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February 3, 2020

Solomon Amuno, PhD
Technical Advisor
Nunavut Impact Review Board
29 Mitik St.
Cambridge Bay, NU

Sent via Email: info@nirb.ca

RE: WWF Canada Comment Submission Regarding Baffinland's Mary River 6 Mt/a Extension Application

Dear Solomon Amuno:

WWF Canada appreciates the opportunity to contribute to the Nunavut Impact Review Board's (NIRB) ongoing assessment of Baffinland's Mary River project.

In December 2019, Baffinland requested that the NIRB consider amending the Mary River Project Certificate to grant approval for the Mary River mine to continue operating at a higher rate than the originally approved project. Following initial approval of the Mary River Project, in March 2014, the NIRB recommended Baffinland be permitted to operate an Early Revenue Phase involving the trucking of ore via the Milne Inlet Tote Road and shipping to market from the Milne Inlet Port at a rate of 3.5-4.2 Million tonnes per year (Mt/a). In 2018, Baffinland requested additional throughput via the Tote Road and Milne Port, to 6 MTPA (Production Increase Proposal). The federal Ministers responsible for the Project provided a time-limited approval for the Production Increase Proposal in September 2018.

WWF Canada does not find that the supporting information provided by Baffinland is sufficient to adequately consider potential impacts and proposed monitoring programs for the Production Increase Extension. We also note several deficiencies from the temporary expansion conditions in the letter from the federal Minister on September 30, 2018. While WWF Canada understands that some parties may recommend the NIRB allow Baffinland to continue with the temporary expansion for this additional year, the outstanding issues regarding potential impacts as raised by parties and echoed by the NIRB during the initial consideration of the Production Increase Proposal have still not been adequately addressed. We submit the following comments for the NIRB's consideration.

A. Ministerial Direction Re Impacts and Collaboration with MEWG

In his September 30, 2018 letter to the NIRB providing approval for the Production Increase Proposal, the Minister stated: "On our review of the available information, we have concluded that - at least until the end of the 2019 shipping season - maintaining or re-imposing the production and transport caps at 4.2 Mt/a is both more onerous than necessary to adequately mitigate impacts..."



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WWF Canada respectfully disagrees with the Minister's implicit suggestion that limiting operations would be more onerous than necessary to mitigate impacts. WWF Canada has been stating for years that Baffinland has not developed adequate monitoring programs to properly assess the status of species and habitat that may be impacted by the Mary River operations. Further, we have consistently expressed our concern that Baffinland has not been required to identify thresholds and indicators to identify impacts and trigger adaptive management processes for valued ecosystem components (VECs) as required by the Project Certificate. Of particular importance, Baffinland has made no progress on the implementation of indicators and/or thresholds that would help support its rationale for allowing this application to increase mining and transportation of ore.

WWF Canada has reviewed Baffinland's PIP Extension Application materials submitted to the NIRB on January 6, 2020 and has found that no new substantive information was provided that would confirm whether Baffinland operating at 6 Mt/a since 2018 either has or has not further impacted valued ecosystem components (VEC), nor to indicate whether there would or would not be additional impacts from operation at this higher rate again in 2020.

The Minister's letter also required Baffinland collaborate with the Marine Environment Working Group (MEWG) to develop impact avoidance or mitigation strategies for the protection of the marine environment, and that it implement any direction from the Department of Fisheries and Oceans for any avoidance or mitigation measures, including cessation of any activity, for the protection of the marine environment. Baffinland was also required to collaborate with the MEWG to review the compliance status of all Terms and Conditions in the NIRB's Project Certificate relating to marine environmental protection.

From review of Baffinland's Extension Application, WWF Canada is uncertain which additional impact avoidance and/or mitigation strategies have been specifically developed in consultation with the MEWG in response to the Minister's 2018 direction. We are uncertain with regard to any direction Fisheries and Oceans Canada may have provided to Baffinland regarding avoidance or mitigation measures, and whether Baffinland implemented the same. WWF Canada requests that Baffinland provide clarification regarding the status of these requirements.

B. Insufficient Information to Support Impact Assessment Conclusions

Baffinland suggests it has "provided ample evidence from its 2019 marine monitoring programs that demonstrate the increased shipping associated with the PIP has not affected narwhal distribution or abundance, a key indicator species in the marine RSA." As the 2019 Monitoring Report has not been provided to parties as yet, WWF Canada has not had opportunity to review results of the 2019 monitoring programs in detail and cannot confirm whether ample evidence has been provided to support this statement.

Further, Baffinland's PIP Extension Application states that findings from its 2019 Marine Monitoring Memo submitted to the NIRB are consistent with previous years monitoring results as provided in Section 4.6 of Baffinland's 2018 Annual Report to NIRB, "substantiating predictions made in the ERP FEIS and PIP that the Project will have temporary and localized disturbances on narwhal, but that long-term displacement and abandonment of the area will not occur as a result of Project



operations...[and this is] in light of a continuous year-to-year increase in ship traffic in the area since the start of Project operations, including under the 6 Mtpa Project scenario.” WWF Canada notes that Baffinland’s marine mammal monitoring programs have been inconsistently utilized year over year, making the results from any one program inconclusive when read over a number of years, and further, we suggest that the results of multiple programs inconsistently carried out should not be integrated and relied upon to provide conclusive, or even suggestive, indication of impact (or a lack thereof). Finally, given Baffinland’s operations commenced in 2014, with ramped up shipping occurring in 2017, 2018 and 2019, WWF Canada does not agree that it’s limited monitoring programs can reliably confirm that “long-term displacement and abandonment of the area will not occur as a result of Project operations.” (Baffinland PIP Extension Application, 2020)

Within the PIP Extension Application, Baffinland suggests that a preliminary summary of its 2019 relative abundance and distribution data from the Bruce Head Shore-Based Monitoring Program indicate the total number of narwhal sightings collected for effort in 2019 were comparable to that collected and reported from 2014-2017. WWF Canada suggests that the Bruce Head program while useful, should not be the sole source of abundance and distribution data. The observation camp previously utilized from 2014-2017 was moved to a different location in 2019, after being suspended for one year in 2018. WWF Canada agrees that the observations are an important aspect of the monitoring program undertaken by Baffinland, but suggests that the surveys carried out are not of a sufficiently rigorous design to provide reliable data about narwhal relative abundance and distribution, and that the inconsistent application does not include important information from either the 2018 or 2019 shipping season.

Of the list of nine Early Warning Indicators for narwhal that Baffinland has presented in Attachment 1 Section 5.3.2.1 of the PIP Extension Application, it provides detail only on narwhal relative abundance and distribution, and only collected, it would appear, within the context of observations from the Bruce Head Shore-Based Monitoring Program. There are no similar discussions of any of the other indicators. WWF Canada finds this to be an inadequate examination of potential impacts and relevant monitoring to support such a final conclusion as Baffinland has proposed, namely that the Production Increase will have no long-term displacement and abandonment of the area as a result of Project operations.

