



Nunavut Impact Review Board (NIRB)  
P.O. Box 1360  
Cambridge Bay, NU  
X0B 0C0  
Attention: Ryan Barry, Executive Director

June 20, 2018

**Re: Nunavut Impact Review Board Process Guidance – Production Increase Proposal – Additional Information Requirements**

Dear Ryan Barry,

Please find enclosed the additional information required to support further assessment of the Production Increase Proposal as outlined in Appendix A of the NIRB's correspondence from June 11, 2018. Baffinland's approach has been to systematically address the specific points outlined in Appendix A in a table format and, where necessary, make corresponding revisions to the Mary River Modification Application – Production Increase, Fuel Storage, and Milne Port Accommodations.

Baffinland looks forward to NIRB's initiation of the public technical review of the proposal and additional details regarding the associated assessment process and timeline. Should there be any additional questions or need for clarification please contact me at (416) 364 8820 ext 5050 or [megan.lord-hoyle@baffinland.com](mailto:megan.lord-hoyle@baffinland.com).

Sincerely,

A handwritten signature in blue ink, reading "Megan Lord-Hoyle".

Megan Lord-Hoyle  
Director, Sustainable Development

CC Grant Goddard, Baffinland Iron Mines Inc.  
Lou Kamermans, Baffinland Iron Mines Inc.  
Kelli Gillard, Nunavut Impact Review Board  
Solomon Amuno, Nunavut Impact Review Board  
Stephen Williamson-Bathory, Qikiqtani Inuit Association

**Table 1 Summary of Information Required to Support Assessment of the Production Increase Proposal**

Comment	Response
<p><b>Preamble:</b> NIRB expects updated impact predictions to be provided for the proposed project components and activities to reflect the contributions of the additional activities described in the Production Increase Proposal to the effects of the approved Project with discussion of whether predictions and associated monitoring, mitigation and residual effects for air quality and local climate conditions remain consistent with the analysis provided in the FEIS and FEIS Addendum previously supplied for the Mary River Project Proposal and the associated Early Revenue Phase (ERP) Proposal.</p>	<p>Noted. The Application Document includes impact predictions, discussion of monitoring, mitigation, and residual effects for valued ecological and socio-economic components. These have been updated in this version based on the comments provided by the reviewer.</p>
<p><b>Preamble:</b> The Proponent is further encouraged to demonstrate how its monitoring results and experiences gained in operating the approved Project to date have informed its development of the Production Increase Proposal.</p>	<p>Noted. The Application Document includes a summary of the relevant monitoring results (Sections 2.2.2, and 3.2.2). Additionally, these monitoring results have informed the assessment of potential effects presented in Table 8 and Table 16.</p>
<p><b>Preamble:</b> While the FEIS Addendum may include specific references to information already posted to the NIRB's public registry, specific public registry identification numbers must be provided, with clear reference to the applicable pages within the document to be referenced.</p>	<p>Noted. Where one has been assigned, registry numbers have been included with document references.</p>
<p><b>Preamble:</b> Where substantive revisions or updates to existing management plans have been prepared to specifically support activities outline in the Proposal, they should be provided for review with the FEIS Addendum.</p>	<p>No substantive revisions or updates to existing management plans are required to support activities outlined in the Proposal, as there are no new activities associated with the Proposal that are not already addressed in existing management plans.</p>
<p>1. How public consultation and Inuit Qaujimaningit/Qaujimajatuqangit, local knowledge and community knowledge have influenced the planning and design of the proposed activities and associated management plan updates.</p>	<p>The sections related to public consultation, including Inuit Qaujimaningit/Qaujimajatuqangit, local knowledge and community knowledge have been consolidated, updated, and moved to Section 1.2 of the Application Document. Section 1.2 of the document describes all consultation related to the proposal that occurred in advance of submission.</p> <ul style="list-style-type: none"> <li>• MEWG meeting – March 15, 2018</li> <li>• Pond Inlet Hamlet and HTO, QIA – March 25, 2018</li> <li>• TEWG meeting – March 22, 2018</li> </ul> <p>Since submission, the following engagement activities related to this Application have taken place or will take place in the near term:</p> <ul style="list-style-type: none"> <li>• QIA and Baffinland President's Meeting – May 1, 2018</li> </ul>

