



Baffinland Iron Mines Corporation's Phase 2 Development Proposal
Government of Canada's Outstanding Technical Questions
Submitted to: the Nunavut Impact Review Board – March 1, 2021

TOPIC / PRESENTATION	FROM (DEPARTMENT)	TO	QUESTION
Marine Environment	Environment and Climate Change Canada	Baffinland	<p>1. Black Carbon</p> <p>In the October 2020 memo on black carbon mitigation, Baffinland indicated that they may use scrubbers to meet global sulphur emission limits, but noted the environmental trade-offs regarding water pollution. ECCC notes that scrubber washwater is known to be acidic, and contains PAHs and heavy metals, substances which are known to have adverse impacts to marine aquatic life. Can Baffinland clarify whether they intend to use scrubbers in their vessels, and if so, have they assessed the impact of scrubber washwater discharge to the marine environment? What mitigation measures if any, are planned to reduce the impacts of washwater discharge to the marine environment?</p>
	Department of Fisheries and Ocean	Baffinland	<p>2. Ballast Water Dispersion Modelling</p> <p>During Baffinland's questioning period after their marine environment presentation, the Qikiqtani Inuit Association, Igloolik Working Group, and the Ikajutit Hunters and Trappers Organization brought forward concerns and questions on the Ballast Water Dispersion Model conducted for the Phase 2 Development Proposal. Baffinland ran earlier ballast dispersion models (in TSD18) at current and Phase 2 levels, but these were based on an underestimated per ship discharge from literature. At the June 2019 technical meetings, DFO requested Baffinland rerun these models, but using real project per ship values from the ballast reporting forms. Baffinland agreed to this and provided an updated Ballast Water Dispersion Modelling report (Golder, October 2019), which modelled dispersion under current (6.0 mtpa) shipping levels. Baffinland has stated that they will not commit to model predicted Phase 2 shipping levels ballast dispersion until ballast water exchange plus treatment practices are discontinued, see commitment DFO 3.6.4 NEW. Fisheries and Oceans Canada remains concerned that Baffinland has not modelled discharges at Phase 2 shipping levels using the observed data.</p> <p>a. Given additional concerns raised and if phase 2 is approved, would Baffinland commit to:</p> <ul style="list-style-type: none">i run the model scaled up to full projected phase 2 ballast water discharge volumes, using updated oceanographic parameters and provide the results to DFO and the MEWG,ii to do so prior to commencing any increase in shipping associated with phase 2, andiii use results to inform and be incorporated in updated monitoring and adaptive management plans, particularly the spatial extent for AIS monitoring?



			<p>b. If not, please provide the rationale, and propose a more suitable timeframe to address these remaining concerns.</p>
		Baffinland	<p>3. Dispersion of organisms within the ballast water</p> <p>In response to the Qikiqtani Inuit Association's questions on Baffinland's analogy that ballast water discharge into the marine environment would be similar to raindrop in a bathtub, Baffinland indicated that ballast discharge will only dissipate by a few meters and thus their scale of their AIS/NIS monitoring is sufficient. This statement appears to contradict information and maps found in the updated Ballast Water Dispersion Modelling report (Golder, October 2019), which modelled dispersion under current (6.0 mtpa) shipping levels. The updated model shows the maximum extent of the ballast plume based on a 1 month simulation to extend into Eclipse and Tremblay sound, a distance far greater than a few meters. Given that ballast water dispersion should reflect the extent to which organisms entrained in the discharged ballast water could be transported with ocean currents, DFO remains concerned with how Baffinland has presented information related to potential AIS/NIS dispersion.</p> <p>a. Can Baffinland confirm what is the maximum extent species may be dispersed in ballast? This response should be provided in context of the 2019 Updated Ballast Water Dispersion Modelling Report and future updates to the modelling.</p> <p>b. Has Baffinland considered asexual reproduction in the potential for establishment of dispersed AIS/NIS? If so, how? If not, why not?</p> <p>c. Has Baffinland considered repeated ballast water release in the potential for establishment of AIS/NIS? This may increase the probability of sexually reproducing organisms to find mates and further propagate.</p>
		Baffinland	<p>4. Distinction between Aquatic Invasive Species and Non-Indigenous Species</p> <p>The Aquatic Invasive Species Regulations under the <i>Fisheries Act</i> provide a set of tools to help Canada protect its waters from species that can potentially harm our fish, fish habitat, ecology, economy, or social needs. For the purposes of the Regulations, AIS are presented in a list form, and more management tools are available for those species listed. However, for management purposes, AIS has a two part definition:</p> <p>i that the species is not native to an area; <i>and</i></p> <p>ii has the potential to cause harm.</p> <p>There is a broad prohibition (Section 10) that prohibits 'any person to introduce an aquatic species into a particular region or body of water frequented by fish where it is not indigenous unless authorized to do so under federal or provincial law.'</p>



