cases BIM is reporting being in compliance when the PC is N/A in 2017. This artificially inflates the percentage of PCC compliance.	When a project condition is "not applicable", report it as such, for example for deterring caribou from hazardous areas. If there are no caribou to deter and BIM has not initiated deterrence then the PC Compliance is N/A.
3	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	General	n/a	File names are different for the same files on the NIRB Public Registry and the BIMC Document Portal. For example, the main Annual Report file on the Public registry is named "180403-08MN053-2017 Annual Report-IAZE.pdf" (i.e., follows NIRB's file naming convention), and the file on the BIMC Document Portal is named "2017-nirb-annual-report-final-as-sent2_2018-16-27-08.pdf". This could lead to confusion (e.g., tracking review comments from other agencies) depending on which source file reviewers use.	QIA recommends that the files on the BIMC Document Portal be given the same file names as those on the NIRB Public Registry, to eliminate any possible confusion.
4	General	General (and 1.4.2 Supporting Documents and Appendices, 4.4 PERFORMANCE ON GENERAL	n/a (and Intro p. 6, Section 4 p. 29)	Many of the links on the BIMC Document Portal were not working (get a "Forbidden" error message) when QIA checked in early April, 2018. This was the case for some of the Annual Report appendices plus other files (some monitoring reports, management plans, etc.). The accessibility of these reports is a requirement for Project Condition no. 12.	QIA recommends that the Proponent carefully check and ensure that all files are available on the BIMC Document Portal.
5	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	Popular Summary	p. 7	The Annual Report states that "A key part of Baffinland's monitoring programs is to ensure that Inuit Traditional Knowledge is incorporated with scientific studies and that Inuit participation in the programs is included." The Proponent has been effective at ensuring Inuit participation in marine monitoring programs, but it is not clear how Inuit Traditional Knowledge is incorporated with scientific studies in these monitoring programs. The Popular Summary also does not include any information on Inuit participation in terrestrial and	QIA recommends that the Proponent provide examples of how Inuit Traditional Knowledge is incorporated into these monitoring programs, and provide information on Inuit involvement in freshwater and terrestrial monitoring programs.
6	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	Popular Summary	p. 9	The Annual Report indicates that ore was shipped from Milne Port "to markets in Germany, the United Kingdom, and Japan." The shipment(s) to Japanese markets presumably went through the Panama Canal or Cape Horn, and not the Northwest Passage. Is this correct?	QIA recommends that the Proponent confirm the shipping route used for the ore shipment(s) to Japan.
7	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	Section 1 - Introduction	p. 3	Table 1.1 - Permit Registry summarizes the permits, licences, approvals, authorizations and agreements the ERP is conducted under, and the report text notes that "Baffinland's contractors and consultants undertake various activities on the Project under additional permits in the areas of scientific research, archaeology, and explosives manufacture, storage and use." The inclusion of all these various permits (E.g. NRI research permits, DFO License to Fish) would provide a more complete summary of the permitting structure for the Project.	QIA recommends that the Proponent add another table to the Annual Report summarizing the various permits secured for monitoring, mitigation, etc.
8	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	2.2 ENGAGEMENT OBJECTIVES	p. 7	The Stakeholder Engagement Action Plan (SEAP) appears to be missing or is not located on BIMC Document Portal.	QIA recommends that the Proponent add the SEAP to the BIMC Document Portal. At the time of filing, the "Stakeholder Engagement" section of the portal is empty.
9	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	2.6.1 Terrestrial and Marine Environment Working Groups	p. 14	The report states that "A critical focus of the EWG and MWG in 2017 was enhancing the process for distributing monitoring reports to the working groups and for receiving their feedback. Subsequently, a schedule for distribution of reports and an associated comment period the Working Groups review was developed. This schedule and process will be implemented in 2018, to the extent practicable." Deadlines are being missed due to delays in analyses, and considerably more effort is needed to ensure timely reporting.	QIA recommends that the Proponent and their consultants carefully consider the established schedule and ensure that timelines can be met, and if not, inform reviewers as soon as possible with an updated target date.

10	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 33	The Stakeholder Feedback section only includes observations/reports from communities. What about comments from other stakeholders, regulators, etc? Comments and questions on these conditions have been raised in previous Annual Reports, for example.	QJA recommends that the Proponent provide a summary of the feedback on these Project Conditions that has been provided by other reviewers, not just community members.
11	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 33	Under the Monitoring Activities sub-section, the Report states that "Baffinland operates two meteorological stations, and this information is made publicly available on its website and through The Weather Network." The Baffinland.com website only reports predicted weather conditions for the day. These weather data do not reflect current conditions at site, nor a forecast beyond 12 hours. Nor is it known which of the two locations the data refer to. It is not clear if weather data are archived, or how one could view archived data or weather averages. QJA notes that some weather data are available through The Weather Network at the "Mary River" location, which includes current conditions and a short-term forecast. No archive link was found.	QJA recommends that the Proponent provide additional details on how weather data are archived and reported, and how the use of two meteorological stations allows for effective monitoring of climate change impacts. QJA also recommends embedding current weather conditions and the short-term forecast for Mary River, available from The Weather Network, into BIM's homepage.
12	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 33	The 2016 annual report stated that "Baffinland is developing a Climate Change Strategy, which the company aims to implement in 2017." The 2017 report says "Baffinland is in the process of developing a Climate Change Strategy." Why was the strategy not implemented in 2017? What caused this delay?	QJA recommends that the Proponent provide additional details on the progress it has made in developing a Climate Change Strategy, and explain why the implementation of the strategy has been delayed or deferred the past 2 years.
13	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 33	Table 4.4 Climate Impact Evaluation indicates that GHG, SO <sub>2</sub> , and NO <sub>2</sub> emissions are within FEIS predictions, but no data are provided. Where are these results reported?	QJA recommends that the Proponent provide information on where these data are reported.
14	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 33	In the report, the Proponent indicates that they "will continue to conduct monitoring activities and develop initiatives to ensure any impacts that the Project may have on the climate are measured to the extent possible." The current monitoring (two meteorological stations) does not provide the full complement of information needed to monitor climate change, and furthermore, measuring impacts isn't enough, as mitigation is also required.	QJA recommends that the Proponent provide additional information on how climate change impacts are to be monitored, and describe how impacts can/will be mitigated should they occur.
15	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 36	The Proponent is not in compliance with Project Certificate Condition No. 2 due to outstanding climate change plan. The report states that "Baffinland will prepare a Climate Change Assessment as part of the Proponent's submission for the Phase 2 Expansion Project." The Terms & Conditions in the Project Certificate apply to the <u>existing Project</u> , and should not be deferred to future Project plans or modifications. The report also reiterates that "Baffinland is also in the process of developing a Climate Change Strategy for the Project". As	QJA recommends that NIRB determine whether or not the Proponent is in compliance with this Project Condition and whether or not efforts toward compliance with the current Project Certificate, such as the Climate Change Strategy, can be deferred to the Phase 2 application. QJA also recommends that the Proponent provide an update re: timelines for the development and implementation of the Climate Change Strategy.
16	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 37	Project Certificate Condition No. 3 requires that "[t]he Proponent shall provide interested parties with evidence of continued initiatives undertaken to reduce greenhouse gas emissions." The Proponent considers this condition to be "Not Applicable", but it is most certainly applicable and thus should be changed to "Non-Compliant". Folding this requirement into the twice deferred Climate Change Strategy is not effective for monitoring or mitigation.	QJA recommends that the Proponent report on evidence of continued initiatives undertaken to reduce greenhouse gas emissions, or explain why this is not being done.
17	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 38	For Project Certificate Condition No. 4, deferring existing conditions to Phase 2 means Non-Compliance. How is IQ being incorporated into climate-change related studies and research and the development of the Climate Change Strategy?	QJA recommends that the Proponent justify their reasons for deferring required information to a (potential) future Project phase, and provide a detailed explanation of how IQ is being or will be incorporated into climate-change related studies and research and the development of the Climate Change Strategy.
18	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.1 Meteorology and Climate (PC Conditions 1 through 6)	p. 39	For Project Certificate Condition No. 5, reporting the current temperature on the BIMC website doesn't make "weather-related information for the various Project sites... readily accessible to the public on a continual basis". Where are these data archived and how can the data be accessed? QJA views the Proponent's performance on this PCC as Partially-Compliant. See comment 11.	QJA recommends that the Proponent provide additional details on the weather information reporting, including acces to archived data and a schedule to bring this condition into compliance.

19	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.2 Air Quality (PC Conditions 7 through 12)	p. 41	Table 4.6 Air Quality Impact Evaluation indicates that continuous NO2 and SO2 monitoring was conducted at Milne Port from March to December, and at the Mine Site in November and December. Why was this monitoring not conducted on a year round basis?	QIA recommends that the Proponent provide justification for not conducting these monitoring activities on a year-round basis.
20	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.2 Air Quality (PC Conditions 7 through 12)	p. 43	Project Certificate Condition No. 7 requires "continuous monitoring at land-based monitoring stations designed to capture operations phase ship-generated SO2 and NO2 emissions" at the port site(s). What are the sources of emissions besides vessels (e.g. power generation, heavy equipment, etc.)? How does the monitoring program separate ship-based emissions from other sources (e.g. power generation, heavy equipment, etc.)? We note that QIA raised similar issues during the review of the 2016 Annual Report.	QIA recommends that the Proponent clarify the sources of emissions and explain how the monitoring program can separate vessel-based emissions from other emissions sources, if applicable.
21	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.2 Air Quality (PC Conditions 7 through 12)	pp. 45-46	For Project Certificate Condition No. 8, the gap in monitoring is contrary to the spirit of the condition, and QIA is therefore pleased to see it reinstated. This monitoring should continue for the life of the Project given the wording of the condition.	QIA recommends that the Proponent commit to monitoring SO2 and NO2 emissions for the life of the Project.
22	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	4.6.2 Air Quality (PC Conditions 7 through 12)	p. 47	For Project Certificate Condition No. 9, how are the Project's annual GHG emissions distributed among the various Project components? What is the vessel contribution at Milne port, for example? We note that QIA raised similar issues during the review of the 2016 Annual Report.	QIA recommends that the Proponent provide detailed information on how annual GHG emissions are distributed among the various Project components.
23	Appendix A - 2017 Status of PC Conditions, Appendix H -	Throughout	N/A	The review was made more time consuming and difficult given the dozens of cross reference errors between the PC condition numbers in Appendix A - 2017 Status of PC Conditions and the Proponent Commitment numbers in Appendix H - Proponent Commitments 2017. QIA had to resolve these discrepancies in an internal spreadsheet used to track the review.	QIA recommends that the Proponent carefully check and ensure that concordance table cross references are correct prior to filing.

Marine & Aquatic Environment Comments					
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1	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.1 Meteorology and Climate	34-35 (see also 204)	Project Certificate Condition No. 1 (see also Marine Environment PCC 83) speaks to monitoring the relative sea levels and storm surges at the port sites, and the Proponent reported that "[a] continuous time-series of water level, temperature, and conductivity data was collected from July 20 to October 17, 2017." Where are these data reported?	QIA recommends that the Proponent clarify where these data are reported.
2	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.1 Meteorology and Climate	35	The report states that "collection of site-specific geodetic elevation data would be required" along with "site-specific measurements of wind and barometric pressure" to support trends analysis of local relative sea level and conduct more in-depth tidal analysis in relation to ballast water discharges. Is the Proponent planning to do this?	QIA recommends that the Proponent confirm whether or not these additional monitoring activities will be undertaken moving forward.
3	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.1 Meteorology and Climate	40	For Project Certificate Condition No. 6, are vessel emissions included? What is the breakdown of vessel-based to other?	QIA recommends that the Proponent clarify whether or not vessel emissions are included in these calculations, and provide a summary of the different contributors.
4	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.3 Noise & vibration	53 (see also 57, 121, 131, 275, 276, 277)	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 or 2017 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.
5	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.3 Noise & vibration	52 (Table 4.8)	Increasing truck traffic may increase underwater noise and vibrations and thereby affect fish passage through culverts beneath the Tote Road. The effects of this interaction on seasonal movements has not been studied and the Proponent hopes to further increase truck traffic in the future.	QIA recommends that the Proponent measure underwater noise generated by truck traffic at representative culverts to determine whether noise levels might interfere with seasonal fish movements.