**Table 1 Summary of Information Required to Support Assessment of the Production Increase Proposal**

Comment	Response
	<ul style="list-style-type: none"> <li>• TEWG meeting – June 5, 2018</li> <li>• MEWG meeting – June 6, 2018</li> <li>• Pond Inlet Hamlet and HTO – June 7, 2018</li> <li>• Distribution of Community Fact Sheet on application (planned for June 22, 2018)</li> <li>• Attendance at NIRB led consultation on the application (planned for July 10-13, 2018)</li> </ul> <p>Inuit Qaujimagatuqangit (IQ) was gathered for the FEIS, as reflected throughout that assessment, and summarized in Volume 1, Section 4.3. Throughout 2015 and 2016, Baffinland undertook five community workshops to collect Inuit Qaujimagatuqangit (IQ) to better understand the potential effects of the original Phase 2 Proposal on Inuit land use and harvesting, focusing on potential winter shipping impacts to Inuit use of the land for travel and harvesting.</p> <p>These workshops and ongoing communication with the communities influence project operations, monitoring programs, and future planning. After careful consideration of results from the workshops and community consultation, the Phase 2 Proposal was subsequently revised to a reduced shipping season that relies primarily on open water shipping with limited shipping during periods of ice break-up and ice formation; this is also applicable to the current application. Baffinland's understanding of Inuit use of the transportation corridor, including the identification and use of travel routes has also informed mitigation requirements related to access. Operational changes to shipping have been made as a result of consultation activities such as the speed and course of travel for vessels. As a result of community input, Baffinland is currently working with the communities to review the location of navigation waypoints as they related to hunting areas.</p>
<p>2. Clarification regarding rationale for excluding upgrades to the Milne Inlet Tote Road from the scope of the Production Increase Proposal, identified in previous submissions as necessary to address road safety and operational issues.</p>	<p>The rationale for excluding upgrades to the Milne Inlet Tote Road scope of the production increase proposal is that the existing road bed and corridor are adequate to accommodate the increased frequency of haulage. No additional road safety and operational issues were identified as a result of production increase activities and these will continue to be addressed through the annual work plans.</p>

**Table 1 Summary of Information Required to Support Assessment of the Production Increase Proposal**

Comment	Response
<p>3. Identification of the extent to which Baffinland's Environmental Management Plans, including the Air Quality Management Plan, Oil Pollution Emergency Plan (OPEP), Fuel and Spill Contingency Plan, and Decommissioning and Reclamation Plan would require updates or revisions to address prevention/mitigation of additional dust/GHG emission loading into the environment.</p>	<p>The activities included in the Production Increase proposal expected to generate additional dust and GHG emissions – increased ore movement, additional fuel storage and use, construction and operation of additional accommodations - are already addressed in Baffinlands Environmental Management Plans (EMP), including those specifically listed in the information request. That is, there are no new activities, and those activities that are being modified in terms of frequency and capacity are already covered by Baffinlands EMP's. Following a review of Baffinland's EMPs, including the four specified, no substantive updates or revisions have been identified to address prevention or mitigation of any additional emission loading into the environment. Baffinland is discussing potential monitoring requirements with QIA. If any changes are identified, these would be incorporated in the QIA submission to the NIRB on this proposal, anticipated at the end of July, as reflected in Baffinland's letter to NIRB, dated June 6.</p> <p>A minor update of the Spill Contingency Plan will be required to reflect site layout changes and associated changes in the location of spill response equipment. A minor update of the Oil Pollution Emergency Plan (OPEP) – Milne Port will be required to incorporate additional fuel storage in the Milne Port tank farm.</p>
<p>4. Description of how additional sewage and solid wastes materials generated from the proposed new camp facility at Milne Inlet would be managed, with information regarding the location of the sewage management facility, the number and type of trucks to be used for sewage haulage, frequency of sewage collection from the proposed facility, and use of the landfill.</p>	<p>Sewage and solid waste material management is described in Section 3.2.1.2 of the Application Document, detailed design information is also provided in Appendices D - G.</p> <p>The location of the sewage management facility will be within the southern portion of the camp pad. Treated discharge will be piped to the current discharge point at Milne Inlet.</p> <p>Sludge from the treatment facility will be trucked to the incinerator, approximately 1 km from the camp pad; no movement of sewage by truck is planned.</p>
<p>5. Discussion of the anticipated timelines to provide respective regulatory authorities with engineering design and drawings, specifications and engineering analysis to support the design of the proposed camp facility at Milne Inlet and associated infrastructure.</p>	<p>Specifications for the 380-person camp at Milne Port were submitted to the Nunavut Water Board (NWB) under Modification Request No. 3 (Baffinland, 19 July 2017), including construction methodology, layout plan, and water treatment process flow diagram and performance guarantee. Issued for Construction (IFC) drawings will be submitted 60 days prior to construction in accordance with Part D, Item 2 of the Type 'A' Water License 2AM-MRY1325.</p>