The Minister’s approval acknowledged and shared “many of the Board’s concerns about information deficiencies on the potential long-term impacts of increased shipping, primarily to marine mammals, and how these impacts could be effectively monitored for, avoided, mitigated and managed.” WWF Canada submits that the information deficiencies identified in the original consideration of the Production Increase have not been addressed, and that Baffinland has instead relied on the Phase 2 assessment to address information requirements and impact mitigation and monitoring. WWF Canada suggests that if the consideration and assessment of the Production Increase is so intricately intertwined with the Phase 2 consideration, and that Baffinland cannot provide monitoring or consideration of impacts outside of Phase 2, we should not be reviewing the Increase at this time, and that Baffinland should instead rely on the NIRB’s assessment of the Phase 2 development to consider impacts related to increased mining and shipping. Since the two proposals are being treated as separate and distinct by the NIRB and by reviewing parties, they therefore should be



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treated as such by the Proponent, meeting every specific information requirement for the Production Increase Proposal distinctly from the Phase 2 assessment. If the Production Increase is permitted to proceed but the Phase 2 assessment were to result in a no-go decision, the impacts and monitoring for production at 6 Mt/a will not have been properly considered (i.e. having been included in the larger Phase 2 proposal).

Approving incremental increases to the Mary River Project to support a long-vision goal of increasing throughput over time (which is not being considered in the current proposal) is out-of-line with procedurally fair project assessment and the best practice of taking a whole-of-project approach. Basing approvals on economic viability of future development scenarios while at the same time acknowledging absent technical information regarding impacts and mitigations is an affront to impact assessment and undermines the input of all agencies' and community organizations' contributions to the process.

C. Previous Comments Relevant to Current Extension Application

WWF Canada provided comment to the NIRB regarding the Production Increase in 2018. After reviewing the Extension Application submitted in January 2020, we note that most of our comments remain pertinent to the current application to extend the Production Increase through 2020 and until the Phase 2 assessment is complete. We have included the previous comments as Appendix A as they remain relevant and applicable and submit these to the NIRB for its consideration of the Production Increase Extension.

Without indicators and thresholds in place, Baffinland's monitoring results cannot be relied upon to accurately inform conclusions within the PIP FEIS Addendum. WWF Canada acknowledges the list Baffinland included within its appellation materials (referenced above), however reiterates that one indicator monitored using one survey approach is not adequate and should not be relied upon to provide conclusive evidence about project impacts. We reiterate our prior submission that allowing this proposed amendment to proceed without having indicators and thresholds in place to indicate when and how much an impact is occurring, is a major flaw in the impact review process.

Similarly, to the original Production Increase proposal, Baffinland's Extension Application provides no assessment of impacts to, ongoing monitoring of, or mitigation measures relating to seal, bowhead or beluga whale species, all marine mammal VECs. WWF Canada has previously recommended that Baffinland be required to include beluga, bowhead, and seal species within its ongoing abundance and distribution monitoring programs and we again submit that this information is a necessary component of its marine environment monitoring program as it must consider these potentially impacted species, in addition to narwhal.

Based only on a qualitative assessment, Baffinland's initial FEIS Addendum predicted that for every VEC category, increases in magnitude, frequency, and probability of impacts may occur, but that in all cases, with the application of existing mitigation, all impacts will remain non-significant. Baffinland submitted no new information regarding impacts from operation at the heightened rate for the last 2 years, nor has it provided any updated impact predictions or significance ratings. WWF



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Canada again recommends that Baffinland be required to update its impact prediction values with quantitative descriptions of impact frequency, magnitude, and probability or to confirm the significance rating as “unknown” in all cases where qualitative (as opposed to quantitative), assessments were carried out.

WWF Canada further notes that Baffinland makes references to information provided during the Phase 2 reconsideration process as relevant to the consideration of the Production Increase Extension. WWF Canada remains unconvinced that impact predictions and mitigation strategies proposed within the context of the Phase 2 proposal are relevant or practical for the Production Increase Proposal. For instance, shipping mitigations related to an extended shipping season (i.e. breaking of non-landfast ice) and caribou mitigation focused on railway crossings and decreased truck traffic, cannot and should not apply to a summer season only marine shipping component and significantly increased trucking transportation component. Baffinland should be required to provide separate consideration of impacts from this Production Increase, in the case, as referenced above, that the Phase 2 proposal is never approved, there is no distinct consideration of this increased production in terms of impacts, mitigation, and monitoring.

Conclusion

To conclude, WWF Canada appreciates this opportunity to participate in the NIRB’s consideration of Baffinland’s Production Increase Extension Application. We submit the foregoing and trust in the NIRB’s expertise and tested adjudicative practices. Please contact the undersigned with any questions related to this submission.

Sincerely,

Andrew Dumbille, WWF-Canada

Attached:

Appendix A - WWF Canada Final Written Submission to the NIRB Assessment of Baffinland’s Production Increase Proposal



WWF Canada Final Written Submission to the Nunavut Impact Review Board for

Baffinland Iron Mines Corp.'s Production Increase Proposal
to the Mary River Project (NIRB File No. 08MN053)

July 26, 2018

Executive Summary

WWF Canada (WWF) provides this submission in response to the Nunavut Impact Review Board's (NIRB) June 27, 2018 correspondence inviting Final Written Submissions to the Mary River Project Production Increase proposal (PIP). WWF has reviewed the Final Environmental Impact Statement Addendum (FEIS Addendum) for the PIP. WWF reviews the PIP with a lens of conservation and community awareness.

Purpose and Need for the Project

No alternative assessment is provided within the Production Increase FEIS Addendum. It is not possible for WWF to adequately assess Baffinland's justification and rationale for the proposed amendment without also being presented with information and explanation around why other alternatives were considered unfeasible and/or not viable. WWF recommends that the production increase should not be approved prior to reviewing information that provides adequate basis for the decision to proceed with the preferred option.

Baffinland suggests that without the ability to produce and transport more than the Early Revenue Phase (ERP) proposal allowed 4.2 MTPA of iron ore to market, it would need to idle operations and reduce its workforce for a portion of each year starting in 2018. Baffinland has implicitly suggested that an adverse impact to employees from a mine slowdown/shutdown should influence the NIRB's decision to approve the production increase already in place. WWF suggests that Baffinland has levied a threat of slowdown that is based on its own noncompliance (i.e. producing and shipping over and above permitted amounts) and that it is now seeking retroactive approval rather than having applied for amendment ahead of modifying its operations. WWF suggests that Baffinland return to its approved rate of production per the ERP.

Environmental Management

Oil spills pose a hazard everywhere in the Arctic, but the impact of a spill is likely to be especially severe if it were to occur within the highly sensitive and vulnerable waters of Milne Inlet or Eclipse Sound, and especially spills of Heavy Fuel Oil (HFO). HFO has been banned from use and carriage for use by ships in the Antarctica and parts of Norway. WWF recommends that all project ships be fit for purpose and be prohibited from the use or carry for use of HFO and blends with similar properties.

It is the WWF's opinion that the Marine Environmental Working Group (MEWG) has not been effective in working with the Proponent to ensure mitigation measures and monitoring programs were achieving their intended purpose, and nor has Baffinland or NIRB implemented alternate measures to ensure the marine environment is adequately protected. WWF recommends that the NIRB revisit the intention behind

the MEWG, and that it assume greater responsibility for the structure of the working group and the function of its operations.