6	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.5 Groundwater & surface water	74-76	<p>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 2018c). Based on larval catches and comparison with the Reference Lake, Minnow Environmental Inc. (Baffinland 2018c) has suggested current levels of sediment deposition in Sheardown Lake are not adversely affecting hatch success. Unfortunately, pre-development baseline data are not available to support or refute this suggestion. Collection of seasonal sediment bulk density data are needed to enable accurate estimation of annual sediment accumulation thickness, which are currently derived using bulk density data collected at temperate latitudes (Baffinland 2018c, pgs. 9 and 12). 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, which incubate over the winter, or on local sediment. Fine sediment (silt) can cause egg mortality at thicknesses of &lt; 1 mm, and at 1 mm can effectively smother salmonid eggs causing high mortality (Lapointe et al. 2004; Louhi et al. 2008). The sensitivity of Arctic char eggs to further increases in dustfall, and thereby sedimentation, is also uncertain. Better information is needed on the effects of local sediment deposition on survival of Arctic char eggs and larvae. QIA views the Proponent's performance on this PCC as Partially-Compliant.</p>	QIA supports Minnow Environmental's (Baffinland 2018c) recommendation that further studies be conducted at Sheardown Lake to establish the actual depth of sediment deposition, and further recommends that a meaningful sedimentation threshold be established based on mortality rates of Arctic char eggs exposed to project-generated dust sediment.
7	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; Baffinland. 2017. Fish habitat monitoring 2017 annual report early revenue phase – tote road upgrades. December 31.	4.6.5 Groundwater & surface water	74-76 (see also 48-49)	<p>In 2017, also related to Project Certificate Condition 21 (see also PCC 10), annual terrestrial dustfall exceeded the predicted threshold levels at all but one of the monitoring sites at Milne Port and within 30 m and 1000 m on either side of the Tote Road (Table 4.6; pg. 41; see also EDI 2018, pgs. 13-30). These exceedances occurred despite dust suppression efforts using applications of water and calcium carbonate, and suggest modeling predictions have badly underestimated dustfall. 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. Parks Canada (2018) has recommended establishment of a water quality monitoring site in Phillips Creek. Adaptive management measures for monitoring effects of increased dustfall, as required under PCC 10, have not been identified for affected aquatic environments.</p>	QIA recommends that the Proponent establish long-term monitoring sites to assess impacts on the water quality, sediment deposition, and biota at a representative fish-bearing stream and lake along the Tote Road, at a site near the mouth of the Phillips Creek (also supported by Parks Canada 2018), and in the marine environment downstream of the creek outlet. Dustfall modelling should be revised and used to reassess potential impacts on affected aquatic environments, and to inform adaptive management.
8	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.5 Groundwater & surface water	74-76	<p>The objective of Project Certificate Condition 21 is to mitigate impacts to surface and ground waters. To address its requirements the the Proponent chaired a November 2017 freshwater workshop in Iqaluit to further discuss and justify the proposed changes to the Core Receiving Environment Management Plan (CREMP) outlined in Revision 2 of Aquatic Environmental Effects Management Plan (AEMP). Workshop participants included representatives of the NWB, QIA, INAC, GN and ECCC. The Proponent plans to incorporate discussion points into Revision 2 of the AEMP before submitting it to the NWB for final review and approval in 2018. The approved version will then be provided to NIRB.</p>	QIA recommends that the Proponent circulate a summary document of the outcomes of the Freshwater Workshop from Nov. 2017. See also Comments on 48a.
9	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.5 Groundwater & surface water	77, 120	<p>Regarding PCC 22 (see also 43), Dustfall-related sedimentation into aquatic environments does not seem to have been covered in the SWAEMP. There are some sediment control measures related to culverts and water quality testing, but these do not provide information on the quantity of dust entering the aquatic environment or its effects. So, the SWAEMP should be updated. More information is required for QIA to assess the Proponent's performance on these PCCs.</p>	QIA recommends that the Proponent provide additional details regarding the updating the SWAEMP to include dustfall-related sedimentation and associated impact predictions.

10	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.7 Freshwater Environment	114	"Sheardown Lake Tributary 12 presented differences in benthic invertebrate community structure that could be definitively linked to a mine-related influence. At this tributary, changes in the benthic invertebrate community assemblage relative to reference conditions and baseline studies appeared to be related to potential flow reduction and/or sedimentation."	QIA requests clarification from the Proponent on what measures are being employed to restore flow and prevent sedimentation.
11	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.7 Freshwater Environment	114	Readers were referred to Section 4.5.5, which is not in the 2017 Annual Report.	QIA requests that the correct Section reference be provided.
12	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.7 Freshwater environment	118-119	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 2017 the Proponent found instances of development within 30 m of a water body and responsible departments were actioned to address these issues.	QIA 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 of development within 30 m of a water body.
13	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; Baffinland. 2017. Fish Habitat Monitoring 2017 Annual Report Early Revenue Phase –Tote Road Upgrades. December 31.	4.6.7 Freshwater Environment	122-125 (see also 129-130, 113-115)	The objective of Project Certificate Condition 45 (see also 19, 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). During a survey in early July 2017, issues with fish passage and/or habitat were observed at 12 crossings. Ten of these crossings were actively worked on in 2017 and work is planned to continue in 2018 (pg. 113-115; see also Baffinland 2017). Culvert perching in 2017 exceeded FEIS impact predictions (Table 4.16; pg. 114). Shipping containers were removed from stream crossing BG-50 in November 2016 but the culvert was perched in 2017 and requires additional remediation and monitoring (Baffinland 2017). 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 views the Proponent's performance on this PCC as Partially-Compliant	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.
14	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.7 Freshwater environment	122-125 (see also 129-130, 269-272, 274)	Also related to Project Certificate Condition No. 45 (see also 47, 113, 115) and the No-Net-Loss principle, the Proponent has constructed offsetting habitat at the Milne Ore Dock, under DFO Authorization (see also Marine PCC 113 and 115). In 2017, monitoring of artificial habitat at the Ore Dock found it was being used by a variety of taxa, some in large numbers (Golder 2017). This is a positive result but the extent to which use of this habitat offsets loss of natural habitat has not been addressed.	QIA recommends that the extent to which use of the artificial habitat at the ore dock offsets the loss of natural habitat be assessed. Use of artificial habitat at the dock should be monitored until its value relative to lost habitat is understood and the two can be compared.
15	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.7 Freshwater environment	126-128 (see also 64-67 and 80-82)	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 2017, batch treatment of the waste rock facility surface water management pond (WRF pond) using calcium carbonate was initially successful in raising the pH of runoff contained with the pond, but subsequent discharges in late August and September resulted in exceedances of the MMER and Type A Water Licence discharge criteria for pH and total suspended solids (TSS) (pg. 65; see also Baffinland 2018a,b). It is not clear why water was released when it exceeded the discharge guidelines. Preliminary mitigation measures planned by the Proponent for 2018 include the mobilization of a water treatment system to manage potential non-compliant waters in the WRF pond during 2018.	QIA requests that the Proponent clarify why the exceedances were allowed to occur, and whether treatment management will be in place in time to avoid a similar problem in 2018.

16	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; Baffinland (2017d)	4.6.7 Freshwater environment	132-133	The objective of Project Certificate Condition 48a is to determine presence and health of Arctic char in freshwater aquatic habitat. More information is required for QIA to assess the Proponent's performance on this PCC. Natural differences in the limnology of freshwater reference sites (control) relative to sites monitored for Project-related environmental effects (impact) sometimes limit the value of these "control-impact" analyses. For example, in August 2017, similar fishing efforts caught 96 Arctic char in the littoral/profundal zone of Camp Lake and only 2 in that of Reference Lake 3, precluding use of control-impact analysis for the determination of mine-related effects (Baffinland 2018b, pg. 81). In the Mary River, differences in char abundance were likely related to natural differences in habitat that prevented similar access at the control and impact sites (Baffinland 2018d, pg.42). These natural differences increase the importance of maintaining a reliable, uninterrupted temporal data record from the effects monitoring sites, and the importance of ensuring that sample sizes are sufficient for meaningful "before-after" comparisons, whether it be for Arctic char or other metrics.	QIA recommends that where control-impact analyses are not meaningful the Proponent and Regulators ensure that sampling effort is sufficient, at key sites and for key taxa and/or parameters, to provide a meaningful, uninterrupted temporal data record.
17	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; Baffinland (2017d)	4.6.7 Freshwater environment	132-133	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. NIRB requested that the Proponent provide information on how it is meeting Condition 48(a) and implementing monitoring of Arctic char health in areas affected by the Project, including a discussion of how this monitoring would be informed through consultation with the Mittimatalik Hunters and Trappers Organization (Appendix E, NIRB Recommendation 11). To address this recommendation, the Proponent chaired a November 2017 freshwater workshop in Iqaluit to further discuss and justify the proposed changes to the Core Receiving Environment Management Plan (CREMP) outlined in Revision 2 of Aquatic Environmental Effects Management Plan (AEMP). Workshop participants included representatives of the NWB, QIA, INAC, GN and ECCC. The Proponent plans to incorporate discussion points into Revision 2 of the AEMP before submitting it to the NWB for final review and approval in 2018. The approved version will then be provided to NIRB.	QIA requests that the Proponent provide clarification regarding the outcomes of this workshop and their implementation status for the 2018 open water season. QIA recommends providing: 1) outcomes of the 2017 freshwater workshop in Iqaluit, and 2) info on electrofishing catches at Tote Road crossings (see PCC 21).
18	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; Baffinland (2017d)	4.6.7 Freshwater environment	132-133	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 2017 is unclear.	QIA requests clarification regarding the electrofishing effort and catches at stream crossings along the Tote Road.
19	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial wildlife & Habitat	152-155	Project Certificate Condition 57, Figure 4.8 on page 154 shows days without truck traffic in 2017, but Figure 4.9 on page 155 has "whiskers" that show minimum traffic value of ca. 95 vehicles for 2017.	QIA recommends that the Proponent clarify what the "whiskers" in Figure 4.9 are meant to illustrate.
20	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.9 Birds (PC Conditions 65 through 75)	186-190	Project Certificate Condition No. 74 requires the Proponent to "continue to develop and update relevant monitoring and management plans for migratory birds... this plan will include... seabird migration and wintering...". There is no mention in the Annual Report summary of marine-based monitoring and mitigation for birds. For example, a variety of terrestrial monitoring and mitigation reports are listed for the "Reference" material (and the Proponent is doing effective monitoring of some species like raptors), but relevant marine reports (e.g., Shipping and Marine Wildlife Management Plan, SMWMP) are not listed. Is the necessary information for monitoring and management of seabird migration and wintering included in the SMWMP or in a different management plan? QIA is encouraged to see that the Proponent will continue to support marine bird research conducted by ECCC, but these studies may not be providing all the information needed re: seabird migration and wintering. Similarly, shoreline and staging surveys are not providing information on seabird migration and wintering. QIA notes that this is less of an issue than it would be if winter shipping were occurring, but nonetheless this information is required as per the Project Condition.	QIA recommends that the Proponent confirm whether the SMWMP or another relevant document contains the required information on "seabird migration and wintering" to be fully in compliance with this Project Condition.

21	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.10 Marine Environment	193	The reference to Section 4.5.11 should be 4.6.11 (Marine Mammals).	QIA recommends that the Proponent carefully review all section references in future reports to ensure that said references are correct.
22	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	193	In the Aquatic Invasive species bullet, "benthic infauna" has been repeated twice.	Please clarify whether this is a duplication or whether it should read benthic infauna and benthic epifauna
23	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	195-196	The objective of Project Certificate Condition 76 (pg. 195), is to mitigate potential impacts to the marine environment. To meet this condition the Proponent has developed a marine environmental effects monitoring program (MEEMP) to evaluate changes to marine habitat and organisms. In 2017, changes to the methods used for monitoring included, for example: 1) the collection of duplicate samples at 10% of the water quality stations each trip; and 2) use of single rather replicate video transits for macroflora and benthic epifauna, with a larger portion analyzed and species identified but not enumerated. The Proponent is considering further changes in 2018, such as: 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, whereby fishing efforts will occur weekly but not daily for the duration of the MEEMP; and 5) use of genetic analyses for larval fish species identification (Parks Canada 2018; QIA 2018). Golder (2018: pg. 71) has suggested continuing the collection of macroflora data in 2018 in the same manner as 2017, for generalized additive modeling (GAM) to improve understanding of annual changes in macroflora coverage in the study area. While these changes are generally positive, further changes should be carefully considered to ensure they strengthen, rather than weaken, the ability to detect project-related impacts.	QIA recommends that the Proponent and MEWG: 1) consider triplicate rather than duplicate water quality samples at key monitoring sites to make it easier to identify errors and outliers and avoid gaps in the temporal record; 2) consider monitoring shellfish weight and length relationships, and gather shellfish age data for monitoring growth rates and to correlate with condition and body burden data; 3) consider establishing long-term monitoring plots along existing radial transects to monitor effects on macroflora, benthic epifauna, and benthic infauna; and 4) extend the duration of the fish sampling program and increase sampling effort. QIA supports continuation of the video transects for macroflora and benthic epifauna for use in the GAM, and archiving of the videos for possible future use.
24	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.10 Marine Environment	197-198	PCC 77: The Proponent states that, "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 current monitoring program has several weaknesses that have been periodically raised at the MEWG and have not been adequately addressed. For example, delays in monitoring program reporting that prevent adjustments to the program prior to the next field season.	The MEWG provides a forum to discuss monitoring programs, however, the MEWG is does not have oversight or final authority. QIA recommends that the Proponent develop a concordance table of issues/suggestions raised at technical working group meetings, and whether these recommendations have been acted upon, and to what degree. This would form part of the Annual Report.
25	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.10 Marine Environment	197-198	The Proponent's reporting on Project Certificate Condition No. 77 (see also 76) confuses the MEWG and TEWG ("The 2017 Terrestrial Environmental Effects Monitoring Report was distributed to the TEWG for review and comment two (2) weeks prior to the November 30, 2017 MEWG meeting.").	QIA recommends that the Proponent clarify the report, working group, and dates reported.