			<p>i. <i>i.e.</i>, a species is an AIS if it is a non-indigenous (not native) species that can potentially harm our fish, fish habitat, ecology, economy or social needs.</p> <p>a. Does Baffinland and their reporting differentiate between AIS and NIS?</p> <p>b. If Baffinland does differentiate between AIS and NIS, can they provide the definitions for these classifications?</p> <p>c. Can Baffinland clarify and elaborate on if there is any difference in how they respond or would propose respond to reports of AIS and NIS?</p>
		Baffinland	<p>5. Identification of Aquatic Invasive Species and/or Non-Indigenous Species</p> <p>In response to the Qikiqtani Inuit Association's and Mittimatalik Hunters and Trappers Organization's questions on potential aquatic invasive species (AIS)/non-indigenous species (NIS), Baffinland indicated that species found in the aquatic invasive species monitoring have not yet been confirmed as non-indigenous species or aquatic invasive species. In Baffinland's monitoring reports, <i>Marenzelleria</i> sp. have been reported in 2016 to 2018, and further identified as the species <i>Marenzelleria viridis</i> in 2019. <i>Marenzelleria viridis</i> is a known AIS in other ports and for being transported between ports via ballast water transfer. Similarly, a non-indigenous amphipod has been found in the Milne Port area since 2013 in both juvenile and adult life stages. This species/species complex is well known for being transported among ports through biofouling of ships. Further, concerns related to these species were brought forward during the Community Roundtable in September and October of 2020.</p> <p>a. Can Baffinland confirm whether or not <i>Marenzelleria</i> sp. and <i>Marenzelleria viridis</i> have been confirmed as AIS or NIS, and, if not, how Baffinland intends to continue working to determine this, as per the commitments for DFO 3.6.7 NEW and DFO 3.6.8 NEW?</p> <p>b. Further, if these species are confirmed AIS or NIS for this area, how does Baffinland intend to respond to a potential introduction and in what timeframe, noting Baffinland's commitments established for DFO 3.6.9 NEW and DFO 3.6.10 NEW?</p> <p>c. Does Baffinland commit to implementing a rapid response plan for an organism(s) found within their sampling that are yet to be confirmed invasive, but that are proven to be invasive elsewhere?</p> <p>d. Can Baffinland confirm that earlier records of <i>Marenzelleria</i> spp. do not represent early records of <i>Marenzelleria viridis</i>?</p>



			<p>e. Does Baffinland have evidence of where this species may have been found around Baffin Island prior to shipping activities?</p> <p>f. What does Baffinland consider to be evidence of species spread, and how many years of monitoring data does Baffinland have for these potential AIS/NIS since their detection?</p>
	Crown Indigenous Relations and Northern Affairs Canada	Baffinland	<p>6. Scope of the Assessment</p> <p>Preamble: Correspondence circulated by the NIRB on August 7, 2020 provided an updated and clarified scope for the assessment of the Phase 2 Development Proposal. This updated Scope of Proposal included a reference to “options for anchorage locations, including plans to anchor at an established sheltered anchorage at Store Hellefiskebank (an area in Baffin Bay off the west coast of Greenland)”. Baffinland’s Marine Environment presentation (slide 12) provides an illustration of the local and regional study area in which impacts to the marine environment were assessed but does not include the Store Hellefiskebank anchorage area.</p> <p>Question: What steps did you take to ensure that this new component would be adequately assessed? Did it inform the development of any mitigation measures, including monitoring plans or adaptive management plans and, if so, how? If potential impacts were considered, please describe your findings in relation to relevant valued ecosystem components such as benthic habitats, marine mammals and birds. Did the assessment of the anchorage areas consider the possible impacts of disturbance, such as the deposition of black carbon and vessel noise, and how were confounding influences such as climate change or predation considered in the assessment? How were cumulative effects assessed?</p> <p>Scoping document: NIRB Document ID Number 318152 Marine Environment Presentation: NIRB Document ID Number 332553</p>
Adaptive Management, Management Plans and Monitoring Programs	Parks Canada	Baffinland	<p>7. Cumulative Effects</p> <p>Baffinland has indicated that its adaptive management plan has “Predetermined Indicators and Thresholds” and will “Implement Predetermined Responses as Necessary” (e.g.: slide 21, Adaptive Management Presentation). Please explain how, or if, these will be responsive to the context of climate change and cumulative effects, particularly to the marine environment. Note that by cumulative effects we mean effects from the Mary River project in combination from those of other past, present, and future projects/activities in the area.</p>
		Baffinland	<p>8. MEWG Participation</p> <p>On Day 11 of the hearing, representatives from Clyde River indicated that they had asked to observe a MEWG meeting in December 2020 where new Terms of Reference were being discussed but that Baffinland had refused (lines 13-16, pdf p 194, public hearing transcript Vol 11). Given the consensus based decision-making model of the</p>