Assessment

The NIRB's Mary River Project Certificate (Terms and Conditions 99, 110, 111, 112) explicitly require that Baffinland develop indicators and thresholds for marine mammal Valued Ecosystem Components (VECs). These indicators and thresholds have not been developed. Without indicators and thresholds in place, Baffinland's monitoring results cannot be relied upon to accurately inform conclusions within the PIP FEIS Addendum. WWF recommends that Baffinland develop indicators and thresholds as is required of project proponents in other jurisdictions across the country, and suggests that by allowing this proposed amendment to proceed without having indicators and thresholds in place to indicate when and how much an impact is occurring, the NIRB is ignoring its responsibility to protect and promote Nunavut's ecosystemic integrity as the agency providing the ultimate approval for this development.

Baffinland's FEIS Addendum provides no assessment of impacts to, ongoing monitoring, or mitigation measures relating to seal, bowhead or beluga whale species, all of which have been identified as marine mammal VECs. WWF recommends that Baffinland be required to include beluga, bowhead, and seal species within its ongoing abundance and distribution monitoring programs and that its Addendum be updated accordingly.

Baffinland's FEIS Addendum indicates that impacts to all VECs, including caribou, will be non-significant after existing mitigation measures are applied. WWF suggests that Baffinland cannot determine based on a presumed absence of individuals, that its activities are not having an impact, and recommends that Baffinland be required to increase its caribou Height of Land surveying efforts if the PIP is approved.

Based only on a qualitative assessment, Baffinland predicts that for every VEC category, increases in magnitude, frequency, and probability of impacts may occur, but that in all cases, with the application of existing mitigation, all impacts will remain non-significant. WWF recommends that Baffinland be required to update its impact prediction values with quantitative descriptions of impact frequency, magnitude, and probability or to confirm the significance rating as "unknown" in all cases where qualitative (as opposed to quantitative) assessments were carried out.

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Introduction

The World Wildlife Fund (WWF) is an international conservation organization that was established in 1961. Our mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature by conserving the world's biodiversity, ensuring that the use of natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption. WWF has supported research and field projects in the Canadian Arctic since 1972, and currently has offices in both Iqaluit and Inuvik.

WWF is aware that conservation objectives in Nunavut must be met in a way that promotes the enhancement of community values and well-being, alongside the sustainable development of projects like Baffinland Iron Mines Corporation's (Baffinland) Mary River project.

We are happy for the opportunity to participate in the environmental assessment and monitoring processes for the Mary River project as administered by the Nunavut Impact Review Board (NIRB), and have provided input during its consideration of the initial assessment of the Mary River project and the subsequent Early Revenue Phase proposal, as well as to the review of Baffinland's Annual Reporting. During each of these engagements with the NIRB's process, we have highlighted that the Mary River project, if well planned and executed, could set a benchmark for sustainable Arctic development and the implementation of adaptive management, and that it could provide significant benefits to Nunavummiut. WWF remains positive that the NIRB has an opportunity, through this assessment of the Production Increase Proposal, to implement and advocate for sound science and to highlight the importance of applying adaptive management throughout the project's development.

Summary of Recommendations

The following provides a summary of positions outlined in WWF's final written submission:

1. WWF disagrees with the conclusions presented in the Addendum to the FEIS regarding the following:
 - a. Alternatives assessment
 - b. Environmental impacts
 - c. Proposed mitigation
 - d. Significance of impacts
 - e. Monitoring measures
2. WWF believes conclusions presented in the Addendum to the FEIS are not supported by the analyses, given that no detail relating to the analyses undertaken are provided. It appears that Baffinland conducted only qualitative consideration of conclusions to significance, needed mitigation and ongoing monitoring related to residual impacts of the Production

Increase Proposal. It does not appear that appropriate methodology was utilized in the Addendum to the FEIS to develop conclusions.

3. No revisions to proposed mitigation and/or monitoring measures were deemed to be required by Baffinland – without highlighting specific modifications within this summary point, WWF suggests that a proposed 30% increase to operations should be supported by additional mitigation and likely supplemental monitoring as well. As stated throughout this submission, conclusions presented in the FEIS Addendum have not been adequately considered, thus mitigation and monitoring measures cannot have been sufficiently developed by Baffinland.
4. The following additional information is provided for the NIRB's consideration:

Adaptive Management

Central to the principle of adaptive management is the understanding that a project is bound have impacts. Throughout the assessments of both the original Mary River project and the Early Revenue Phase proposal, BIMC and the NIRB acknowledged that scientific uncertainty existed with respect to baseline information and the projections of predicted impacts resulting from the proposal(s).^{1,2} Within the Final Hearing Report for the Early Revenue Phase proposal (ERP), the NIRB noted that several participants in the assessment had raised issues regarding inadequate baseline and associated effects predictions with respect to likely project effects on terrestrial mammals (caribou) and marine mammals (bowhead whales and narwhals).³ The NIRB also recognized that in light of this uncertainty, several participants recommended the Board adopt a “precautionary approach” to address gaps in data and effects predictions. The NIRB concluded that despite uncertainty, the potential for significant adverse effects from the Early Revenue Phase proposal could be reduced by Baffinland adhering to its proposed precautions and its ongoing, proactive and robust approach to adaptive management.⁴

Baffinland defined adaptive management in its FEIS Addendum for the ERP as “the application of mitigation measures when review processes identify potential adverse effects,” and further confirmed that its approach to continuous improvement and adaptive management (Policy – Planning – Checking and Corrective Actions – Management Review Process) would ensure that environmental management plans remain appropriate for the level of activities on site always.⁵

¹ NIRB Public Hearing Report for the Early Revenue Phase Proposal, March 2014, p. 19-20.

² NIRB Public Hearing Report for the Mary River Project, September 2012, p. 11-13.

³ NIRB Public Hearing Report for the Early Revenue Phase Proposal, March 2014.

⁴ Ibid.

⁵ BIMC Early Revenue Phase FEIS Addendum – Main Document, June 2013, s. 11.6, p. 98.

Within its Final Hearing Report for the original Mary River file, the NIRB noted that maintaining a precautionary approach would require “the NIRB, BIMC and all parties with regulatory and monitoring responsibilities for the Project to commit to an ongoing role for the life of the Project in relation to monitoring, assessing the effectiveness of measures designed to maximize positive effects and prevent or limit adverse effects and ensuring that these measures are reviewed and adapted where necessary to reflect the actual project effects being observed.”⁶

As outlined within comments to our annual review of each of the 2015, 2016 and 2017 Annual Reports and other materials Baffinland has provided to the NIRB, WWF reiterates its concern that adequate analyses and review of monitoring work have not been undertaken to properly inform findings and conclusions regarding the indicators and potential impacts of the Mary River project and Production Increase Proposal, specifically about terrestrial and marine mammals. As WWF is unclear how, or if, Baffinland or the NIRB conducted their review of monitoring data collected, it is unable to consider whether Baffinland has proposed and/or undertaken appropriate revisions to mitigation and monitoring plans and soundly applied adaptive management based on findings of monitoring work to the Production Increase Proposal. WWF argues that in the absence of a monitoring program set out by the NIRB, and Baffinland receiving guidance for monitoring programs and results, it is impossible to support Baffinland’s conclusions within the PIP relating to the effectiveness of mitigation measures and findings of non-significant impact across all Valued Ecosystem Components (VECs).