26	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	199	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 Project Condition. Periodic updates (2011, 2015) are not annual updates. This information is of particular value now with the Proponent's use of ice-management vessels during the shoulder seasons. In the absence of annual updates, QIA views the Proponent's performance on this PCC as Non-Compliant.	QIA recommends that the Proponent update the sea ice data set annually, as required for this Project Condition.
27	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.10 Marine Environment	201	Project Certificate Condition No. 80 states that "a detailed risk assessment for Project-related shipping accidents" is to be done "[p]rior to commercial shipping of iron ore". This Project Condition was never limited to ice-breaking or shipping through Steensby port, and as such QIA views the Proponent's performance on this PCC as Non-Compliant (versus "Not Applicable").	QIA recommends that the Proponent conduct the detailed risk assessment for Project-related shipping accidents along the Northern shipping route, and recommends that NIRB clarify the intent of this Project Condition.
28	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	204-205 (see also 34-35)	Project Certificate Condition 83 (see also Meteorology and Climate PCC 1) requires the Proponent to install a tidal gauge at Milne Port to monitor the relative sea levels and storm surges. After an hiatus of 2 years the Proponent reinstalled a tidal gauge in 2017, and operated it over the open water period. It plans to do the same in 2018. Tidal monitoring is one of the tools used to assess possible effects of climate change on the Project. In 2017, fluctuations in temperature and salinity of the seawater were observed that occurred out of phase with the tidal cycle, suggesting the presence of internal waves driven by wind events or the presence of local discharges of ballast water from ships using the port while loading ore.	QIA requests that Baffinland clarify how seasonal operation and lack of geodetic data might affect climate impact assessment and recommends that Baffinland examine whether the observed fluctuations are correlated with ballast water discharges.
29	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	206-209	Project Certificate Condition 83a requires the Proponent conduct hydrodynamic modelling in the Milne Inlet Port area to determine the potential impacts arising from disturbance to sediments including re-suspension and subsequent transport and deposition of sediment. The required modelling has not been completed but the Proponent has engaged Golder Associates to do the work. Sampling in 2017 suggested there was a significant increase in the percentage of fine sediment at far-field sampling stations (500 m, 1,000 m, and 1,500 m) along the West Transect from 2014 to 2017 (Golder 2018, pg. 109). The Proponent suggests this change could be associated with alluvial depositions from Phillips Creek. Alternatively, it might be associated with marine shipping or port infrastructure. The Proponent has identified various adaptive management measures that could be applied if sediment redistribution effects exceed those predicted in the FEIS (QIA 2018).	QIA supports the Proponent's recommendation that further sediment sampling be conducted in 2018 to evaluate temporal trends, and looks forward to receiving the remodelling results. QIA recommends that the Proponent monitor annual sediment transport via Phillips Creek into Milne Inlet to learn how alluvial transport may be affecting sediment deposition and composition near the head of Mine Inlet.
30	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.10 Marine Environment	211	The Proponent indicates that Project Certificate Condition No. 85 is applicable to the southern shipping route only, but this specification is not made in the Project Condition text. Shallow areas may also occur along the Northern route.	QIA recommends that NIRB clarify whether or not this Project Condition is meant to apply to the southern shipping route only, and thus whether the Proponent is in compliance by deferring this.
31	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	212-213	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. Supplementary oceanographic data have been collected (2014 to the present) but not used to update the dispersion model. 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 over (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. This update should be completed regardless of the requirements of a Phase 2 Expansion Project proposal.	QIA recommends that the Proponent update the 2014 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.

32	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	214-216	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 to monitor for non-native species. These studies are important for determining whether species introductions have occurred but it is not clear how they prevent species introductions.	QIA recommends that the Proponent monitor species' presence and abundance in the ballast water tanks of Project vessels to determine the efficacy of their exchange and treatment methods, and to inform modeling and adaptive management needed to prevent introduction of invasive species at Milne Port.
33	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; <a href="#">Golder (2018)</a>	4.6.10 Marine Environment	214-216 (see also 225-226)	For Project Certificate Condition 87 (see also PCC 91), the Proponent has developed a monitoring program for non-native species introductions. This program is to continue over the life of the Project. In 2017, a number of changes were made to the methods used for monitoring. They include, for example: 1) zooplankton - different net mesh size, sinusoidal path for oblique tows, faster tow speed; 2) benthic invertebrate infauna - not sorted in the field, additional sampling sites; and 3) epifaunal growth - additional settlement baskets deployed at NE of ore dock and at Ragged Island, 2-year deployment cycle, added bucket top settlement sites ( <a href="#">Golder 2018</a> , pgs. 24, 27, 28, 87). These changes provide a more representative zooplankton sample that includes more mobile fish larvae and crustaceans, albeit still from a short time period. The loss or damage of benthic infauna specimens has been reduced, resulting in the identification of more small or uncommon species and the monitoring area expanded. Increasing the settling surfaces and extending soak time and sampling program should improve monitoring for the arrival of fouling species. These changes address, in part, some of QIA's comments on Baffinland's 2016 Annual Report to NIRB. The Proponent is considering further changes to AIS monitoring in 2018, such as: 1) use of remotely operated under water vehicle (ROV) surveys for ship hull biofouling; and 2) beginning the AIS monitoring program two weeks earlier to allow for increased sampling in the Ragged Island area, including more stations and replicates per station ( <a href="#">Golder 2018:pg. 110</a> ; see also <a href="#">QIA 2018</a> ). These changes should strengthen the monitoring program for on-indigenous species that have been introduced into the Ragged Island or Milne Inlet area, but they do not prevent introductions.	QIA recommends that the Proponent and MEWG consider: 1) using ROVs to monitor hull fouling and how best to collect hull fouling species for taxonomic identification; 2) extending the sampling program to begin earlier and include more stations and replicates per station; 3) expanding AIS monitoring to include monitoring of the ballast water of incoming project vessels at Ragged Island and/or Milne Port for species presence and abundance; and 4) using DNA barcoding to help identify invasive species taken by monitoring programs.
34	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; <a href="#">Golder (2018)</a>	4.6.10 Marine Environment	214-216 (see also 217-218, 225-226)	In Table 4.22 and related to Project Certificate Condition 87 (see also PCC 88 and 91) the Proponent states: "None of the macroflora, benthic epifauna, or fish taxa observed during the AIS surveys in 2017 were identified to be invasive". In fact, at least four species have that potential, if they were correctly identified. <i>Monocorophium insidiosum</i> , a tube-dwelling crustacean, is an invasive fouling species ( <a href="#">Fofonoff et al. 2018</a> ). It was first caught in Milne Inlet in 2013, so it may have arrived as a hitchhiker on earlier Project-related shipping (e.g., 3 ore carriers in 2008). It was not identified as an invasive ballast water species by <a href="#">Casas-Monroy et al. (2014)</a> because its main transfer vectors are likely hull fouling and commercial oysters, not ballast water ( <a href="#">Fofonoff et al. 2018</a> ). Based on its recorded distribution, <i>M. insidiosum</i> , is unlikely to be indigenous to Milne Inlet. <i>Polycarpa pomaria</i> , a tuniicate, identified in 2017, was described as "native to the North Atlantic Ocean" and considered indigenous ( <a href="#">Golder 2018, pg. 102</a> ). If it has been correctly identified, this species is likely non-indigenous as it is actually native to the <u>northeastern</u> Atlantic Ocean. <i>Apodichthys</i> sp., a member of the gunnel family (F. Pholidae) was identified in the MMEMP ( <a href="#">Golder 2018, pg. 87</a> ). If this identification is correct the fish was well outside the known range of the genus <i>Apodichthys</i> and likely introduced. However it is probably a banded gunnel, <i>Pholis fasciata</i> , which occurs in Arctic Canada. <i>Mya arenaria</i> , a subarctic bivalve species was also reported from Milne Inlet ( <a href="#">Golder 2018, pg. 94</a> ). This species is distributed north to Labrador, so it too may have been introduced via ballast water. However, it is more likely to have been confused with <i>Mya truncata</i> , a widespread and common Arctic species, or with <i>Mya pseudoarenaria</i> , which also lives further north (e.g. <a href="#">Lubinsky 1980</a> ; <a href="#">Archambault et al. 2015</a> ).	QIA supports the <a href="#">Golder( 2018)</a> recommendation that future Aquatic Invasive Species (AIS) studies continue to monitor for <i>M. insidiosum</i> , and the other possibly introduced or misidentified species discussed here. Greater effort should be made to confirm species' identifications and learn whether they are likely to be non-indigenous.
35	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; <a href="#">Golder (2018)</a>	4.6.10 Marine Environment	214-216 (see also 217-218, 223-224, 225-226)	During its monitoring for aquatic invasive species (e.g., PCC 87, 88, 90, 91) the Proponent used video recordings to identify but not enumerate macroflora and benthic epifauna ( <a href="#">Golder 2018</a> , pg. 28). These and other photographic records and samples (e.g., phytoplankton, benthic infauna, benthic epifauna, fish) represent an important resource for comparisons in the event of population changes.	QIA requests clarification regarding what Project-related biological samples and videos are being permanently archived in case they need to be revisited.

36	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	217-218	<p>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). Since 2013 many risk factors have changed. Ore markets have expanded to include the UK and Japan (pg. 20), which will change the variety of species arriving at Mine Port. 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.</p>	<p>QIA recommends that the Proponent monitor ballast water of 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.</p>
37	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.10 Marine Environment	219-222 (see also 223-224)	<p>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. Quality control of these measurements has been problematic (Appendix E, NIRB Recommendation 23), but improved in 2017. The Proponent has purchased better instruments to measure salinity and is preparing a sampling manual to improve quality control. However, this measurement does little to protect water quality or prevent the introduction of non-indigenous species (see also PCC 87), since large vessels can have 20 or more separate ballast tank and only one is tested per ship. Significant uncertainty remains as to the completeness of each vessel's ballast water exchange. 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. Other chemical and physical properties of the water are also unknown, and may be altered by treatment. The Proponent has taken measures to improve quality control of the salinity measurements. It is not clear what action was taken by the Proponent in the past when salinity measurements suggested ocean exchange had not been conducted.</p>	<p>QIA recommends that NIRB revisit the requirements of Project Certificate Condition 89 to:</p> <ol style="list-style-type: none"> <li>1) ensure that this monitoring program provides greater certainty regarding the efficacy of open-ocean exchange and treatment, and</li> <li>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.</li> </ol>
38	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board; <a href="#">Baffinland (2016)</a>	4.6.10 Marine Environment	225-226	<p>The objective of Project Certificate Condition 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. No monitoring of biofouling on ships hulls has taken place. This is a concern, as the tube dwelling amphipod (<i>Monocorophium insidiosum</i>) may have been introduced by Project shipping, and is invasive elsewhere. The Proponent considers it unlikely that Project vessels introduced the species. However, Project-related vessels have been visiting Milne Inlet since at least 2008 (<a href="#">Baffinland 2008</a>), well before 2013 when the species was found. The Proponent also notes that <a href="#">Casas-Monroy et al. (2014)</a> did not mention the species as introduced to Canada in ballast water. That is because <i>M. insidiosum</i> is a fouling species transported on ships hulls and oyster transfers (<a href="#">Fofonoff et al. 2018</a>) not in ballast water. Its known distribution is subtropical to north temperate, suggesting that it is unlikely to be indigenous to Milne Inlet. Given its propensity to hitchhike on ships hulls its presence could be related to any vessel that has come from a port the species inhabits. Its presence highlights the need for proactive monitoring of hull fouling and raises questions, including: 1) is it being transported to the region on ships hulls, 2) has it establish a self-sustaining population; and 3) might it be bringing epibionts or diseases (etc.) of concern? A SCUBA study of vessel hulls in 2017 was aborted due to safety issues, and use of a remotely operated underwater vehicle (ROV) is being considered for 2018.</p>	<p>QIA recommends that the Proponent work with the MEWG to develop a scientifically defensible monitoring program to assess the presence and abundance of non-indigenous species on the hulls of Project vessels, to determine the efficacy of their antifouling measures, and to inform adaptive management to prevent introduction of invasive fouling species at Milne Port. Section 5.2.2 of the Shipping and Marine Wildlife Management Plan (SMWMP) should be revised accordingly.</p>

39	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.10 Marine Environment; 4.8.1 Accidents & Malfunctions	232-233, 396-397	For Project Certificate Condition Nos. 97 and 176, the Proponent notes that the results from the spill model informed the development of the Spill at Sea Response Plan, but no details are provided.	QIA recommends that the Proponent provide additional discussion on how the model results were used to inform the spill response plan.
40	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.10 Marine Environment	234	In the reporting on Project Certificate Condition No. 98, no mention of updating impact predictions in made. Were the impact predictions updated, and, if so, where were they reported?	QIA recommends that the Proponent provide additional details regarding the updating of impact predictions.
41	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	236	Table 4.24 - Marine Mammals Impact Evaluation states that there were no Project interactions to monitor in 2017 with respect to habitat change from icebreaking and/or ice management. However, ice management vessels were employed by BIMC in fall 2017.	QIA recognizes that the presence of ice management vessels may be necessary to ensure vessel safety early and late in the open water shipping season but cautions that ice breaking has not been approved. QIA therefore recommends that the Proponent describe the impacts from the use of ice management vessels in 2017, and provide information on how these vessel interactions were monitored.
42	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	236	For bowhead whales, Table 4.24 Marine Mammals Impact Evaluation lists "Shipboard observers" as a component of the monitoring program. No shipboard observers were employed in 2017, however, and the table is incorrect. QIA pointed this out on the 2016 Annual Report as well, and the Proponent should be carefully reviewing comments on these reports and making corrections to noted mistakes.	QIA recommends that the Proponent update this table to reflect the fact that there were no shipboard observers in 2017, and in the future take a more careful approach to revising reports to correct mistakes that were noted by reviewers.
43	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	239	Project Certificate Condition No. 100 would be applicable to winter re-supply (i.e., not just ore carriers), should BIMC propose such transits again at a future point in time (e.g., at some point during Phase 2).	The Proponent notes that they "will update the Shipping and Marine Wildlife Management Plan prior to any winter shipping". QIA recommends that the Proponent remain aware that this condition will apply to all Project-related vessels, not just ore carriers.