			working groups, could you please explain the rationale behind reaching this decision and why MEWG members were not consulted?
		Baffinland	9. MEWG Terms of Reference (TOR) Clyde River provided a supporting document; “ <i>Problems with the environmental working groups for the Mary River mine</i> ” (NIRB Registry document ID: 332592). Please provide comments on this report and the applicability of its recommendations to the current MEWG TOR revision.
		Baffinland	10. Adaptive Management Plan/Baseline Information On Day 12 of the hearing. Ms. Udlu Hanson said “We see the value in using the new adaptive management plan to monitor for impacts. But before we even do that, Baffinland has committed to doing a baseline study, so we’ll have all the necessary information to know exactly when there will be new or more impacts.” (lines 4-9, pdf p 128, public hearing transcript Vol 12). As per Ms. Hanson’s comments, it appears that Baffinland is suggesting that new baseline information is required. Baseline studies are usually conducted prior to the start of a project to establish pre-development conditions and model expected/acceptable level of change from those conditions to inform adaptive management. 1. Could Baffinland please (a) provide a detailed explanation of the short-comings or gaps in the existing baseline studies, (b) outline what necessary information is missing, and (c) explain why new baseline is now required. 2. For the proposed new baseline study work, please explain: a. Which components of the project (e.g.: geographical extent and locations, marine mammals, terrestrial ecosystem, socio-economic and cultural components) this new baseline study will encompass; b. How it will link with previous baseline studies (e.g. how information from this new study would be integrated into existing baseline for the project and from other relevant studies/IQ in the area); c. When will the study be conducted and by whom; d. What reference locations will be used; e. How Baffinland will use Inuit Qaujimajatuqangit (IQ) and western science methods to design, observe, record, and analyze/interpret this data; and f. Who will review and approve this baseline (e.g.: how it will be peer reviewed and approved from IQ and Western Science perspectives) .



			<p>3. Given that the project has been operational since 2015, how will Baffinland ensure that actions taken as a result of a new adaptive management plan based on this new baseline study will sufficiently modify project activities to prevent or reverse environmental effects so they do not exceed a common understanding of benchmarks.</p>
Qikiqtani Inuit Association	Crown Indigenous Relations and Northern Affairs Canada & Parks Canada	Baffinland and QIA	<p>11. Working Group Interactions</p> <p>Preamble: Slide 21 and 22 of the Qikiqtani Inuit Association’s Final hearing presentation provides a graphic illustrating the proposed interactions between the MEWG, TEWG, and FEWG and the Inuit Committee structure established under the Inuit Certainty Agreement. This illustration indicates that advice developed by the working groups related to mitigation, monitoring and the development of management plans, including adaptive management plans, related to the Mary River project be submitted to the Inuit Committee for further discussion, engagement and research before being submitted to Baffinland. Currently, advice and recommendations from these working groups is submitted directly to Baffinland and it is unclear if the process proposed by the Qikiqtani Inuit Association will replace or be imposed in addition to the existing MEWG/TEWG advice development structure.</p> <p>a. Will advice developed by the working groups (MEWG/TEWG/FEWG) be considered and implemented by Baffinland as proposed by these working groups (direct consideration) or will this advice only be considered for implementation after it has been reviewed and possibly reshaped by the Inuit Committee structure articulated in the Inuit Certainty Agreement.</p> <p>b. ID 34 of the ICA outlines the Expedited Arbitration process. How will this process affect recommendations provided by the working groups (MEWG/TEWG/FEWG)?</p> <p>c. Will the proponent or QIA propose a term and condition or modify an existing terms and condition that would make some of the Inuit Certainty Agreement processes, or recommendations made under the Inuit Certainty Agreement, enforceable under NuPPAA?</p> <p>QIA Final hearing Presentation: NIRB Document ID Number 332998</p>