As recommended previously, WWF requests that the NIRB consider providing direction to Baffinland with respect to its expectations relating to the application of sound adaptive management across the project.

Assessment Process Issues

The NIRB’s current process for the PIP FEIS Addendum has been modified from prior Project Certificate amendment processes, which is entirely within its purview. WWF submits however, that the NIRB has allowed some modifications that may jeopardize a fair and transparent assessment.

Firstly, Baffinland has coordinated closely with the Qikiqtani Inuit Association (QIA), the Hamlet of Pond Inlet and the Mittimitalik Hunters and Trappers Organization (MHTO) in preparation for the NIRB’s assessment, and throughout the initial stage of the amendment process. While this is an ideal situation, and WWF believes that close communication between the Proponent and the parties would normally contribute to a sound process, in this case, we suggest that Baffinland’s engagement with portions of the public should not be allowed by the NIRB in place of more open and transparent dialogue which would normally be occurring through its own consultation sessions and through iterative steps in the assessment process.

⁶ NIRB Final Hearing Report for the Mary River Project, September 2012.

While meetings held between Baffinland and the QIA with the Hamlet and MHTO have resulted in a number of commitments from Baffinland, our concern is that the larger public was not consulted in the same manner and that holding smaller, one-on-one sessions with targeted groups is not synonymous with true public consultation. It concerns the WWF that the iterative part of the NIRB’s assessment, normally achieved through in-person hearings which provide the opportunity to hear comments and questions, to examine other parties and to formulate follow-up based on what is heard, has been lost through the shortened process and modified public engagement. We submit that the written process which is not as accessible to members of the general public (especially Elders and people) does not allow for the NIRB to hear comments in the same manner an in-person hearing allows for Inuit and community members to be heard. We also submit that for parties able to participate in the written exchange, providing Baffinland the only opportunity to respond without offering parties a second round to comment on the Proponent’s responses to final written submissions (as is the case during an in-person hearing) may leave items unresolved. As the proposed 30% increase to mine throughput above previously assessed and approved limits is a significant development, WWF proposes that further written comment and/or an in-person public hearing are required to ensure a robust and thorough assessment that is accessible to all parties and ensures voices beyond those of the Proponent, QIA and authorizing agencies are heard and considered in the NIRB’s final decision.

In lieu of an amended process that allows for a more thorough examination of impacts and the identification of appropriate mitigation measures, WWF submits the following Specific Technical Comments for the NIRB’s consideration.

WWF recommends that the NIRB consider re-issuing the current terms and conditions including the existing limits on mining and transportation rates pursuant to its authority under *NUPPAA S. 112(5)*.

Specific Technical Comments

All of WWF’s technical final written submission comments that follow pertain to the 6 MTPA modification aspect of the Production Increase Proposal.

Purpose and need for the proposed amendment

Review Comment Number	WWF-1
Subject/Topic	Lack of Alternatives Assessment
References	PIP FEIS Addendum (Section 2.1.2, page 6), NIRB June 11, 2018 Correspondence to Baffinland, ERP FEIS Addendum (Vol. 1, Section 3.0, page 31), NIRB 2015

	Amended EIS Guidelines for Phase 2 Proposal (Section 6.1, page 17)
Summary	<p>No alternative assessment is provided within the Production Increase FEIS Addendum.</p> <p>The PIP FEIS Addendum notes that the production and transport increase is required “to continue to transport lump and fine iron ore products to market in an environmentally sustainable manner, and at quantities that provide Baffinland and its shareholders a return on investment.”</p> <p>WWF questions the basis for the production increase decision and cannot ascertain what, if any, alternative options to this proposal may have been considered.</p>
Importance of Issue to Impact Assessment	An alternatives assessment is a key component of environmental assessment, and is essential to undertaking a thorough comparison of options and to understanding the factors considered in developing the preferred option.
Detailed Review Comment	<p>a. Gap/Issue</p> <p>NIRB’s 2015 EIS Guidelines for the Mary River Phase 2 Proposal require that the EIS “include an explicit analysis of all alternative means of carrying out the Project components, including a no-go alternative, the identification and application of criteria used to determine the technical feasibility and economic viability of the alternatives to the Project (e.g. transportation, natural, social, economic and cultural environment).” Further, the EIS Guidelines require that alternatives to the proposed Phase 2 components and activities include an increase to the approved mining rate at the Mary River site and an increase in iron ore shipping via Milne Port as well as decreasing the shipping frequency by extending mine life and/or decreasing the production rate (note that the last point was as an alternative to the originally proposed year-round shipping per the initial Phase 2 filing). None of these were considered within the FEIS Addendum filed with the NIRB for the PIP.</p>

	<p>While the NIRB did not explicitly require that Baffinland provide any alternatives assessment within its June 11, 2018 direction to the Proponent, WWF suggests that an assessment of the no-go and other alternatives – addressing the specific points outlined above from the Amended EIS Guidelines for the Phase 2 proposal – is an integral part of the assessment and that this information must be provided for a thorough consideration of the current proposal before the NIRB.</p> <p>WWF suggests that moving forward with the assessment without considering information relating to alternatives is unacceptable.</p> <p style="text-align: center;">b. Disagreement with FEIS/Addendum conclusion</p> <p>It is not possible for reviewers to adequately assess Baffinland’s justification and rationale for the proposed amendment without also being presented with information and explanation around why other alternatives were considered unfeasible and/or not viable.</p> <p style="text-align: center;">c. Reasons for disagreement with FEIS/Addendum conclusion</p> <p>N/A – no conclusions relating to alternatives were presented.</p>
Recommendation	<p>WWF recommends that the NIRB require Baffinland to update its submission with an alternatives assessment for the NIRB (and parties) to include in the consideration of the PIP. The production increase should not be approved prior to reviewing information that provides adequate basis for the decision to proceed with the preferred option.</p>
Existing Terms and Conditions	N/A
New Terms and Conditions	N/A

Review Comment Number	WWF-2
Subject/Topic	Rationale for Production Increase
References	Baffinland Correspondence to NIRB June 6, 2018, ERP FEIS Addendum (vol. 1, Section 3.3.1, p. 33), PIP FEIS Addendum
Summary	<p>Baffinland’s June 6, 2018 correspondence to the NIRB suggests that without the ability to produce and transport more than the ER-allowed 4.2 MTPA of iron ore to market, it would need to idle operations and reduce its workforce for a portion of each year starting in 2018.</p> <p>WWF concludes that Baffinland’s rationale for the PIP does not adequately justify the need for increasing mining and shipping rates ahead of developing the larger project. Increasing production is specifically within the scope of development of the larger, approved project, and the need for this increase to the Early Revenue Phase activities have not been sufficiently justified.</p>
Importance of Issue to Impact Assessment	The ERP proposal was assessed and approved based on Baffinland’s justification that it needed to prove the resource to potential investors at market in order to obtain funding to finance the large approved project. The need for increased production has not been demonstrated by Baffinland to be separate and distinct from the larger approved project and/or the proposed Phase 2 development scheme. An appropriate rationale and justification for project amendments are required to support the overall assessment. Unsupported project development should not be allowed to proceed beyond project planning.
Detailed Review Comment	<p>a. Gap/Issue</p> <p>Baffinland’s June 11, 2018 correspondence to the NIRB indicated that it has developed a strong workforce which demonstrated its “growing</p>