44	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	240-244	<p>Project Certificate Condition No. 101 includes requirements to have Inuit involved in monitoring studies at all levels, and for monitoring protocols to be responsive to Inuit concerns. The Proponent correctly notes that "Inuit were actively involved in the planning and execution of the 2017 monitoring programs", and states that post-monitoring workshops allowed them "to solicit input on program design and program planning for the 2018 Monitoring Programs". The discussion doesn't provide any details, however, on how Inuit were involved in data analyses and reporting (which are important components of "all levels" of monitoring). The Proponent also notes that program refinement "takes into account input from local communities", but no examples are provided. How have Inuit been involved in monitoring program analyses and reporting, and how have Inuit concerns been addressed in the refinements to monitoring plans. Specific examples should be provided. The Proponent states that "monitoring programs will be reviewed with the MEWG in 2018, with the intention of increasing responsiveness to Inuit concerns if possible." In the 2016 Annual Report, the Proponent made the same statement ("Marine monitoring protocols will be reviewed in 2017, with the intention of increasing responsiveness to Inuit concerns if possible."). There were no specific discussions on this subject held in 2017, and the Proponent is deferring adaptive management by deferring these issues to later dates. Furthermore, the MEWG may not be the most appropriate venue to address issues raised by local residents.</p>	<p>QIA recommends that the Proponent provide specific examples of ways in which Inuit have been involved in monitoring program analyses and reporting, and how Inuit concerns have been addressed in the refinements to monitoring plans. QIA also recommends that the Proponent provide an update on plans to have discussions with the appropriate parties (not limited to the MEWG) on addressing Inuit concerns with respect to monitoring programs.</p>
45	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife, 4.7.7 Culture, Resources & Land Use	245, 376-377, 380	<p>Project Certificate Condition Nos. 102, 107 and 108 all concern the tracking and communicating of shipping information to local community members. Residents in north Baffin communities, particularly Pond Inlet, have raised numerous concerns about the suitability of the Proponent's vessel tracking and reporting system and QIA has sent several letters to BIMC discussing these issues (QIA Letter (Bathory) to BIMC (Zurowski). Shipping Route Communications. May 20th, 2016; QIA Letter (Bathory) to BIMC (McPhee and Gardener). Shipping Notifications. July 25, 2017). The issues raised in these letters regarding vessel tracking remain outstanding. In 2017 the system for shipping notifications and communication of ship traffic information to communities was still inadequate relative to the requirements of NIRB Project Certificate and those in the Inuit Impact and Benefits Agreement (IIBA). Baffinland developed the AIS Vessel Tracking application for reporting real-time ship positions on the company website, and has put substantial effort and resources into developing this program. This helps fulfill some Project requirements (e.g., the real-time data reporting requirement of Condition 164) but does not completely satisfy the conditions with respect to shipping schedules. The system gives no indication of future activity/vessel status information, for example, and this information would help harvesters plan their activities. In previous letters to BIMC, QIA identified the use of community radio and VHF radio announcements in combination as the best option for local communication. The use of both FM and VHF radio reaches the greatest number of people, both within the community and those already engaged in traditional activities outside the community. Having ships' masters make reports on the ship's position and change in activity (e.g. anchoring, departing Milne Port) on the VHF radio channel(s) utilized by harvesters would avoid a costly overhaul to the AIS system or extensive community FM radio announcements, and take advantage of the multiple VHF repeater stations established in Eclipse Sound. QIA notes that discussions between QIA, the Proponent, and the Pond Inlet community are being scheduled to occur, and discussion is on-going. QIA and community groups remain committed to assisting the company in developing effective communication procedures. QIA views the Proponent's performance on this PCC as Partially-Compliant.</p>	<p>QIA strongly recommends working with the community of Pond Inlet to develop and test communication protocols. A Pond Inlet Mary River Community Group already exists for these purposes. QIA notes that discussions between QIA, the Proponent, and the Pond Inlet community are being scheduled, and discussion is on-going. In materials submitted to the MEWG on April 23, 2018 (Proponent responses to comments submitted by QIA on the draft reports for the 2017 Bruce Head Shore-Based Monitoring Program and 2017 MEEMP), the Proponent noted that they are exploring options to enhance existing vessel management procedures with real-time automated tracking to detect and manage non-compliance events with respect to shipping operations. QIA encourages the development of real-time automated systems as part of the shipping management and communication strategy.</p>

46	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	246-248 (see also 249, 279-280)	For Project Certificate Condition No. 103 (see also conditions 104, 120), the Proponent is required to report significant course deviations from the nominal shipping track, and to explain why they occurred. More information is required for QIA to assess the Proponent's performance on this PCC. The Proponent indicates that "[t]here were no significant deviations from the nominal shipping route in 2017 for ore carriers." Figure 4.14 (p. 247) shows some vessels deviated at least 15 km northward into Navy Board Inlet and others southward about 15 km into Eclipse Sound. More and greater deviations occurred than in 2016. Were these vessels all tankers and re-supply vessels? Deviations within the shipping route in the local study area (LSA) are of particular interest to QIA and the local community. The Figure would be more useful if vessel types (ore carrier, sealift, tanker, etc) were shown instead of vessel name. Were any of these ice management vessels?	QIA recommends that the Proponent clarify the types of vessels that deviated from the shipping route and provide a revised map with vessel types shown. QIA also recommends that the Proponent clarify what constitutes a significant course deviation in the waters west of Baffin Bay, and why these deviations occurred.
47	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	249	For Project Certificate Condition No. 104, the Proponent reports that "[n]o significant deviations from nominal shipping routes to/from Milne Port were made in 2017." More information is required for QIA to assess the Proponent's performance on this PCC. The map in Figure 4.14 (p. 247) shows some vessels that did deviate quite significantly from the nominal shipping route. These may not have been ore carriers (see above), but they are Project vessels (which is what the condition refers to). How does the Proponent define "significant" with respect to deviations?	QIA recommends that the Proponent clarify what they mean by "significant deviation" from the nominal shipping route. In addition, NIRB could also provide clarification on what they consider a significant deviation or departure from the shipping route. QIA further requests that significance determinations consider community input, as in this case the impacts of deviations are directly experienced by Inuit, i.e. it is not simply a matter of a mathematical significance.
48	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	250-251 (see also 279-280)	Project Certificate Condition 105 (see also PCC 120) requires the Proponent to ensure that measures such as reduced shipping speeds are in place to reduce interactions between Project shipping and marine mammals. In 2017, the SMWMP directive that "Project vessels will travel at a speed of 7-10 knots when transiting through Eclipse Sound and Milne Inlet" was reported to ore carriers, but not Project resupply vessels. As such, few ore carriers exceeded 10 knots when transiting these areas but freighters and fuel tankers regularly did. The Annual Report notes that for 2018, "cargo and fuel vessels will be provided with instruction to approach Milne Inlet with speeds limited to 7-10 knots, similar to the requirements for ore vessels." More recent communications (Proponent responses to QIA comments on draft Bruce Head report submitted via MEWG) have refined this to indicate that all Project vessels will respect a maximum vessel speed below 9.0 knots Speed-Over-the-Ground (SOG) when proceeding in Pond Inlet, Eclipse Sound and Milne Inlet. New research suggests that exclusion zones and speed reduction zones have the most promise to reduce disturbance to sensitive Arctic marine mammals (McWhinnie et al. 2018)	QIA supports the adaptive management measures (updated vessel speed limits) going into place for the 2018 shipping season, no specific recommendations (but see PCC 120).

49	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	255-259, 284-285	<p>Project Certificate Conditions No. 106-108 and 123 concern the shipboard observer program. Many of these conditions spoke to the role of observers on the purpose-built ore carriers that were proposed for the original Project but have since been deferred. It was not possible to place observers on chartered ore carriers due to a lack of berth space, but observers were placed on fuel tankers from 2013 to 2015, with the program evolving over time (e.g., picking up observers off Pond Inlet in 2014 and 2015 via shore-to-ship transfer in a small vessel, rather than have them embark from Quebec City as was done in 2013). Observer coverage was also very limited (2-3 transits per shipping season). The Proponent canceled the original program due to concerns about personal safety risk and a lack of data being collected, with the intent (see condition 106) "to seek alternative means of community-based monitoring [CBM] for interactions of vessels with marine mammals." Alternative program options (increasing shore based monitoring, CBM) have been recommended by QIA for consideration, but progress on the establishment of alternatives has been inadequate. Meetings on this subject have been scheduled but then canceled for various reasons (e.g., weather-related travel issues), and as it has been two years with no observers, moving this forward is a priority. In their review of the 2016 Annual Report NIRB identified concerns with non-compliance in these conditions, and QIA shares these concerns. The Board further requested that the Proponent develop an alternative strategy for monitoring vessel interactions with marine mammals and seabirds, which has not occurred to date. In autumn 2017, the Proponent engaged the Canadian Coast Guard for ice management services, although this is not discussed in the Annual Report. An ice management company will be engaged for the 2018 shoulder seasons, although details are currently lacking. The Proponent has indicated that SBO will be placed on the ice management vessels (IMVs), but QIA notes that this limited use of SBOs will not be enough to meet the intent of these Project Conditions, and consideration of alternatives is still required.</p>	<p>QIA recommends that the Proponent prioritize the development of a revamped observer program or alternative monitoring strategies (QIA notes that a conference call of the MEWG sub-committee is scheduled for mid-May). QIA also recommends that the Proponent provide the NIRB and report reviewers with an update on plans to have observers on the ice management vessels. QIA further believes that a community based monitoring program should be considered as part of the overall shipping monitoring strategy.</p>
50	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	257-258	<p>For Project Certificate Condition No. 107, it has been four years since the 2014 UAV (unmanned aerial vehicle) trials - how has technology improved since then? What about regulatory changes? How might these factors influence another attempt to improve on monitoring? Have any alternative approaches been under consideration? The Proponent notes that they are "continuing discussions with the Marine Environment Working Group (MEWG) to identify alternative programs to meet the intent of this condition." Reporting on alternatives is needed, and the Proponent should provide the MEWG the information needed to discuss options that might be feasible. This has not happened in a timely manner.</p>	<p>QIA recommends that BIMC and their consultants review these factors and report back to the MEWG in fall 2018 for discussion on improvements for the 2019 shipping season.</p>

51	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	260-261	<p>For Project Certificate Condition No. 109, the Annual Report discusses the Bruce Head program, which is effective at monitoring some Project interactions. The shore-based study at Bruce Head, however, "does not provide information on larger-scale movements of whales", as noted by the Proponent. The Annual Report notes that the study focused on Milne Inlet "due to higher concentrations of marine mammals in this area during the shipping season, compared to Eclipse Sound and Pond Inlet", but the Project Condition requires monitoring in Milne Inlet, Eclipse Sound and Pond Inlet. Previous studies (e.g., the 2016 aerial surveys analyzed by Golder) and Inuit knowledge both show that narwhal range widely in the region, and areas like Eclipse Sound are heavily used on occasion. This highlights the need for monitoring activities at the other locations/spatial scales. The tagging study will address some of these issues, but as the tagging study data are not yet available, QIA is unable to determine the degree to which the Proponent is in compliance with this condition. A change to the Bruce Head study is suggested, which would see a Passive Acoustic Monitoring (PAM) component added. QIA supports these additional monitoring tools, but notes that PAM activities near Bruce Head will not be sufficient given the need to monitor in these other locations - how will this be addressed for the 2018 season to ensure that BIMC is compliant? In the Proponent's response to comments submitted by QIA (via the MEWG) on the draft report for the 2017 Bruce Head Shore-Based Monitoring Program (file from BIMC named "QIA review comments_BruceHead_Final.pdf"), they note that the analysis of the compiled 2014-2017 Bruce Head dataset is scheduled for summer 2018. This is an important component of Project monitoring and we look forward to seeing these results. QIA views the Proponent's performance on this PCC as Partially-Compliant.</p>	QIA recommends that the Proponent expand PAM activities and expedite analyses of narwhal tagging data.
52	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife (PC Conditions 99 through 128)	262-263	<p>Project Certificate Condition No. 120 requires that the Proponent "develop a monitoring protocol that includes, but is not limited to, acoustical monitoring, to facilitate assessment of the potential short term, long term, and cumulative effects of vessel noise on marine mammals and marine mammal populations." Passive acoustic monitoring (PAM) was conducted in 2014 and 2015, with incomplete analyses and reporting of limited results (available reports did not analyze the dataset to the extent possible). The narwhal-based acoustic monitoring conducted in 2017 has not yet been reported, and we are presently unable to determine the level of compliance as a result. QIA acknowledges that there is a large volume of data generated by the narwhal-tagging studies, and that data processing and analysis needs are intensive. However, tagging have reduced effectiveness if results cannot be reported in a timely fashion - they need to inform the next shipping season, and as of right now this is not happening given the delays in data analyses. The report notes that refinements to tag programming and deployment methodology should increase tag retention time, and hence data volume. Additional data will be beneficial, but current volumes are leading to delays in reporting. Data processing priorities need careful consideration. No acoustic monitoring was conducted by the Proponent in 2016, leaving a monitoring gap that adds difficulty to any assessment of cumulative effects. Furthermore, as noted by the Proponent, there has been little to no progress towards developing early warning indicators of negative impacts of vessel noise. The Annual Report notes that the Proponent and their consultants "are holding discussions with the MEWG to determine the best approach to meet this condition", but there has been no substantive discussion to date. The Proponent plans to consult with the MEWG in 2018 to "consider what elements could be incorporated into the monitoring programs to provide an early warning indicator for rapid detection of adverse impacts on marine mammal such as reduced population growth." QIA notes that the company has had many years to initiate these discussions, with no progress. In discussions with the MEWG through 2016, the Proponent planned to have the full complement of PAM data analyzed for inclusion in a comprehensive integration report that would be used to start work towards establishing thresholds and early warning indicators. Instead, the Proponent</p>	<p>QIA recommends that the Proponent prioritize the analyses and reporting of the existing PAM and narwhal-tagging acoustic (and other) data. QIA also recommends that the Proponent provide more details on the proposed changes to narwhal tag programming and deployment, including the proposed data processing work flow. QIA also recommends that the Proponent prepare briefing materials for the MEWG for consideration on the subject of early warning indicators (and thresholds, see below) of negative impacts of vessel noise. These materials should be ready for review at the autumn meeting of the MEWG, at the latest, and working group members should plan for continued discussions through 2018 and early 2019. The Proponent recently reported (via responses to comments submitted by QIA on the draft report for the 2017 Bruce Head Shore-Based Monitoring Program) that they are looking to engage Golder to analyze existing PAM data from 2014 and 2015 in relation to existing shore-based visual monitoring data from 2014-2017. QIA recommends that this analysis be conducted to inform future monitoring and adaptive management. Furthermore, in the Proponent's response they state that they "will, in consultation with the MEWG, consider what elements could be incorporated into the monitoring programs to provide an early warning indicator for rapid detection of adverse impacts on marine mammal such as reduced population growth". This is encouraging, albeit behind schedule.</p>