**Table 1 Summary of Information Required to Support Assessment of the Production Increase Proposal**

Comment	Response
<p>6. Discussion of the environmental implications of sourcing granular resource materials from quarry (Q1) for the new camp facility:</p> <ul style="list-style-type: none"> <li>Information on the quantity and quality estimates of granular resources from Q1 with discussion of how acid drainage and metal leaching potential of the granular materials have been taken into consideration to avoid any potential ecological risk; and</li> <li>Discussion of how activities within quarry Q1 would be managed to avoid or minimize the creation of pits and depressions to the degree practicable to reduce the potential for standing water.</li> </ul>	<p>Section 3.2.1.1 has been revised to reflect that most of the required Quarry activities for the camp pad are completed.</p> <p>The following information has been added to Section 3.2.1.1:</p> <p>To reach final grade, a layer of approximately 150 mm of 32 mm minus material will be applied (total volume of approximately 700 m<sup>3</sup>).</p> <p>These materials will be sourced from Q1. Quarrying activities at this location are government by the Q1 Quarry Management Plan (BAF-PH1-830-P16-0017).</p> <p>The Q1 Quarry Management Plan includes procedures for managing the potential for acid drainage and metal leaching of the granular materials. In brief, there is an operational testing program where a composite sample of quarry material is taken for every 10,000 m<sup>2</sup> of material quarried. These samples are tested for sulfur content and ABA analysis if sulfur content is &gt;0.2 %.</p> <p>As further detailed in the Q1 Quarry Management Plan, Quarry development reduces the potential for the creation of pits and depressions, including leaving the Quarry pit floor as free draining. Other management tools available to manage water flow on site include:</p> <ul style="list-style-type: none"> <li>The hydrological regime around the quarry site has been defined, and the appropriate direction of flows from site will be managed to maintain the natural flow patterns as much as possible.</li> <li>Overland flow paths will be managed as required to accommodate flows around the quarry development.</li> </ul>
<p>7. <u>Operational plans and mitigation strategies</u> intended to address potential interactions of proposed activities with traditional hunting activities and potential impacts from increased truck haulage and shipping activities, including:</p> <ul style="list-style-type: none"> <li>(a) Discussion of the potential impacts to, and interactions with, Inuit harvesting in the port area and along the shipping route;</li> <li>(b) Assessment of potential contaminant loading in sea water and ice from dust plumes deposition at the port site;</li> <li>(c) Discussion of the potential interactions, accidental injuries and mortality of marine mammals directly or indirectly from additional</li> </ul>	<p>Additional discussion and assessment has been added to Sections 2.3.2 and 3.3.2.</p> <ul style="list-style-type: none"> <li>(a) A description of the change and discussion of the potential impacts to Inuit harvesting has been added to Table 8. Increased ship traffic is not expected to result in adverse effects to marine mammals and therefore is unlikely to affect harvesting opportunities. In isolated instances, Project shipping may interrupt an individual hunt, or other marine boating activities to some degree. These instances are potentially eligible for compensation through the Wildlife Compensation Fund (WCF) established under the IIBA and administered by the QIA.</li> <li>(b) As described in Section 2.2.2.2, all water quality results collected in 2017 were well below applicable water quality guidelines. Similarly, sediment samples were also below guidelines. Dust deposition and site water management will continue to</li> </ul>