	<p>efficiency” by producing and delivering more iron ore to Milne Port than was initially planned for. Baffinland confirmed that it is able to produce and deliver up to 6 MTPA of iron ore through the established transportation corridor by increasing the frequency and capacity of existing activities and infrastructure, respectively and suggests that, without the flexibility in Project Certificate 005 to transfer more than 4.2 MTPA of iron ore from the mine site to global markets (i.e. the 6 MTPA sought currently), it would need to idle operations and reduce its workforce for a portion of each year starting in 2018.</p> <p>WWF suggests that Baffinland’s demonstration of operational efficiencies and subsequently enabled increased rates of production to provide additional levels of ore to investors are not adequate reasons to move beyond the previously approved rates of production and transportation.</p> <p>The PIP FEIS Addendum states that the “ERP <i>provided</i> an opportunity for Baffinland to successfully demonstrate the operational viability of a bulk commodity mine in Arctic Canada...[and that] during the ERP customers <i>were able to test ore produced</i> from the Mary River project and determine its compatibility within their steel making circuits. As a result of operational success, positive testing and the identification and development of markets, Baffinland is poised to be able to meet the increasing demand for its ore supply. The 6 MTPA Modification will allow Baffinland to sustain relationships with existing markets, thus capitalizing on the demand for ore, which will contribute to the long-term viability of the project...”. WWF suggests the 6 MTPA production increase indicates a transition from the Early Revenue Phase to development of the approved project. If this is the case, WWF further suggests that Baffinland has not adequately justified the need to do so at this point, with the Phase 2 development proposal currently submitted to the NIRB for assessment. Alternately, if the additional 30% increase to production and transport is required to continue to sustain the Early Revenue Phase development, Baffinland has not</p>
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	<p>adequately differentiated this from development of the larger approved project.</p> <p>Baffinland indicated within its PIP FEIS Addendum: “The purpose of the 6 MTPA Modification is to continue to transport lump and fine iron ore products to market in an environmentally sustainable manner, and at quantities that provide Baffinland and its shareholders a return on investment.”</p> <p>Baffinland’s stated purpose for the Early Revenue Phase (i.e. current operations) in the FEIS Addendum was to develop “a means to achieve early production at Mary River with low upfront capital requirements. Production must be sufficient to cover operating costs and financing charges, to demonstrate economic viability of the large Project. A feasibility study completed in 2012 indicated that at a production rate of 3.5 Mt/a could achieve these objectives. The conclusions were based on numerous factors such as berthing/deberthing operations, types of vessels, vessel scheduling/berth utilization, ship loader design/capacity, and shipping season.”</p> <p>Baffinland’s FEIS Addendum for the PIP does not indicate whether the value of ore or costs of production have changed or what else may warrant the need for a larger return on investment at this point – for example, has the value of iron ore has dropped significantly (requiring additional processing to achieve a satisfactory level of revenue) or has Baffinland been required to invest additional funding into the Early Revenue Phase operations for some reason? The Proponent has not adequately justified the need to move out of the originally approved levels of Early Revenue Phase production and increase throughput.</p> <p style="text-align: center;">b. Disagreement with FEIS/Addendum conclusion</p> <p>WWF does not agree with the stated need to increase production and shipment of ore at this point, given the rationale that Baffinland has provided, namely to provide return to it and its investors and to avoid mine</p>
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	<p>slowdown. It is assumed that the approved ERP rates of production and shipment have provided adequate return, and that the current proposal is submitted in the hopes of increasing the return on investment beyond what the project has offered over the past three years or thereabouts.</p> <p>WWF suggests that the stated intentions behind the ERP are being met, and that further return to investment and profits should be met through the Approved project and/or the Phase 2 stage of Mary River’s development.</p> <p style="text-align: center;">c. Reasons for disagreement with FEIS/Addendum conclusion</p> <p>Baffinland increased its development schedule without seeking necessary approvals, and is now threatening a mine slowdown and reduced workforce if it is not permitted to proceed with the self-imposed increased rates. WWF suggests that Baffinland return to its approved rate of production per the ERP.</p> <p>Baffinland has implicitly suggested that an adverse impact to employees from a mine slowdown/shutdown should influence the NIRB’s decision to approve the production increase already in place. WWF suggests that Baffinland has levied a threat of slowdown that is based on its own noncompliance (i.e. producing and shipping over and above permitted amounts) and that it is now seeking retroactive approval rather than having applied for amendment ahead of modifying its operations. The former does not justify the proposal and should not be used as weight for a positive decision through the NIRB’s assessment.</p>
Recommendation	<p>WWF recommends that the NIRB reject the Production Increase Proposal and that Baffinland be directed to continue iron ore production and shipment at rates initially approved by the NIRB. WWF is of the opinion that the proposed Phase 2 development is the appropriate mechanism for increasing production at Mary River.</p>
Existing Terms and Conditions	<p>N/A</p>

New Terms and Conditions	N/A

Environmental Management

Review Comment Number	WWF-3
Subject/Topic	Prohibit the use of Heavy Fuel Oil for Project-related Shipping
References	WWF October 2013 Comment Submission to NIRB Re ERP (NIRB Registry ID 290904)
Summary	WWF requested within its 2013 comments to the NIRB's assessment of the ERP proposal that ships servicing the Mary River project abstain from the use of Heavy Fuel Oil (HFO). At that time, Baffinland indicated that purpose-built ore carriers could potentially accommodate the request at some future point. Given that project amendments continue to be filed for the shipping component and that purpose-built ships are not currently being contemplated, WWF requests that Baffinland commit to having its shipping contractors abstain from using HFO while transiting within Nunavut waters. WWF suggests this is an especially important point to consider given the ongoing discussions to finalize the designation of Tallirutiup Imanga; a protected area that would encompass a large section of Baffinland's shipping corridor for the Mary River project.
Importance of Issue to Impact Assessment	The risks of oil spills are incredibly difficult to mitigate by any shipping proponent in the Arctic given the extremely limited spill response capacity and complicating factors such as ice cover, cold waters, and remote location.
Detailed Review Comment	<p>a. Gap/Issue</p> <p>Oil spills pose a hazard everywhere in the Arctic, but the impact of a spill is likely to be especially severe if it were to occur within the highly sensitive and vulnerable waters of Milne Inlet or Eclipse Sound, and</p>