53	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	264-265	The Proponent has acknowledged that it is non-compliant with Project Certificate Condition No. 111, and many of QIA's comments on Condition 110 (above) are relevant to this discussion. The lack of progress on the development of clear thresholds for determining if negative impacts as a result of vessel noise are occurring is a substantial concern. The briefing materials that QIA has recommended above should be prioritized so that discussions on thresholds can proceed in a timely fashion. Re: vessel transit planning, The Proponent notes that they have retained a consultant to conduct underwater noise modelling in preparation for the Phase 2 Expansion Project Proposal. QIA reminds the Proponent that this condition is for the original project and ERP, not Phase 2. These assessments should have been done already, as required.	As noted above for condition 110, QIA recommends that the Proponent: 1) prioritize the analyses and reporting of the existing PAM and narwhal-tagging acoustic (and other) data, 2) provide more details on the proposed changes to narwhal tag programming and deployment, including the proposed data processing work flow, and 3) prepare briefing materials for the MEWG for consideration on the subject of early warning indicators and thresholds, which should be available for review at the autumn meeting of the MEWG. Furthermore, QIA also recommends that the Proponent complete the vessel transit planning/noise modelling process as required for this Project Condition.
54	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	266-268	Re: Project Certificate Condition No. 112, see QIA's comments above for Project Certificate Condition Nos. 110 and 111. QIA views the Proponent's performance on this PCC as Non-Compliant.	See QIA recommendations above for Project Certificate Condition Nos. 110 and 111.
55	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	269-272	Under Project Certificate Condition 113, The Proponent has been monitoring marine fish and fish habitat, which includes but is not limited to, monitoring for Arctic char stock size and health condition in Milne Inlet, as recommended by the Marine Environment Working Group (MEWG). Data gathered on fish are limited by low sampling effort, the sampling techniques used, and by restriction on fish mortalities. These limitations make temporal changes in the fish populations very difficult to detect. Comparisons of catch effort between species ( <i>Golder 2018, pp. 78-81</i> ) have limited value for assessing relative abundance due to inter-species differences in catchability (i.e., vulnerability to capture). The 2017 studies measured relative abundance in the catches not in the environment, which can be quite different. Catch effort can be used more effectively for temporal comparisons of abundance within species, provided sample sizes are sufficient. However interannual trends in char catch effort were not provided and sample sizes were small. In 2018, the Proponent is considering: 1) extending the duration of the fish sampling program during the shipping season, whereby fishing efforts will occur weekly but not daily for the duration of the MEEMP; and 2) use of genetic analyses for larval fish species identification ( <i>Parks Canada 2018; QIA 2018</i> ). In 2017, the Proponent also chaired a freshwater workshop to help inform future monitoring.	QIA supports extending the duration of fish sampling, provided the sampling effort is also increased, and supports the use of genetic analyses for fish identification although for some species sending samples to the National Museum for identification might be preferable. QIA recommends that better use be made of catch effort data to facilitate interannual comparisons within fish species. QIA also recommends that further efforts be made to develop community-based monitoring for Arctic char populations size and health.
56	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	274	Under Project Certificate Condition No. 115, the Proponent will continue to monitor fish habitat off-setting measures at the Milne Ore Dock. In 2017 "white encrusting" organisms were photographed but not identified ( <i>Golder 2017, pg. 10-11</i> ) to determine whether they might have been introduced species. Use of continuous video recording was suggested as a means of monitoring habitat use.	QIA recommends that the Proponent identify the encrusting organisms and consider how future delays in the identification of species such as these could be prevented. QIA supports the use of continuous video recording and suggests that the remotely operated underwater vehicle (ROV) might also be useful for monitoring habitat along a larger area (transect or transects) along the ore dock.

57	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	278	Project Certificate Condition No. 119 requires that the Proponent "monitor ringed seal birth lair abundance and distribution for at least two years prior to the start of icebreaking to develop a baseline." This condition was originally written for the southern route and the main project, but is applicable to any similar activities on the northern route as well. At one point the Proponent had proposed a winter re-supply as a component of Phase 2, and the Annual report states that "[a] monitoring study of ringed seal lairs in Eclipse Sound was being considered for winter 2017-2018 when the winter sealifts associated with the Phase 2 Expansion Project was still being considered. However, as ice breaking and winter sealifts are no longer currently being proposed, this monitoring study was not implemented." This baseline requirement is applicable to re-supply as well as ore shipping, so should BIMC again propose winter re-supply, it will be necessary to start monitoring ringed seal birth lair abundance at least two years prior.	QIA recommends that the Proponent ensure that any proposal to reintroduce winter re-supply is cognizant of the fact that two years of baseline seal lair monitoring will be required.
58	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	279-280 (see also 250-251)	Project Certificate Condition No. 120 (also see PCC 105) requires that vessels "maintain a straight course and constant speed, avoiding erratic behavior" when possible. More information is required for QIA to assess the Proponent's performance on this PCC. Ore carriers effectively followed this requirement in 2017, but re-supply vessels did not. The Proponent has acknowledged this and is making changes to have all Project vessels aware of these requirements. Previous discussions have occurred on this subject, and BIMC has committed to having the shipping strategy consider both ore and re-supply vessel equally in 2018. An update on this process was provided in April 23, 2018 files submitted to MEWG members (Baffinland responses to comments submitted by QIA on the draft report for the 2017 Bruce Head Shore-Based Monitoring Program (file from BIMC named "QIA review comments_BruceHead_Final.pdf") and the draft report for the 2017 Marine Environmental Effects Monitoring Program (MEEMP) (file from BIMC named "QIA_Comments_2017MEEMP_Final.pdf"). These materials confirm that adaptive management measures will be implemented with respect to maximum vessel speed (maximum 9 knots), course maintenance, and specific shipping and berthing/anchoring directives. QIA is pleased to see these adaptive management measures being implemented in the 2018 shipping season.	QIA recommends that the Proponent carefully monitor vessel movements throughout summer 2018 and have near real-time capability for adaptive management, should vessels not maintain straight course and constant speed (or use excessive speeds, deviate from the nominal route, etc.) and designated anchorage locations.
59	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	281-282	For Project Certificate Condition No. 121, The Proponent states that they are "looking to identify an alternative program that incorporates an accidental strikes reporting protocol and may engage with NIRB to discuss changing this condition." Discussions on alternatives should include the MEWG (there has been some limited discussion), regulators, and communities. QIA also notes that this condition links to previous conditions re: Shipboard observers, and review comments on those conditions are relevant to this one.	QIA recommends that Proponent engage with the MEWG, regulators, and communities when exploring alternate programs.
60	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	4.6.11 Marine Wildlife	290-292	Project Certificate Condition No. 126 promotes local input into monitoring data collection, and the Proponent had many Inuit involved in 2017 marine field research programs. The PCC requires that local Inuit be involved in "monitoring and evaluating potential project-induced impacts and changes in marine mammal distributions." Their role in monitoring (i.e., data collection) is clear, their role in "evaluation" said data/results is less so. The Annual Report considers this inclusion of local Inuit in field programs (Tremblay Sound, MEEMP and Bruce Head) to be "a successful example of community based environmental monitoring", however. QIA notes that this is hiring community members to help with the Proponent's environmental monitoring, not community based monitoring (CBM). Community groups do want to see CBM programs developed, however, and there are many opportunities to augment Project-specific monitoring programs.	QIA recommends that the Proponent discuss opportunities for community-based monitoring (CBM) with communities and other interested parties, including the QIA and the MEWG, including with respect to monitoring and adaptive management of project shipping.

**Terrestrial Environment Comments**

Cmt. #	Document File Name	Section	Page	QIA Comment / Supporting Text	QIA Recommendation
1	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.2 Air Quality - PCC 10	48	<p>QIA recommended in both 2015 and 2016 that a revised dust management plan be developed with clear performance indicators and thresholds for dust management. Current dust monitoring and management plans do not meet these criteria.</p> <p>In terms of monitoring:</p> <p>1) Two transects, consisting of 8 stations each, represent minimal effort along the 100km long tote road and may not be indicative of actual dustfall. Several seasons of dust suppression should indicate where the highest dust generation areas are and these should be targeted for dust fall measurement. This would a) provide a better idea of maximum dustfall and b) provide an opportunity to test the efficacy of dust suppressant activities</p> <p>2) The number of haul trucks per day exceeded FEIS predictions by up to 30%. Dustfall isopleth predictions were incorrect by in some cases more than 800%. These models should be recalibrated using real data and used to create additional target sites for dust fall monitoring.</p> <p>The current monitoring design is not adequate to determine how much dust is actually being deposited. Dust management in 2017 and seemed to be triggered by hazardous driving conditions rather than to reduce the impact to vegetation and wildlife.</p> <p>QIA views the Proponent's performance on this PCC as Non-Compliant.</p>	<p>QIA recommends, again, as in 2015 and 2016, that the Proponent develop a revised dust management plan be developed with clear performance indicators and thresholds for dust management.</p> <ul style="list-style-type: none"> <li>- The dust management plan should have clear direction for dust mitigation within both the Air Quality and Noise Management Plan as well as the Roads Management Plan.</li> <li>- The number of dustfall monitoring sites along the tote road should be increased and target sample areas most likely to receive the most dust.</li> <li>- The amount by which dust fall exceeded predictions should be indicated with the appropriate caveat that the areas where dust levels are highest were likely not sampled.</li> <li>- The dustfall isopleth modeling should be revised to include real Project data related to actual vehicle traffic and point sources, as well as dust collection data.</li> <li>- This is especially important for the "moderate" isopleth zone, as these sites averaged higher dustfall than the "high" zone, and experienced substantial error in predicted dustfall.</li> <li>- Dust management should be increased considerably, and target areas where most dust is generated, and those in proximity to the best available habitat for both terrestrial and aquatic wildlife.</li> </ul>
2	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.3 - Noise and Vibration PCC 14(b)	58	<p>The proponent is applying passive mitigations to reducing noise and not conducting adaptive management in regards to effects on wildlife. In order to conduct "appropriate adaptive management for project activities" some measure of impact of noise and subsequent adaptation are required.</p>	<p>QIA recommends that the Proponent consider developing monitoring wildlife responses to noise and site aversion studies. Alternatively the Proponent could simply measure noise and adapt by attenuating noise where it exceeds values known to affect wildlife based on primary literature.</p>
3	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.3 - Noise and Vibration PCC 15	59	<p>It is not clear to QIA the degree to which this condition has been addressed. Communications related to public access to the mine site and safety of project interactions with Inuit remains a regular concern raised during community engagements.</p>	<p>QIA believes additional focus should be placed upon addressing this term and condition, specifically the visual representations of project activities using audio visual materials.</p>
4	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.4 - Hydrology and Hydrogeology - PCC 16	62	<p>Given that INAC provided an Inspector's Direction, on June 9, 2017, that the Inspector had reasonable grounds to believe Baffinland had used waters in contravention of its water licence, QIA believes this PC Condition to be in non compliance. Regardless of the fact that Baffinland may have rectified the situation before the end of the year, this does not change that Baffinland completed unapproved activities regarding water use.</p>	<p>QIA recommends that the Proponent report on its contravention of the water license and steps taken to rectify the issue.</p>
5	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.5 - Groundwater and Surface Water - PCC 25	83	<p>The Proponent's geotechnical inspection report found signs of settlement in a Polishing/Waste Settlement Pond (PWSP), which were deemed to be of little concern, in part because the PWSP was "temporary".</p>	<p>QIA recommends that the proponent provide a timeframe for these structures (PWSPs) to be closed and reclaimed.</p>