**Table 1 Summary of Information Required to Support Assessment of the Production Increase Proposal**

Comment	Response
<p>shipping (open water and ice breaking shipping) activities, in particular those marine mammals, which congregate around the proposed northern shipping route;</p> <ul style="list-style-type: none"> <li>• (d) Potential social-economic impacts from increased shipping levels, taking into account any impacts on marine species on which local residents rely on as food sources; and</li> <li>• (e) Discussion of proposed safety measures, including considerations for hiring personnel with local knowledge of the marine areas to act as ship-board monitors along the shipping route (Milne Inlet-Eclipse/Baffin Bay) and details regarding the proposed procedures for accident, malfunction and incident management and reporting associated with increased shipping activities.</li> </ul>	<p>be managed through existing processes such as the settling ponds currently associated with the stock piles, the snow management plan, and the dust management protocol. Furthermore, there is a high degree of certainty on the geochemistry of dusts from the project, since multiple years of dustfall chemistry data are available. The metals chemistry of the dust is predominantly composed of iron, aluminum and manganese. Metals that are reported to bioaccumulate in foodchains are present at low or very low (below detection limits) concentrations in dustfall near the Project. Therefore, the potential for bioaccumulation in food chains is considered low.</p> <ul style="list-style-type: none"> <li>• (c) A description of the change and discussion of the potential interactions with marine mammals has been added to Table 8. Given the relatively low likelihood and short duration of encounters between marine mammals and vessel traffic, acoustic disturbances are not expected to affect marine mammals at the population level. With respect to vessel strikes, due to existing mitigation and the low likelihood of encounters, increased vessel traffic is expected to result in an inconsequential increase in vessel strike potential. This conclusion is supported by the existing marine mammal monitoring under current operations.</li> <li>• (d) See response to IR 7a) above.</li> <li>• (e) The following information has been added to the discussion in Section 2.2.1.4 of the Application Document.</li> </ul> <p>Shipping activities will continue to follow the guidance of the, “Standing Instructions for Masters of Vessels Loading at Milne Inlet (Fednav Limited 2017)”. This document provides guidance to vessel Masters using Milne Inlet. The document covers such topics as:</p> <ul style="list-style-type: none"> <li>• Reporting requirements</li> <li>• Navigation information</li> <li>• Port regulations and operational information</li> <li>• Cargo procedures</li> </ul> <p>The involvement of shipboard observers as part of marine activities, specifically as they relate to marine wildlife, is a requirement of the Project Certificate Conditions. Baffinland initiated a ship-based observer program in 2014/2015. This program was suspended due primarily to health and safety concerns. A revised program will be in place for the 2018 season. This program will be run over 2.5 weeks in July and October by 3-person field teams (2 marine wildlife observers and 1 consultant).</p>

**Table 1 Summary of Information Required to Support Assessment of the Production Increase Proposal**

Comment	Response
<p>8. Discussion of proposed management plans for accommodating additional volumes of materials at waste rock facilities, with a discussion of contingency measures that would be employed should the designed facility not be adequate to accommodate the amounts of waste rock generated.</p>	<p>The Production Increase proposal does not represent an increase in the total quantities of ore and waste rock to be produced from Deposit No. 1, as was assessed under the FEIS (2012) and FEIS Addendum (2014). The only modifications included in the proposal concern the rates at which ore and waste rock are produced and transported, neither of these affect the overall quantities forecast for either.</p> <p>The Phase 1 Waste Rock Management Plan (2017), Life-Of-Mine Waste Rock Management Plan (2014), and Interim Waste Rock Management Plan (Golder 2018) will apply to the activities outlined in the Production Increase proposal. While no additional amounts for waste rock are forecast at this time, Baffinland is committed to continuous improvement to reduce risks to the environment and improve operational effectiveness.</p>
<p>9. Discussion of how the proponent intends to comply with the oil handling facilities standards (TP 12402E), with clarification regarding whether the proposed additional fuel capacity would be expected to increase the minimum size of an oil pollution incident or spill size, beyond what was previously assessed for the approved Project.</p>	<p>Requirements of the Transport Canada Oil Handling Facilities Standards (TP 12402E) are incorporated in the current Oil Pollution Emergency Plan - Milne Inlet (Rev 3, June 2017). The Production Increase Proposal includes the addition of a 15 ML arctic Diesel storage tank. The new tank would be installed within the approved PDA, within the existing tank facility, within the existing secondary containment. As per Canadian Council of Ministers of the Environment (CCME) guidelines, it has been determined there is sufficient space for the new tank within the existing lined secondary containment facility at Milne Port, adjacent to the existing fuel tanks. While there will be additional bulk fuel carrier visits to the port, the size of carriers and rate of transfer (&lt;149 m<sup>3</sup>/hr) will be unchanged, and in consideration of the capacity of the secondary containment, there would be no expectation of an increase in the minimum size of an oil pollution incident (3.5 m<sup>3</sup>) or spill size in the marine environment or on land, beyond what was previously assessed for the Approved Project.</p> <p>A minor update of the Spill Contingency Plan will be required to reflect site layout changes and associated changes in the location of spill response equipment. A minor update of the Oil Pollution Emergency Plan (OPEP) – Milne Port will be required to incorporate additional fuel storage in the Milne Port tank farm.</p>