	<p>especially within the proposed boundary of the Tallirutiup Imanga Marine Conservation Area.</p> <p>Heavy Fuel Oil (HFO) is a viscous, toxic, polluting fossil fuel that powers ships throughout the globe – accounting for 80% of marine fuel used worldwide – likely including many of the cargo and fuel resupply vessels that service the Mary River mine. HFO, if spilled in cold polar waters, sticks to surfaces (including ice), and mixes with water to form a thick ooze. It breaks down slowly, often persisting for many weeks or longer. These characteristics of HFO, combined with the lack of equipment and spill response capacity in the Arctic and fact that most Arctic waters are ice-covered for much of the year mean spills are nearly impossible to clean up. An HFO spill would have long-term, devastating effects on communities like Pond Inlet, and livelihoods and the marine ecosystems Nunavummiut depend upon. The cost of cleaning up an HFO spill, depending on its size, could also reach into the hundreds of millions of dollars and take decades to complete, with no guarantee that the ecosystem would fully recover. It is with respect to these types of issues that HFO use and carriage was banned in Antarctica and in parts of Norway’s waters as well.</p> <p>b. Disagreement with FEIS/Addendum conclusion N/A</p> <p>c. Reasons for disagreement with FEIS/Addendum conclusion N/A</p>
Recommendation	All project ships should be fit for purpose and be prohibited from the use or carry for use of Heavy Fuel Oil and blends with similar properties.
Existing Terms and Conditions	N/A
New Terms and Conditions	Ships commissioned for movements related to the Mary River project occurring along the northern (and southern) shipping route(s) are prohibited from using

	or carrying for use, Heavy Fuel Oil and blends with similar properties.
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Review Comment Number	WWF-4
Subject/Topic	Marine Environment Working Group
References	NIRB Project Certificate No. 005 (Amendment 1) (Condition 77, page 40)
Summary	WWF suggests revision is needed to the form and function of the MEWG, specifically that the NIRB assume the oversight of marine monitoring programs, including review and approval of programs, revisions, and undertaking rigorous analysis of marine mammal monitoring results.
Importance of Issue to Impact Assessment	The original NIRB Project Certificate envisioned that the MEWG would be responsible for working with the Proponent to ensure mitigation measures and monitoring programs were achieving their intended purpose. In the WWF's opinion, the MEWG has not been effective in this regard, and nor has Baffinland or NIRB implemented alternate measures or approaches to ensure the marine environment is adequately protected.
Detailed Review Comment	<p>a. Gap/Issue</p> <p>It remains WWF's opinion that rather than providing progressive consultation and insight to Baffinland in regards to the mitigation of effects and monitoring programs, the MEWG remains the recipient of a one-way flow of information, with little, if any opportunity to effectively influence Baffinland's planned mitigation efforts and/or monitoring programs.</p> <p>Materials reviewed and discussions had during MEWG meetings are strictly confidential, which WWF suggests may undermine the transparency of the factors that are considered in making decisions related to mitigation and monitoring programs. In the interest of public accountability, WWF suggests that</p>

	<p>member agencies should be providing information that is available for review, by the NIRB and other parties, to clarify recommendations provided by MEWG members and to highlight the advice taken by Baffinland, or not.</p> <p>b. Disagreement with FEIS/Addendum conclusion N/A</p> <p>c. Reasons for disagreement with FEIS/Addendum conclusion N/A</p>
Recommendation	<p>It is recommended that the NIRB revisit the intention behind the MEWG, and that it assume greater responsibility for the structure of the working group and the function of its operations. Specifically, it is suggested that the NIRB function as a member (non-voting if desired), that it attend and potentially chair the working group meetings (which are meant to be technical meetings by their very nature), and that it consider rotating the position of chair among regular member agencies.</p> <p>Additionally, WWF suggests that the current requirement for confidentiality around working group meetings and discussions be removed permanently, and that the NIRB clarify that the advice and consultation provided via the working group should not be held inaccessible to the public or interested parties.</p>
Existing Terms and Conditions	77 – recommend amendment to reflect changes in form and function of MEWG as outlined above.
New Terms and Conditions	N//A

Assessment

Review Comment Number	WWF-5
Subject/Topic	Development of Indicators and Thresholds
References	PIP FEIS Addendum (Section 2.3.2, page 20)
Summary	<p>Despite this being the Proponent’s third amendment application to the original project approval, requirements within the existing Project Certificate Terms and Conditions, and WWF having made repeated requests for it to have done so, the indicators and thresholds required to inform adaptive management of the project have not been developed by Baffinland to date for any marine mammal VECs.</p> <p>Further, none of Baffinland’s marine mammal monitoring programs has produced results capable of determining the significance of project impacts, nor have they sufficiently demonstrated that no impact is occurring.</p> <p>Without indicators and thresholds in place, WWF has serious concerns with Baffinland’s interpretation of monitoring program results. At best, with no measure to compare them against (i.e. threshold), program results should be deemed to be inconclusive. These results cannot be relied upon to accurately inform Baffinland’s approach to the PIP addendum.</p>
Importance of Issue to Impact Assessment	Without having identified the markers that can be measured to tell us whether a behavior or response is above or below an established threshold, there is no way to know whether a project activity is having an impact, and no way to know whether adaptive management techniques are having a remedial effect.
Detailed Comment	<p>Review</p> <p>a. Gap/Issue</p> <p>Without set thresholds or limits in place against which to measure responses or trends in behavior or markers/levels, every assessment is an arbitrary and qualitative estimate used in comparison against the original baseline information provided in EIS</p>

	<p>materials filed years before the current assessment. No true understanding of whether or not the project is having an impact can be asserted without these indicators and thresholds in place.</p> <p>The NIRB assessment continues to allow Baffinland to employ an educated guess to every instance of impact determination.</p> <p style="text-align: center;">b. Disagreement with FEIS/Addendum conclusion</p> <p>Within the PIP FEIS Addendum, Baffinland predicts that the proposed activities will produce a change in the potential effects identified for the Approved Project in every VEC category, but argues that all changes will be non-significant, and suggests that the existing mitigation and monitoring programs/plans will suffice in all instances.</p> <p>Without indicators and thresholds and appropriate monitoring programs in place to determine whether and to what extent the <i>current</i> operations are having an impact, Baffinland should not be using results of ongoing monitoring as a starting point for a determination of non-significance, nor as support for existing mitigation programs that unchanged, will “address” existing and amendment related project effects.</p> <p style="text-align: center;">c. Reasons for disagreement with FEIS/Addendum conclusion</p> <p>WWF fees strongly that Baffinland should not be permitted to apply this inaccurate and qualitative approach to its assessment of impacts, impact significance, and required mitigation and monitoring.</p> <p>Baffinland has not developed any indicators or thresholds that can accurately be assessed to determine the direction and magnitude of changes. These are needed so that a measure of impact can be accurately tested against a threshold of allowable disturbance/effect before additional mitigation measures may be required.</p>
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	<p>Without these indicators and thresholds in place, conclusions presented within Baffinland’s FEIS Addendum do not reflect an accurate understanding of the potential impact significance its proposed activities may have on various VECs.</p>
Recommendation	<p>The NIRB’s Project Certificate General Terms and Conditions Item 3.2 (g) states:</p> <p>“As noted in the Final Hearing Report and the Public Hearing Report, for those items where a more stringent version of the precautionary principle has been applied, it is the Board’s expectation that the adaptive management strategies chosen will be highly responsive to early warning signs that risks may materialize, and that rather than waiting for impacts to be noted before mitigation measures are triggered, thresholds and triggers will be set to require responses long before adverse impacts are likely.”</p> <p>WWF strongly advises that the NIRB require Baffinland engage in the development of indicators and thresholds as is required of project proponents in other jurisdictions across the country, and suggests that by allowing this proposed amendment to proceed without having indicators and thresholds in place to indicate when and how much an impact is occurring, the NIRB is ignoring its responsibility to protect and promote Nunavut’s ecosystemic integrity as the agency providing the ultimate approval for this development.</p>
Existing Terms and Conditions	<p>Conditions 99, 110, 111, and 112 all require the development of indicators and/or thresholds to guide the mitigation, monitoring, and adaptive management applied throughout the Mary River project. Baffinland should be required to comply with these prior to the approval of any additional or amended project development.</p>
New Terms and Conditions	<p>(Assuming NIRB approval): Baffinland be required to develop indicators and thresholds for all biophysical (marine) VECs prior to conducting any work associated with the proposed amendment.</p>