6	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.5 - Groundwater and Surface Water - PCC 26	85	The Proponent is required to develop and implement an erosion management plan, which BIM has folded into their Surface Water and Aquatic Ecosystem Management Plan (2016), which is approved by the NWB under the Type A Water License. Baffinland submitted a new SWAEMP IN 2017, which acknowledges it does not currently comply with QIA comments, including concerns with impacts of sedimentation and erosion.	QIA recommends that the Proponent update the SWAEMP to address QIA's comments and submit the revised document in 2018.
7	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.5 - Groundwater and Surface Water - PCC 27	86	Relating to whether the aesthetic value of the Project Development Area, the Proponent states, "Public consultation did not reveal any significant concerns from affected communities about the impacts..." How does Baffinland determine what is a significant concern from affected communities about Project impacts? Can the Proponent confirm whether or not participants in the 2017 public meetings were asked specifically about their views on the way Project activities may have changed the aesthetic value of the Project Area? It is certainly possible that these concerns were not raised as other issues were a priority for participants.	QIA recommends that the Proponent provide additional details on its public engagements to address this comment. Particularly if community members were asked about the issue described in the PCC.
8	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.5 - Groundwater and Surface Water - PCC 28	89	It's not entirely clear how the Proponent is Partially-compliant with this PCC. The report indicates that active monitoring has revealed areas of permafrost degradation and the Proponent has taken steps to resolve it. The efficacy of these measures appears to be mixed. The aforementioned 2018 Tote Road work has not yet been approved by QIA, which is required through the Commercial Lease. QIA has expressed concern over the management of the Tote Road, and the Proponent's penchant for completing unapproved works. Appendix E is cited as the source of geotech inspection reports, this should be corrected to cite Appendix G.	QIA recommends that the Proponent clarify its efforts toward compliance, and ensure that all works conducted on IOL are approved by QIA prior to work commencing, as required in the Commercial Lease.
9	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.5 - Groundwater and Surface Water - PCC 29	90	The PCC requires that respective regulatory authorities are to receive, for review and acceptance, for-construction engineering and design drawings, specs and engineering analysis. Table 4.14 indicates QIA received most drawings. However, the Proponent's performance on this PCC is Non-Compliant as QIA is still waiting for several As-Built drawings as required under the Water License. This has noted in the 2016 and 2017 Commercial Lease Environmental Audits.	QIA recommends that the Proponent provide As-Built construction drawings as required under the Water License.
10	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation; Table 4.15 Vegetation Impact Evaluation	93	Sample size for metals testing studies have been relatively small considering the project footprint and metals testing has not been done at the sites receiving the most dustfall. The Proponent states that, "Metals analysis of soil and vegetation; all results within expected range...-Within FEIS predictions " However, limited detection ability calls this into question, especially given multi-year dustfall exceedances. Metals testing should occur in areas where there is a high level of fugitive dust, as dust is understood to be the primary Project-related vector for metals to enter the foodweb. Regarding the results last year, duplicates and archiving of samples should be added to the survey protocol.	QIA recommends that the Proponent increase the sample size for metals testing, and establish sample sites in areas known to receive the most dustfall. The metals monitoring program should shift in parallel to an improved dustfall monitoring program, and revised dustfall isopleth model. Potential sites could be identified as those receiving the most dust suppression, as illustrated in Maps 2 & 3 of the Terrestrial Env. Monitoring Report (EDI 2018, pp. 14-15), or adjacent to point sources for fugitive dust.

11	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation; Table 4.15 Vegetation Impact Evaluation	93	To date, vegetation studies have been of insufficient sample size to detect expected effects on vegetation and are limited to a very small sample area (Power analyses- 2013 Terrestrial Environment Annual Monitoring Report). The Proponent states, "Monitoring has not indicated differences in ground cover or canopy cover with distance from the project- Within FEIS predictions". It is QIA's view that the current design of the study does not allow for detection of such differences over the large spatial extent of the Project area. The study may offer no evidence of a Project related effect due to its small size and low statistical power, and thus does not allow the Proponent to claim that there is no effect.	The QIA recommends that the Proponent run a new power analysis is conducted to assess the ability of the program to detect spatial-temporal differences within sample sites, as the current ability of this sample design to detect Project effects is weak. The study design should be modified to parallel an improved dustfall program and revised dustfall isopleth model, as the current dust isopleth model, which has proven to be inaccurate, was used develop the vegetation survey.
12	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation	94	The vegetation program is lacking statistical power to detect project effects. "In accordance with the TEMMP, the next round of vegetation monitoring will be undertaken in 2019. Baffinland is considering repeating the program in 2018 based on recommendations from the QIA and will base this decision on the evaluation of the 2017 dataset as well as forthcoming discussions with the TEWG." QIA recommends continuing the vegetation survey in 2018, following an overhaul and update of the program, see QIA Terrestrial Environment comment 4.	QIA recommends that the Proponent continue and substantially increase effort in monitoring impacts to vegetation in order to detect Project effects.
13	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation-Project Certificate Condition No. 33	98	"Regularly updating mitigation and monitoring plans to reflect regulator and TEWG feedback has been invaluable in addressing regular analytical results, evolving methods, and adapting to further understanding of the potential Project-related effects." Current vegetation studies lack statistical power needed to detect any but the most extreme impacts at few sites over a large project footprint. QIA views the Proponent's performance on this PCC as Partially-Compliant	QIA recommends BIM continue and substantially increase effort in monitoring impacts to vegetation in order to detect project effects. The lack of a detected project related impacts should not be overstated. QIA recommends study the design be revisited and sampling extent and intensity increased, including revision of the dustfall isopleth model.
14	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation-Project Certificate Condition No. 34	99	Sampling for metals testing should parallel an improved dust fall monitoring program, including collecting samples from areas known to receive the most dust fall. These may have been identified incidentally as those requiring active dust suppression for safety reasons. QIA assumes based on the text in this report that no additional heavy metals, such as uranium, are present and therefore are not tested for. The large discrepancy between the 2016 and 2017 samples suggests cause for concern over field testing methodologies and lab results. We suggest the use of duplicates and should exceedances be found again, multiple sites in the vicinity be tested in future years using the double sampling approach to establish with certainty that the 2016 results are indeed erroneous as suggested. QIA views the Proponent's performance on this PCC as Partially-Compliant	QIA recommends that the Proponent be more cautious with its wording as lack of a detected project related impacts should not be overstated when utilizing a weak study design. QIA also recommends, as in 2016, the study design should be revisited and sampling extent and intensity increased in 2018.
15	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation-Project Certificate Condition No. 35	101	The proponent is required to establish a baseline monitoring program for metals in caribou tissue. The lack of collaboration of GN and the HTO with regard to study design should not dissuade BIM from engaging the community and seeking samples from all caribou harvested in the area. Obtaining sample kits should not be an obstacle to this program. The absence of GN participation does not absolve the Proponent from its responsibility to fulfill the requirement of the PCC - the GN is not listed as a responsible party under this PCC. QIA views the Proponent's performance on this PCC as Non-Compliant.	QIA recommends that the Proponent engage the community and hunters directly to solicit for samples. Even if there are few samples year to year these will be invaluable for establishing the baseline.

16	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation - PCC 36	102	<p>Based on previously conducted Power analyses (2013 Terrestrial Environment Annual Monitoring Report), the ability of this sample design to detect project effects is very weak. Change would only be detected if extreme in nature. Given the inherent weakness of the current design BIM stating that "there is no evidence for project related effects" is misleading. Additionally, the Proponent reported that "differences in total ground cover, total canopy cover, and cover between open and closed plots among years were small in magnitude and showed no consistent pattern in relation to distance from Project infrastructure" (pg. 103). However, Figure 4.2, shows a consistent temporal pattern of decline in ground cover at all distances measured from the Tote Road (30 m - 1200 m). These trends may not be statistically significant but they are clearly evident. In contrast, the Reference site showed no trend. Variation in canopy cover in relation to the Tote Road was less consistent but did not follow the pattern of temporal increase found at the Reference site. The conclusion that changes in ground cover and canopy cover represent natural variation is not supported by these figures. QIA views the Proponent's performance on this PCC as Partially-Compliant</p>	<p>QIA recommends that the Proponent conduct a new power analysis to assess the ability of the study to assess spatial-temporal differences among and between plots. QIA recommends that the study design is revisited and sampling extent and intensity increased. QIA recommends that AR text reflect the low likelihood of the current study design to detect project effects. QIA also recommends that the Proponent re-examine Figure 4.2 and its conclusions with respect to temporal trends. These patterns, statistically significant or not, support the need for continued monitoring.</p>
17	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation - PCC 38	106	<p>Adaptive management requires the ability to detect Project effects and modify Project activities to minimize impacts. The current design only has sufficient power to detect drastic effects which negates the ability to employ adaptive management. QIA views the Proponent's performance on this PCC as Non-Compliant</p>	<p>QIA recommends not overstating the ability of the current low power study to detect Project effects and therefore form the basis for adaptive management. QIA recommends BIM increase coverage and sample size of vegetation monitoring according to an updated power analyses.</p>
18	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation - PCC 39	109	<p>As BIM has indicated in the AR, there are very few areas which have yet to be decommissioned.</p>	<p>QIA supports BIM's plan to conduct a desktop review of decommissioned sites in 2018 and longer term plan to utilize an adaptive management approach to reclamation.</p>
19	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.6 Vegetation - PCC 40	111	<p>As BIM has indicated in the AR, there are very few areas which have yet to be decommissioned.</p>	<p>QIA supports BIM's plan to conduct a desktop review of decommissioned sites in 2018 and longer term plan to utilize an adaptive management approach to reclamation.</p>

20	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment - Table 4.17 Terrestrial Environment Impact Evaluation, also Project Certificate Condition 53	134, 142	<p>BIM does not have sufficient data to make assertions as to Project effects. HOL surveys require large sample size to draw reasonable conclusions. In 2017, as in previous years, Project related effects cannot be ascertained due to insufficient sampling duration and spatial coverage. For HOL surveys, In 2017 BIM combined sampling time was 19.5 hours, spread across 24 observation points - which constitutes 0.2% of the year. BIM claims that "Restriction of Movement -Within FEIS predictions".</p> <p>QIA disagrees that restriction of movement can be assessed through the HOL surveys because of: low survey effort, low caribou population density, and the inability of the HOL surveys to detect caribou - the surveys have not observed caribou since 2013. Disturbance behaviour, deflection, and other observations cannot be made if there are no caribou observed. Furthermore, the surveys acknowledge that caribou cannot be detected beyond 5km even in ideal conditions (2016 Terrestrial Env. Monitoring Report, EDI 2017). Zone-of-Influence studies have detected caribou avoidance behaviour from project sites at 11km (from satellite tags) to 14km (via aerial surveys) (Boulanger et al. 2012) If caribou around the tote road or Project sites are exhibiting avoidance behaviour or are deflected by Project outside of 5km, this effect could not be detected through the HOL surveys. QIA asserts that the HOL surveys, in their present form, are not able to detect Project related effects.</p>	QIA recommends that the Proponent substantially increase survey efforts and redesign surveys to achieve scientific defensibility and remove text directly or indirectly indicating the HOL surveys fulfill project effects monitoring requirements. Alternatively, the Proponent could forgo an increased HOL survey effort and instead collaborate with the TEWG and GN to contribute to regional caribou monitoring effort until caribou populations increase to a point that allows for detection and behavioural observations through HOL surveys.
21	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment- Project Certificate Condition No. 49	136	The current monitoring program has several weaknesses that have been periodically raised at the TEWG and have not been adequately addressed, for example, "The TEWG has successfully developed a robust terrestrial monitoring program..."	The TEWG provides a forum to discuss monitoring programs, however, the TEWG is does not have oversight or final authority. QIA recommends that the Proponent develop a concordance table of issues/suggestions raised at technical working group meetings, and whether these recommendations have been acted upon, and to what degree. This would form part of the Annual Report.
22	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment- Project Certificate Condition No. 50	138	Although BIM has been conducting a monitoring program, this program suffers from lack of sufficient sample size and other methodological limitations. Although this program is reviewed by TEWG, BIM has not uniformly accepted reviewers' comments/suggestions to strengthen the study design. QIA views the Proponent's performance on this PCC as Partially-Compliant	QIA recommends that the Proponent: 1) Conduct a thorough statistical review of monitoring program, including power analyses for all major components, 2) Modify study design and/or increase sampling extent and/or intensity as required to address identified weaknesses, 3) Report on suggestions from the TEWG and why/why not suggestions for study design improvements where not instituted. 4) Include a periodic review component to the monitoring program. i.e. every 3 years, commiat a substantial effort to assess the performance of the monitoring program and overhaul its components as necessary.
23	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment- Project Certificate Condition No. 51	139	There is insufficient information to determine if BIM has provided consistent support to regional programs. There are several years in which BIM did not contribute to regional programs. More information is required for QIA to assess the Proponent's performance on this PCC	QIA recommends that the Proponent: 1) report, in tabular format, contributions to regional work by year and 2) describe how each contribution helps BIM meet project conditions, and 3) describe BIM process for reviewing community based proposals and whether proposed initiatives have been supported/rejected in the past.