**Table 1 Summary of Information Required to Support Assessment of the Production Increase Proposal**

Comment	Response
<p>10. Discussion of the environmental implications of increased fuel consumption for the Project, should the proposed activities be approved to proceed.</p>	<p>The environmental implications of increased fuel consumption for the Project are discussed in Sections 2.3 and 3.3 of the Application document as related to the 6 Mtpa increase (e.g. mining activities, road transportation, associated port activities, shipping) and the new Milne Port camp (e.g. construction equipment, power and heating, waste incineration, personnel transportation). In consideration of the magnitude of the planned increase in fuel consumption and air quality monitoring conducted to date, air quality (e.g. SO<sub>2</sub> and NO<sub>2</sub>) thresholds should not be exceeded. Table 8 in Section 2.3.2 discusses the increase in emissions associated with the additional ore processing, handling, stockpiling and transporting activities, within the Atmospheric Environment VECs.</p> <p>Potential changes to the factors related to significance include increases in the magnitude and frequency of effects. However, with existing mitigation, the residual environmental effects are evaluated to remain not significant.</p>
<p>11. Information regarding the adequacy of the current emergency response procedures to address all potential accidents, spills, and or malfunctions associated with the proposed increase in capacity at the fuel storage facility at Milne Inlet. Clarification should also be provided regarding what protection measures and best management practices would be employed for the construction and containment of additional fuel tanks and storage area to prevent any damage to the surrounding environment.</p>	<p>Additional consideration of accidents and malfunctions has been added to Sections 2.3 and 3.3.</p> <p>In consideration of potential accidents, spills, and/or malfunctions associated with the proposed increase in capacity at the fuel storage facility at Milne Inlet, there are no new emergency response procedures required, that would not have been expected to be considered for the current facility at Milne Inlet under the Approved Project. There are three existing 12 ML tanks within the facility, with the new proposed fuel tanks (15 ML) being 25% larger. Minor changes (i.e., updated to state the location and capacity of new fuel storage) to the following emergency response plans may be required to address the change in the fuel storage facility: Oil Pollution Emergency Plan – Milne Inlet (OPEP), Emergency Response Plan, and Spill Contingency Plan. Changes may include a facility plan update, and updates to the location of spill response equipment. The secondary containment is designed to meet the requirements of the proposed fuel tank facility capacity (the complete volume of the largest tank, as well as 10% of the volume of all the remaining tanks).</p> <p>Section 8 of the OPEP (BAF-PH1-830-P16-0013-Rev 3, June 2017) identifies spill scenarios and response strategies. The proposed change to the fuel capacity of the</p>



**Table 1 Summary of Information Required to Support Assessment of the Production Increase Proposal**

Comment	Response
	<p>tank facility does not warrant changes to spill scenarios or response strategies, including spill volumes.</p> <p>The Emergency Response Plan (BAF-PH1-840-P16-0002-Rev 3, March 2018) is kept up to date, and includes other probable emergencies and associated response plans.</p> <p>The Spill Contingency Plan (BAF-PH1-830-P16-0036-Rev 3, March 2017) currently includes potential spill analyses on various worst-case scenarios. Included in this scenario is a spill of 10 ML. In consideration of the capacity of the secondary containment, the release of fuels from the tank facility outside the containment area are unlikely to occur. The scenario may be update to 15 ML, however procedures are unlikely to change.</p> <p>Construction of the 15 ML Arctic Diesel Fuel Tank within the existing facility, and within the existing secondary containment, will follow applicable standards, and follow the appropriate Environmental Protection Plan for construction.</p>