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Review Comment Number	WWF-6
Subject/Topic	Need for monitoring and assessment of seal, bowhead, and beluga
References	ERP FEIS Addendum (Section 5.1, page 38, 5.3.4.1, page 57, 5.3.4.2 page 58)
Summary	<p>Despite a proposed 30% increase in shipping operations, and the NIRB Project Certificate specifically requiring such, Baffinland’s FEIS Addendum provides no information relating to the assessment of impacts to, ongoing monitoring or mitigation measures relating to seal or bowhead or beluga whale species.</p> <p>Baffinland’s ERP FEIS Addendum indicated that seal is of major importance to Pond Inlet, and specifically, noted that the harvest of this species (as well as others) as a source of country food provides an important contribution to overall well-being.</p>
Importance of Issue to Impact Assessment	<p>Seal, beluga and bowhead are important species to hunters and residents of Pond Inlet, thus their inclusion as VECs within the original project assessment.</p> <p>The NIRB specifically required that Baffinland’s FEIS Addendum for the PIP “address 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”.</p> <p>Further, despite the NIRB Project Certificate having required Baffinland undertake additional monitoring related to beluga, bowhead, and seals, no additional work has been completed, and Baffinland continues to ignore these species in its annual monitoring, reporting, and mitigation planning.</p>
Detailed Review Comment	a. Gap/Issue

	<p>Baffinland's ERP FEIS Addendum indicated that bowhead whales occur regularly within RSA – noting specifically that they occur along the northern shipping route during summer and fall, and that it is possible they move westward through Lancaster Sound during June and July to feed and nurse calves. The Addendum also suggested that Inuit Qaujimagatuqangit (IQ) suggests that the number using Eclipse Sound appears to be increasing in recent years.</p> <p>Further, it suggested that beluga whales occur frequently within RSA, and specifically that IQ indicates that Koluktoo Bay and the southern portion of Milne and Navy Board inlets may be calving areas for this species.</p> <p>According to Baffinland's ERP FEIS Addendum, ringed seals are a major source of traditional food for Inuit and occur year round along the northern shipping route and in the vicinity of the Milne Inlet port.</p> <p>All this information indicates that these species are important components of the marine ecosystem. The project has the potential to impact them, however no monitoring or specific mitigation planning has been undertaken with respect to these species since the original project approval.</p> <p>Given that the proposed amendment seeks a 30% increase to shipping operations which represents an additional pressure to species that depend on the marine environment, WWF suggests that additional and ongoing monitoring of the distribution and abundance of these species should be prioritized, in addition to the development of indicators and thresholds to properly monitor the potential impacts of the project development.</p> <p>Baffinland has dismissed ongoing requests during MEWG meetings to consider these species within its programming, citing the low number of individuals as a rationale for not engaging in monitoring activities (high cost of effort level vs. weak data providing little to no benefit).</p>
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	<p>b. Disagreement with FEIS/Addendum conclusion</p> <p>N/A</p> <p>c. Reasons for disagreement with FEIS/Addendum conclusion</p> <p>N/A</p>
Recommendation	NIRB require Baffinland to include beluga, bowhead, and seal species within its ongoing abundance and distribution monitoring programs, or to develop appropriate monitoring, in consultation with the NIRB, to better understand current population numbers and impacts of project activities on abundance and distribution.
Existing Terms and Conditions	119 – require that even in the absence of ice breaking shipping, Baffinland undertake ice lair abundance monitoring as a means to assessing abundance and winter distribution. The condition could be further modified to require Baffinland undertake aerial (or via another method) population surveying during open water to inform its current understanding of seal distribution and abundance during the project shipping season.
New Terms and Conditions	<p>Baffinland shall include an assessment of beluga, bowhead, and seal species abundance and distribution within its existing and ongoing marine mammal (narwhal) monitoring programs.</p> <p>OR</p> <p>Baffinland shall, in consultation with the NIRB, conduct ongoing monitoring to assess population numbers and impacts of project activities on abundance and distribution of bowhead, beluga, and ringed and bearded seals along the northern shipping route.</p>

Review Comment Number	WWF-7
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Subject/Topic	Need for increased effort level – caribou height of land surveys
References	PIP FEIS Addendum (Section 2.3.2, pages 20-22)
Summary	Baffinland’s PIP FEIS Addendum indicates that impacts occurring to the Terrestrial Environment VEC category and it is assumed, all VECs considered therein, including caribou, will be non-significant after existing mitigation measures are applied.
Importance of Issue to Impact Assessment	Monitoring and the importance of information it contributes to the understanding of the Mary River project cannot be underestimated. Regardless of the numbers of caribou project biologists believe are present, ongoing monitoring must be undertaken so as to ensure the Proponent remains as informed as possible. Appropriate impact mitigation or management is not possible without up to date information about the species in question, especially caribou which may be suffering a decline or beginning a rebound in population numbers. Monitoring information from Baffinland’s surveying could assist in a more thorough and complete understanding of the current state of health and trends for this herd.
Detailed Review Comment	<p>a. Gap/Issue</p> <p>Baffinland’s PIP FEIS Addendum suggests the amendment will result in approximately 30% more traffic travelling on the tote road, “which may result in increased sensory disturbance and increased dust deposition that may affect terrestrial ...wildlife and vegetation through changes to habitats.”</p> <p>The Addendum also notes that with existing mitigation, the environmental effects are evaluated to remain not significant.</p> <p>WWF has made requests that Baffinland conduct additional Height of Land surveying throughout the year during a number of Terrestrial Environment Working Group meetings. Baffinland has indicated that while caribou population numbers remain low, it will not increase the effort level beyond one survey per</p>

year. WWF does not support this justification for a monitoring frequency that represents such a miniscule fraction of time when considered in terms of the 24 hour/365 day per year operation Baffinland is conducting. This works out to monitoring during 0.002% of the time, which WWF suggests is not enough to contribute meaningful information or knowledge about caribou abundance and distribution.

b. Disagreement with FEIS/Addendum conclusion

Baffinland has suggested that with existing mitigation, any environmental effects of the PIP to caribou are evaluated to remain not significant.