24	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment-Project Certificate Condition No. 52	141	QIA acknowledges that the present low caribou numbers near pits and other hazardous areas makes it impossible to determine the efficacy of deterrence methods.	QIA recommends that the Proponent be prepared to initiate/test deterrence methods as soon as caribou are detected near hazardous areas.
25	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment-Project Certificate Condition No. 53	142	Snow track and HOL surveys require intensive effort and consistent survey methodologies. The snow track surveys in their current form are not consistent and are not of sufficient intensity to detect project effects. The presence of large snow banks and intermittent sampling severely reduces the usefulness of this dataset to determine project effects. HOL surveys, like all sampling techniques, require adequate sample size to yield useful information. In 2017, as in previous years, Project related effects cannot be ascertained due to insufficient sampling duration and coverage. In 2017 BIM combined sampling time was 19 hours and 28 minutes, which only constitutes 0.2% of the year. Coverage at an individual point would represent significantly less time. The barrier effect is discussed here in the context of snowbank height and the effect of traffic volume is not addressed in this report. The current number of truck transits results in only 4-7 minutes between vehicles and provides a very limited opportunity for caribou and other wildlife to cross the road. QIA views the Proponent's performance on this PCC as Non-Compliant	QIA recommends that the Proponent address the following: 1) Snow track surveys should be conducted much more regularly (multiple visits) and be corrected by a measure of weather events that would disturb tracks (wind and snowfall), 2) HOL surveys should either be greatly increased in intensity (as for example what is done at Bruce Head for narwhal) or be replaced with more effective methodologies such as aerial surveys or collaring programs. 3) The barrier effect of high traffic volumes should be acknowledged/addressed in this report and suitable mitigations should be enacted by the Proponent. Mitigations will continue to be important as caribou numbers increase and as transits increase or are replaced by train traffic.
26	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment-Project Certificate Condition No. 54	147	While the Proponent has provided a plan and rationale in the TEMMP as required by the PC, the monitoring program itself is severely lacking in power to detect Project effects due to poor study design and insufficient effort. QIA views the Proponent's performance on this PCC as Non-Compliant	QIA recommends that the Proponent: 1) conduct a thorough statistical review of monitoring program, including power analyses for all major components, 2) modify study design and/or increase sampling extent and/or intensity as required to address identified weakness.
27	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment-Project Certificate Condition No. 57	152	The Proponent has reported annually on its terrestrial monitoring efforts and mine activities however there is room for improvement on several fronts. Both vehicle transits as well as dustfall have exceeded FEIS predictions (as in 2015 and 2016) and terrestrial monitoring efforts have not been modified to ensure Project effects are captured. BIM has, as in 2016, failed to record snowmelt in a standardized way. Snowmelt and green-up timing drive many of the ecological variables at Mary River, and the temporal extent of snow cover has important ecological effects. These include the phenology of vegetation and how to interpret TEMMP findings of patterns observed in focal species, such as raptor nesting timing and success, abundance of tundra breeding birds, mobility of caribou, and presence of migrating waterfowl. Snowmelt can be expected to be impacted by dustfall and other mine related activities - the accumulation of dust on snowbanks adjacent to the tote road can be clearly seen in photos taken at the Project site in April. (Photos 7 and 8 of the Proponents 2017 Terrestrial Environment Annual Monitoring Report (EDI 2018)). QIA views the Proponent's performance on this PCC as Partially-Compliant	QIA recommends, as in 2016, that the Proponent re-evaluate monitoring programs and include in the AR: 1) A statistical rationale and power analyses for each measure, 2) A table that summarizes reviewers comments regarding study design.  QIA also recommends, as in 2016, that BIM collect snowmelt data at multiple locations, at varying distances from the tote road, camps, mine and port, using a statistically rigorous design. Snowmelt can be calibrated as the last day of 100% snow cover, the first day when 50% snow cover was observed, and the first day when 0% snow cover was observed. Additional comments are provided under study specific PCCs.

28	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment-Project Certificate Condition No. 58	156	<p>Dustfall, Snow track and HOL surveys require intensive effort and consistent survey methodologies.</p> <p>The current sampling regime for dustfall include two transects (total 16 sites) along the 100km tote road and results cannot be extrapolated to represent Project effects of the entire tote road.</p> <p>The snow track surveys, in their current form, are not consistent and are not of sufficient intensity to detect project effects. The presence of large snow banks and intermittent sampling severely reduces the usefulness of this dataset to determine project effects.</p> <p>HOL surveys, like all sampling techniques, require adequate sample size to yield useful information. In 2017, as in previous years, project related effects cannot be ascertained due to insufficient sampling duration and coverage. In 2017 BIM combined sampling time was 19 hours and 28 minutes, which only constitutes 0.2% of the year. Coverage at an individual viewing station would represent significantly less time.</p> <p>The barrier effect is discussed here in the context of snowbank height and the effect of traffic volume is not addressed in this report. The current number of truck transits results in only 4-7 minutes between vehicles and provide a very limited opportunity for caribou and other wildlife to cross the road.</p> <p>There is insufficient information to determine if BIM has provided consistent support to regional programs.</p> <p>QIA views the Proponent's performance on this PCC as Partially-Compliant</p>	<p>QIA recommends to the Proponent that:</p> <ol style="list-style-type: none"> <li>1) Snow track surveys be conducted much more regularly (multiple visits) and be corrected by a measure of weather events that would disturb tracks (wind and snowfall),</li> <li>2) HOL surveys either be greatly increased in intensity (as for example what is done at Bruce head for narwhal) or be replaced with more effective methodologies such as areal surveys or collaring programs,</li> <li>3) Additional dust fall monitoring transect be established in areas most likely to receive maximum dust as suggested by several seasons of dust suppression for OHS.</li> <li>4) The barrier effect of high traffic volumes should be acknowledged/addressed in this report and suitable mitigations should be enacted by the Proponent,</li> <li>5) The Proponent report, in tabular format, contributions to regional work by year and describe how each contribution helps the Proponent meet Project Certificate Conditions.</li> </ol>
29	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment-PCC No. 59, 4.6.9 Birds - Project Certificate Condition No. 71	160, 179	<p>QIA acknowledges the effort of BIM to:</p> <ol style="list-style-type: none"> <li>a) brief pilots on flight restrictions,</li> <li>b) quantify flight compliance/non compliance and</li> <li>c) attempt to improve compliance.</li> </ol>	<p>QIA understands that pilots must be given the ultimate discretion based on safety requirements. QIA recommends that the option of not flying when conditions require non-compliance be explored in the AR. Some non essential missions should be delayed if conditions do not allow for compliance.</p> <p>QIA also recommends that the Proponent clearly report the total of all flights flown below the required altitude, as this helps parties evaluate possible cumulative effects on wildlife</p>
30	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment-Project Certificate Condition No. 63	166	<p>Elijah Panipakoocho is an excellent hunter and respected Elder. He has spent many years scanning the local landscape to determine if there are caribou nearby to hunt. However, it is inappropriate to ask him to determine the efficacy of a scientific sampling methodology.</p> <p>Local hunters providing their knowledge of caribou should not be expected to know how sample sizes or survey duration impact statistical analyses or the defensibility of study findings. Nor should their IQ regarding caribou habitat use be used to defend weak study designs. The use of IQ in this manner is inappropriate and does a disservice to Inuit hunters willing to share their knowledge with the Proponent. QIA views the Proponent's performance on this PCC as Partially-Compliant</p>	<p>QIA recommends that the Proponent continue to engage the HTO and community members to inform them of project status and field input. QIA recommends that BIM not attempt to misuse IQ to justify poor study design.</p>
31	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.8 Terrestrial Environment-Project Certificate Condition No. 64	168	<p>As stated by BIM "Carnivore interactions have been minimized but still do occur due to Non-Conformance issues related to the waste sorting guidelines. Arctic fox site habituation proved to be a challenge even while mitigating animal attractants on site." QIA views the Proponent's performance on this PCC as Partially-Compliant.</p>	<p>QIA recommends that the Proponent continue to work with staff to ensure compliance to waste handling requirements, while working towards full compliance.</p> <p>QIA also recommends, as in 2016, that the number of carnivore interactions be quantified and that trend data are presented in the AR.</p>

32	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.9 Birds - Project Certificate Condition No. 69	177	The TEWG agreed in 2013 to allow BIM to not institute this PC.	QIA recommends that this PCC be revisited yearly at the TEWG and consideration be given to the efficacy of nest sweeps and possible deterrent techniques.
33	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.9 Birds - Project Certificate Condition No. 70	178	No bird nests were located in 2017 therefore there was no need for this PC to be applied.	QIA recommends that this PCC be revisited yearly at the TEWG and consideration be given to the efficacy of nest sweeps.
34	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.9 Birds - Project Certificate Condition No. 73	184	The breeding bird survey work and raptor surveys conducted by the Proponent appear to be thorough and statistically rigorous. However Peregrine falcons, as the most studied species, are not by nature good indicators of mine related impacts due to their naturally high tolerance for anthropogenic disturbance.	QIA recommends that the implications of not detecting project related effects on Peregrine falcons not be overstated. As noted, Rough-legged hawks are highly cyclical and determining project related effects will be greatly confounded by their large natural viability. QIA recommends that this be reflected in the text.
35	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.9 Birds - Project Certificate Condition No. 74	186	The breeding bird survey work and raptor surveys conducted by the Proponent appear to be thorough and statistically rigorous. However Peregrine falcons, as the most studied species, are not by nature good indicators of mine related impacts due to their naturally high tolerance for anthropogenic disturbance.	QIA recommends that a power analysis, similar to that utilized to determine the ability of PRISM sampling techniques to detect project effects, be similarly applied to the Dustfall, metals, vegetation, HOL, and Snowtrack monitoring programs. The implications of not detecting Project related effects on Peregrine falcons should not be overstated. As noted, Rough-legged hawks are highly cyclical and determining project related effects will be greatly confounded by their large natural viability. This should be reflected in the text. PRISM plots and shorebird surveys should be repeated every 5 years as agreed to by CWS.
36	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	4.6.9 Birds - Project Certificate Condition No. 75	191	It is not clear what method BIM utilize to quantify habitat loss.	The Proponent should state the method by which total loss of habitat is calculated, and this should be independently verified using remote sensing.
37	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4 - Project Certificate Condition No. 179b	402-403(pdf 423 of 440)	Increased hauling along the tote road will most likely cause a correlated increase in project related effects to terrestrial wildlife: 1) dustfall: exceedances of over 800% above FEIS predictions, 2) number of transits: exceeded FEIS predictions by in some cases 30%. The current number of truck transits results in only 4-7 minutes between vehicles and provide a very limited opportunity for caribou and other wildlife to cross the road, and 3) subsequent impacts to vegetation and metal deposition.	QIA recommends that the Proponent improve: 1) study design for monitoring to ensure project related effects will be detected, 2) institute and/or increase mitigations for project related impacts such as dust fall and road barrier effects, 3) utilize real data to improve predictions of future impacts and dust monitoring and mitigations programs accordingly.
38	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4 - Project Certificate Condition No. 179b	402-403(pdf 423 of 440)	In 2017, the total volume of ore transported by truck on the Milne Inlet Tote Road exceeded the allowed 4.2 million tonnes. In 2017, a total of 4.54 million tonnes total volume were transported by truck on the Milne Inlet Tote Road. The Proponent states, "The shortfalls in production and hauling in 2015 and 2016 would indicate that the cumulative effects of hauling for the three years combined to date are well below the predicted effects." QIA disagrees that activities below thresholds in a given year can be carried forward to a later year to excuse exceedances in a category convenient for the Proponent.	QIA recommends that the Proponent plan its activities to remain within the allowances described in the Project Certificate. QIA also recommends that NIRB review the concept of carry-over of impacts above and below thresholds, and provide confirmation to the Proponent that this practice is not permitted.

Socio-Economic Environment Comments					
Cmt.	Document File	Section	Page	QIA Comment / Supporting Text	QIA Recommendation to Resolve Issue
1	180403-08MN053-2017 Annual Report-App F-Socio-	Executive Summary, 1.0 Introduction	iv, 6	The 2017 Socio-Economic Monitoring Reporting Summary and Socio-Economic Monitoring Plan Tables should include Project Conditions numbers for ease of reference and comparison.	Include Project Conditions numbers for ease of reference and comparison in all tables.
2	180403-08MN053-2017 Annual Report-App F-Socio-Ec Monitoring Report-IA2E	All	All	BIMC should report data in context with growth (or contraction) of the project or of subject populations. For example, Section 7.3 re: transport of substances to LSA communities says there were 15 drug/alcohol offenses in 2017, which is 4 more than 2016. However this isn't put into context with the large increase in numbers of employees on site - a more useful and accurate description would be to provide the rate of offenses per X population per year. A second example is for Section 7.4 re: impaired driving violations.	QIA recommends that the Proponent consistently present its data in context with rates of growth / contraction or populations (e.g. as ratio in addition to raw numbers) in order to provide a more accurate depiction of the indicators.
3	180403-08MN053-2017 Annual Report-App F-Socio-Ec Monitoring	2.3 Data Limitations	10	As noted by BIMC, appropriate indicator data is not available for a number of topics: In-migration of non-Inuit to the North Baffin LSA, Out-migration of Inuit from the North Baffin LSA, Childcare availability and costs, Absence from the community during work rotation, Prevalence of gambling issues, Prevalence of family violence, Prevalence of marital problems,	QIA recommends that the Proponent review, via the SEMWG, on an annual basis, whether new indicators for these topics can be identified.
4	180403-08MN053-2017 Annual Report-App F-Socio-Ec Monitoring Report-IA2E	4.2 Incentives Related to School Attendance and Success	26	BIMC states that there are "positive indications the Project continues to provide incentives for youth to stay in school", however this is unsubstantiated by the data - and, as BIMC notes, "Correlations between Project effects and school attendance and success, if any, may only come to light with the analysis of additional yearly data." The 2017 AR reports that "Compared to predevelopment period averages, there have been decreasing trends in the average number of graduates in the North Baffin LSA (from 45 to 41) and Iqaluit (from 42 to 38) in the post-development	QIA recommends that the Proponent remove statement that the Project continues to provide incentives for youth to stay in school. NIIRB to also request that BIMC review, via the SEMWG, the indicators used to identify the Project's effect on school attendance and success.
5	180403-08MN053-2017 Annual Report-App F-Socio-	5.3 New Career Paths	41	Indicators for New Career Paths are promotions and Inuit employee turnover. In addition, the number of Inuit employees who were able to make desired lateral job changes could be a useful indicator.	QIA recommends that the Proponent review indicators for New Career Paths with the SEMWG and to discuss whether numbers of lateral job changes would be a useful indicator.
6	180403-08MN053-2017 Annual Report-App F-Socio-Ec Monitoring Report-IA2E	7.1 Changes in Parenting	51	The Number of Youth Charged is the indicator used for parenting performance in LSA communities. BIMC states that "this is because children with stable homes and effective parents can be expected to have fewer encounters with the law", however no references are provided for this statement. This is the only indicator offered to substantiate the predicted positive impact. QIA is of the opinion that this indicator alone is inadequate and suggests inclusion of additional indicators such as	QIA recommends that the Proponent review indicators for Parenting Performance with the SEMWG and to discuss whether additional indicators can be added to increase robustness.
7	180403-08MN053-2017 Annual Report-App F-Socio-Ec Monitoring Report-IA2E	7.4 Affordability of Substances / Attitudes Toward Substances and	57	The Numbers of Impaired Driving Violations and Number of Drug Violations are useful but limited indicators. While they may reflect an increase or decrease in driving or drug violations, they may also reflect a change in law enforcement or other policies. QIA is of the opinion that these indicators alone are inadequate.	QIA recommends that the Proponent review indicators for Affordability of Substances and Attitudes Toward Substances and Addictions with the SEMWG and discuss whether additional indicators can be added to increase robustness.
8	180403-08MN053-2017 Annual Report-App F-Socio-Ec Monitoring Report-IA2E	8.3 Pressures on Existing Health and Social Services ...	71	BIMC provides the total and per capita number of health centre visits, but only the total number of visits to project site medic. The per capita visits to the project site medic should also be provided as this information gives a more accurate depiction of trends over time.	QIA recommends that the Proponent add the <i>per capita</i> visits to the site medic for this topic.
9	180403-08MN053-2017 Annual Report-App F-Socio-Ec Monitoring	10.1 Project Harvesting Interactions and Food	79	As noted by BIMC, the 2018 Inuit Employee Survey reported that 50% of respondents did not know that they can participate in traditional activities during their leisure time on site.	QIA recommends that the Proponent add information about the pursuit of traditional activities by Inuit employees during leisure hours to Inuit employee onboarding materials, and to provide this information via other mediums if recommended by the QSEMC.
10	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.1 PCC 131	299	Information from the BCLOs is not adequate alone. However, when used and compared with data from the Inuit Employee Survey and GN re: proportion of Inuit, the QIA is of the opinion that the BCLCO data can be used.	If the GN recommends additional employee survey questions on housing in 2018, these should be discussed by the SEMWG for incorporation into survey.
11	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-	Section 4.7.1 PCC 132	302	The information BIMC provides to justify compliance is not related to the objective of this PCC. QIA requires more information to assess the Proponent's performance on this PCC.	QIA recommends that the Proponent provides additional information to validate compliance. For example, what partnerships or programs has Baffinland completed within North Baffin communities and with which Hamlets, businesses, or other groups? What positive impact has Baffinland been responsible for within these communities?

12	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.1 PCC 133	306	BIMC delays pushed this survey into 2018. The employee survey does not contain questions related to a need to move to obtain training. QIA views the Proponent's performance on this PCC as Non-Compliant. QIA expended considerable effort to support BIM on addressing this condition and is altogether not satisfied with the result. The recommendations put forward by QIA to the proponent prior to completion of this survey, plus more recent comments sent	NIRB to request BIMC to discuss inclusion of training availability in communities in employee survey at the SEMWG.
13	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.1 PCC 134	310	A large percentage of the Nunavut based employees/contractors origin is "Unknown" (approximately 25%), and the location origins for the international employees are not provided. QIA views the Proponent's performance on this PCC as Partially-Compliant.	NIRB to request that BIMC determine how to reduce the percentage of "unknowns" and to provide the location origins for international employees.
14	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.2 PCC 135	313	Details regarding BIMC's efforts re: adjusted work study programs need to be added to 2017 report. There is no mention of work study programs in the 2017 AR. Q-STEP is not applicable to this PCC. QIA views the Proponent's performance on this PCC as Non-Compliant.	Details regarding BIMC's efforts re: adjusted work study programs need to be added to 2017 report.
15	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.2 PCC 136	315	BIMC should list the training programs that provide transferable certifications as well as those that are only valid at the Project. QIA requires more information to assess the Proponent's performance on this PCC.	BIMC should list the training programs that provide transferable certifications as well as those that are only valid at the Project.
16	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.2 PCC 137	317	The list provided by BIMC describes the type of training/skill but does not list the names of the actual certificates that are conferred. There is no way to independently verify that these are transferable. BIMC should list the training programs that provide transferable certifications. QIA views the Proponent's performance on this PCC as Partially-Compliant.	BIMC should list the training programs that provide transferable certifications.
17	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.2 PCC 138	319	Baffinland has consistently failed to offer Inuit training in accordance with the IIBA. Inuit were not provided with training under Q-STEP in 2017. Work Readiness Training has not been offered since 2013. BIMC has not provided any evidence that any Inuit were trained in 2017. QIA views the Proponent's performance on this PCC as Non-Compliant and is concerning to QIA.	QIA recommends refining compliance so that Baffinland may only base compliance on what was done in a given year, not what will be done or was committed to being done, but not completed. For example, training beginning in Q4 does not make Baffinland compliant for the year, given the failures of the first three quarters. QIA encourages NIRB to take on a more detailed assessment of conditions related to the delivery of socio-
18	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.2 PCC 140	323	BIMC's employee survey was not administered in 2017, and QIA views BIM's performance on this PCC as Non-Compliant. The PCC states this should be done for incoming Nunavummiut, as they are hired, not as a onetime survey completed in 2016.	QIA recommends refining compliance so that Baffinland will only base compliance on what was done in a given year, not what will be or was committed to being done. For example, training beginning in Q4 does not make Baffinland compliant for the year, given the failures of the first three quarters.
19	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.2 PCC 141	326	As applications for construction/expansion of the project have been put forward for several years QIA believes there remains a need to conduct monitoring for operations and continuing construction activities and Inuit should still receive prioritized training for those roles.	QIA recommends that Baffinland continue to provision training programs that prioritize Inuit for the roles specified in this PCC.
20	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.3 PCC 142	330	BIMC provides no evidence related to this PCC, and has not indicated how different dialects of Inuktitut impact Inuit employees and QIA views BIM's performance on this PCC as Non-Compliant.	NIRB to request BIMC to provide information about its efforts to mitigate possible alienation stemming from language differences.
21	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.3 PCC 143	331	BIMC provides no evidence of utilizing innovative technologies, just existing ones (telephone and internet at site). QIA views the Proponent's performance on this PCC as Partially-Compliant.	QIA recommends that the Proponent provide information regarding use of innovative technologies.
22	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.3 PCC 144	332	There is a lack of community level indicator data regarding childcare availability and costs. QIA views the Proponent's performance on this PCC as Partially-Compliant.	NIRB to request BIMC review, via the SEMWG, on an annual basis, whether data for childcare availability and costs, along with other barriers to women's employment can be located, or new data collected.

23	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.3 PCC 145	334	Not a BIMC Condition. QIA views this PCC to be Not Applicable in 2017	
24	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.3 PCC 146	337	QIA views this PCC to be Not Applicable in 2017	
	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.3 PCC 147	338	There is no information provided about BIMC efforts to discuss public housing rental rates with the GN. BIMC provides no evidence of options or incentives explored, or actions taken. QIA requires more information to assess the Proponent's performance on this PCC.	NIRB to request BIMC to provide information about relevant efforts if available. It is possible that efforts from past years have address this topic, however that is not clear.
25	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.4 PCC 148	341	Signage regarding Inuit travel and access on site should be in Inuktitut and English. The Hunter and Visitor Site Access Procedure should also be available in Inuktitut and be made publicly available online and in print at BCLO offices. QIA views the Proponent's performance on this PCC as Partially-Compliant. QIA would like to receive a copy of this procedure.	NIRB to request that BIMC confirm if signage is provided in both Inuktitut and English and that the Hunter and Visitor Site Access Procedure should also be available in Inuktitut and be made publicly available online and in print at BCLO and Project site offices.
26	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.4 PCC 149	343	QIA has communicated to BIMC in 2017 that the Closure Plan is inadequate, and is not applicable to the current state of the Project. QIA views the Proponent's performance on this PCC as Partially-Compliant.	NIRB to request that BIMC work with QIA to redraft the Closure Plan are quired by the commerical lease.
27	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.4 PCC 150	344	No information about this topic is included in the 2017 AR. BIMC to provide information about actions taken to address this PCC. QIA requires more information to assess the Proponent's performance on this PCC.	NIRB to request BIMC to provide information about its actions taken to address this PCC.
28	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.4 PCC 151	346	BIMC does not appear to have done anything to address the PCC but rather is suggesting they are not responsible for it. QIA views the Proponent's performance on this PCC as Non-Compliant.	NIRB to request BIMC to provide information about its actions taken to address this PCC.
29	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.4 PCC 152	348	To QIA's knowledge, contract unbundling did not take place in 2017. QIA views this PCC to be Not Applicable in 2017.	
30	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.5 PCC 153	352	The EFAP provides access to counselling over the phone, not in person / on site access to a mental health professional. Elders can provide support and advice, but they are not mental health professionals, nor do they fulfill this role with Inuit employees. QIA views the Proponent's performance on this PCC as Non-Compliant.	NIRB request the SEMWG to investigate whether an on-site mental health professional would benefit Inuit employees. QIA recommends that BIMC hire on-site mental health professionals both as an extension of site based HR but also as a part of a broader Project employment retention strategy.
31	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.5 PCC 154	354	As noted by BIMC, there is a lack of available data for a number of these indicators: gambling issues, family violence, marital problems, Rates of teenage pregnancy. Where data are not available, BIMC states that topics are being tracked through the QSEMC process and community engagement, though it is not clear how this is possible. QIA views the Proponent's performance on this PCC as Partially-Compliant.	NIRB to request BIMC and the SEMWG to continue working with the GN to identify reliable community level data for these indicators
32	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.5 PCC 155	357	No longer relevant as condition applies to before construction. QIA views this PCC to be Not Applicable in 2017	

33	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.5 PCC 156	359	BIMC should confirm that it is referring to its support of the INPK wellness fund when discussing this PCC.	NIRB to request that BIMC clarify its support of community recreation programs (i.e. whether it views its financial support of the INPK fund as adequate).
34	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.5 PCC 157	360	EFAP and Elders are not treatment programs. Elders are not trained counsellors. QIA views the Proponent's performance on this PCC as Non-Compliant.	NIRB request the SEMWG to investigate whether an on-site counsellor would benefit Inuit employees, see comments above.
	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.5 PCC 161	369	QIA views this PCC to be Not Applicable in 2017, as this PCC is not the responsibility of BIMC.	
35	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.7 PCC 162	372	No mention of how elders are involved in this process. QIA requires more information to assess the Proponent's performance on this PCC.	QIA recommends that the Proponent provide information substantiating its assessment of compliance.
36	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board (180403-08MN053-2017 Annual Report-IA2E.pdf)	Section 4.7.7 PCC 164	376	Additional details are needed to confirm compliance. The report generally lists the required information, but does not specify the information provided when and to which agencies.  QIA recognizes there are issues regarding the effectiveness of vessel tracking and communication. This includes the lack of forecast information regarding ship arrival and departure after loading. The shipping schedules are typically inaccurate. Real-time data are not available to community members on the land. Some of these issues are being addressed through on-going activities. QIA requires more information to assess the Proponent's	QIA recommends that the Proponent provide specific information reflecting the PCC and its monitoring requirements.
37	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.7 PCC 165	378	QIA requires more information to assess the Proponent's performance on this PCC.	NIRB should request that BIMC provide detailed information about emergency shelter structures (locations with GPS coordinates and detailed descriptions of shelters available).
38	Baffinland Iron Mines 2017 Annual Report to the Nunavut Impact Review Board	Section 4.7.7 PCC 166	380	QIA requires more information to assess the Proponent's performance on this PCC.  QIA recognizes there are issues regarding the effectiveness of vessel tracking and communication. Some of these issues are being addressed through on-going activities. QIA is hopeful that these issues will be addressed in 2018.	NIRB should request that BIMC provide communities with telephone and internet contact information so community members can access up to date information regarding ice conditions and ship movements.