Given the current application to increase its mining and trucking efforts, resulting in the potential to have additional sensory disturbance and impact vegetation via dust fall, WWF suggests that a 30% increase in its operations, if allowed, should be accompanied by a similar increase to caribou monitoring efforts, specifically via Height of Land surveying.

WWF does not agree with Baffinland's current approach to restricting its monitoring efforts when caribou are not prevalent in number, especially in the case where the Proponent has applied to increase its operations. This has the potential to impact caribou which may, at some point, return to the area and see their population numbers start to increase.

c. Reasons for disagreement with FEIS/Addendum conclusion

Baffinland's 2014 TEMMP indicated that caribou was selected as a Key Indicator for on-going monitoring and that several monitoring programs for caribou were developed to address this need. Despite this finding, the NIRB has allowed Baffinland to limit its caribou monitoring efforts year over year.

Where Baffinland conducts inadequate monitoring to determine presence of caribou within the RSA, WWF suggests that it cannot determine based on a

	<p>presumed absence of individuals, that its activities are not having an impact.</p> <p>Baffinland should not be permitted to excuse itself from undertaking monitoring when it proposes to increase its activities and the potential to impact that same species.</p>
Recommendation	Baffinland should be required to undertake caribou Height of Land surveying up to 8 times per year, especially during the calving period, which would reflect a 0.2% effort level.
Existing Terms and Conditions	N/A
New Terms and Conditions	Baffinland shall undertake Height of Land caribou surveying during the calving period, using methods outlined in its Terrestrial Environment Mitigation and Monitoring Plan, a minimum of 8 times each year.

Significance

Review Comment Number	WWF-8
Subject/Topic	Qualitative predictions for impacts, non-significance findings
References	PIP FEIS Addendum (Section 2.3.2 and Table 8, pages 20-24)
Summary	<p>Baffinland predicts that for every VEC category (atmospheric environment, terrestrial environment, freshwater environment, marine environment and human environment), increases in magnitude, frequency, and probability of impacts may occur, but posits that in all cases, with the application of only existing mitigation, impacts (in all cases) will remain non-significant.</p> <p>Given no quantitative data are provided to support these claims, and the fact that no quantitative data are provided to describe predicted impacts, WWF cannot accept Baffinland's blanket assertion that for all VEC</p>

	<p>categories and specific VECs/VSECs, impacts of the PIP will be non-significant.</p> <p>WWF has specific concern with the finding of non-significance for impacts to marine mammals that may result from the proposed increased to project related shipping. A 30% increase in the number of ships carrying ore and further fuel supply shipments proposed during the very short open water season as part of the production increase must be considered carefully. It is unclear at this point what type of assessment Baffinland conducted, what the quantitative impact prediction looks like, and how it with the prediction that impacts to all Marine Environment VECs, specifically marine mammals, will be non-significant.</p>
<p>Importance of Issue to Impact Assessment</p>	<p>The determination of significance is central to the practice of impact assessment. The assessment and determination process should be based on existing information about baseline conditions, and predictions of impact based on appropriately designed models.</p> <p>Findings of significance also help to determine the required mitigation measures that should be employed as well as any monitoring needed to inform future activities and adaptive management.</p>
<p>Detailed Review Comment</p>	<p>a. Gap/Issue</p> <p>Baffinland has not indicated within its submission whether or what quantitative information factored into its determination of impacts or the subsequent significance determination.</p> <p>Using qualitative descriptions can introduce ambiguity and uncertainty into the interpretation of project assessment.</p> <p>Within Section 2.3.2 of its FEIS Addendum for the PIP, Baffinland predicts that for every VEC category (atmospheric environment, terrestrial environment, freshwater environment, marine environment and human environment), and we assume, for every VEC</p>

	<p>included therein, increases in magnitude, frequency, and/or probability of impacts will occur. It posits that in all cases, with the application of only existing mitigation, impacts will remain non-significant.</p> <p>It is entirely unclear by how much the impact magnitude, frequency and /or probability of impacts are expected to occur, and it is unfair for reviewers to employ guesswork in understanding Baffinland's approach.</p> <p>Baffinland's FEIS Addendum states the following:</p> <p>"Additional ship traffic has the potential to interact with marine mammal populations through acoustic disturbances, and vessel strikes. Past marine mammal research suggests that temporary and localized behavioural changes are to be expected in response to ship encounters among the species present in the region...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..."</p> <p>In addition, Baffinland's current monitoring program does not include specific monitoring efforts or reporting on bowhead, beluga or seals, yet it asserts within PIP FEIS Addendum materials that no impacts will occur to the Marine Environment VECs. In the instance of acoustic disturbance and vessel strikes to marine mammals, Baffinland suggests its "conclusion [of no significant impact] is supported by the existing marine mammal monitoring under current operations, specifically [noting that] narwhal abundance and distribution near Milne Port has not significantly changed and no known vessel strikes have been reported.</p> <p style="text-align: center;">b. Disagreement with FEIS/Addendum conclusion</p> <p>Without knowing what thresholds Baffinland is using in its significance determinations, WWF has no ability to properly assess the validity of Baffinland's claims,</p>
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	<p>which is the case for all VECs as currently included in the PIP FEIS Addendum.</p> <p>With respect to increased shipping and impacts to marine mammals, WWF believes all VEC species (seal, beluga, bowhead, and narwhal) should be considered on an individual basis given the use of different parts of the shipping route for summering, feeding, calving and/or nursing activities. These areas are essential to various life stages for marine mammals and their young, and a blanket finding for all species based on narwhal monitoring is unacceptably shortsighted and must be revisited, especially in light of increased frequency of ship movements and overall duration of disturbance (i.e. additional ships and additional hours with ship movement occurring throughout the shipping corridor).</p> <p style="text-align: center;">c. Reasons for disagreement with FEIS/Addendum conclusion</p> <p>It is entirely unclear by how much the impact magnitude, frequency and /or probability of impacts are expected to occur, and it is unfair for reviewers to employ guesswork in understanding Baffinland’s approach.</p> <p>Without knowing what thresholds Baffinland has utilized in its significance determinations, WWF is unable to assess the validity of Baffinland’s claims, which is the case for all VECs as currently included in the PIP FEIS Addendum.</p>
<p>Recommendation</p>	<p>Baffinland be required to update its impact prediction values with quantitative descriptions of impact frequency, magnitude, and probability. In the absence of undertaking this work, Baffinland should update its impact predictions with a finding of “unknown” for all species other than narwhal for which active and ongoing monitoring programs can inform its work on the PIP addendum.</p> <p>Baffinland should clarify whether its current marine mammal monitoring programs apply to bowhead, beluga, and seal species. If not, update impact</p>

	predictions with a value of “unknown” in regard to impacts to these species from PIP activities.
Existing Terms and Conditions	Please refer to recommendation provided for WWF-6.
New Terms and Conditions	Please refer to recommendation provided for WWF-6.