



# Nunavut Impact Review Board 2019-2020 Annual Monitoring Report

## The Mary River Project

Baffinland Iron Mines Corporation

NIRB File No. 08MN053



December 2020

**Report title:** The Nunavut Impact Review Board's 2019-2020 Annual Monitoring Report for Baffinland Iron Mines Corporation's Mary River Project (NIRB File No. 08MN053)

**Project:** Mary River Project  
**Project Location:** Qikiqtani (North Baffin) Region, Nunavut  
**Land Tenure:** Inuit Owned Lands

**Project Owner:** Baffinland Iron Mines Corporation  
2275 Upper Middle Road East, Suite 300  
Oakville, ON  
L6H 0C3

**Proponent Contact:** Megan Lord-Hoyle, Vice President, Sustainable Development  
**Telephone:** (416) 364-8820 ext. 5050

**Monitoring Officers:** Cory Barker, Technical Advisor I ([cbarker@nirb.ca](mailto:cbarker@nirb.ca))  
Solomon Amuno, Technical Advisor II ([samuno@nirb.ca](mailto:samuno@nirb.ca))

**Report Prepared by:** Cory Barker

**Monitoring Period:** October 1, 2019 – September 30, 2020

**Date Issued:** December 23, 2020

**Cover Photos:** Cory Barker  
Access Road to Land Farm, Milne Port;  
Deposit No. 1, Mary River Mine Site;  
Ship Loader, Milne Port;  
Ore Stockpile, Milne Port; and  
View from the Landfarm, Milne Port.

## Table of Contents

<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	Project History and Current Status .....	1
1.2	Project Components .....	3
<b>2</b>	<b>MONITORING ACTIVITIES</b>	<b>5</b>
2.1	General Reporting Requirements .....	5
2.2	Compliance Monitoring .....	6
2.2.1	Compliance with NIRB Project Certificate No. 005	6
2.2.2	Compliance Monitoring by Agency	7
2.2.3	Marine Monitoring and Marine Mitigation Workshop	9
2.2.4	Performance Audit Workshop	10
2.3	Effects Monitoring .....	10
2.3.1	Effects Monitoring - Authorizing Agencies	11
<b>3</b>	<b>COVID-19 UPDATE</b>	<b>32</b>
<b>4</b>	<b>NIRB SITE VISIT/SITE UPDATE</b>	<b>33</b>
<b>5</b>	<b>AREAS REQUIRING FURTHER STUDY OR CHANGES TO THE MONITORING PROGRAM</b>	<b>34</b>
<b>6</b>	<b>FINDINGS</b>	<b>40</b>
<b>7</b>	<b>SUMMARY</b>	<b>43</b>

## List of Tables

Table 1: Parties Comments on and Baffinland's Responses on the 2019 Annual Report to the NIRB and Associated Document ID Numbers .....	7
Table 2: General Summary of Comments and Responses Received on Baffinland's <i>2019 Annual Report</i> .....	12

## List of Appendices

Appendix I: BAFFINLAND'S FOLLOW-UP TO 2019 BOARD RECOMMENDATIONS .....	45
Appendix II: NIRB'S ASSESSMENT OF BAFFINLAND'S PROJECT CERTIFICATE COMPLIANCE IN THE 2019-2020 MONITORING PERIOD .....	58

# 1 INTRODUCTION

The Nunavut Impact Review Board (NIRB or Board) was established through Articles 10 and 12 of the Agreement between *the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and is responsible for the assessment of ecosystemic and socio-economic impacts of projects in the Nunavut Settlement Area pursuant to the Nunavut Agreement. The NIRB is responsible for post environmental assessment monitoring of projects in accordance with Part 7 of Article 12 of the Nunavut Agreement and s. 135 of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*). The purpose of the NIRB's monitoring program as outlined in Section 12.7.2 of the Nunavut Agreement and s. 135(3) of the NuPPAA are as follows:

- (a) measure the impact of the project on the ecosystemic and socio-economic environments of the designated area;
- (b) determine whether the project is carried out in accordance with the terms and conditions imposed under subsection 152(6) or set out in the original or amended project certificate;
- (c) provide the information necessary for regulatory authorities to enforce the terms and conditions of licences, permits or other authorizations that they issue in relation to the project; and
- (d) assess the accuracy of the predictions contained in the project impact statement.

As such, this report provides findings that resulted from the Board's monitoring programs for the Mary River Project from October 1, 2019 to September 30, 2020.

## 1.1 Project History and Current Status

NIRB Project Certificate No. 005 was issued to Baffinland Iron Mines Corporation (Baffinland or the Proponent) for the Mary River Project on December 28, 2012 following a thorough environmental review process, which included community consultations and a Final Hearing pursuant to Section 12.5.12 of the *Nunavut Agreement*. On January 13, 2013 Baffinland informed the NIRB that it was proposing an Early Revenue Phase (ERP) that would change the schedule and specific activities associated with the Project as initially approved. The Board determined that it was appropriate to assess the potential ecosystemic and socio-economic effects of the ERP and to consider modifications to the terms and conditions of the original Project Certificate under Article 12, Section 12.8.2 of the *Nunavut Agreement*.

Following a thorough reconsideration process on March 17, 2014, the NIRB issued its Public Hearing report for the ERP Proposal to the then-Minister of Aboriginal Affairs and Northern Development Canada, indicating that the proposed works and activities could be permitted to proceed subject to new and amended project-specific terms and conditions. Following the acceptance of the NIRB's report by the Minister, which included revised terms and conditions, on May 28, 2014, pursuant to Sections 12.5.5 and 12.8.2 of the *Nunavut Agreement*, the NIRB

issued a Project Certificate, Amendment 001 for the Mary River Project. The amendment allowed the Project to proceed in accordance with Terms and Conditions.

In December 2017, Baffinland provided the NIRB with notification that anticipated its 2017 road haulage operations would meet and potentially exceed the 4.2 million tons per year (Mt/a) limit established by Term and Condition 179(b) of the Mary River Project Certificate No. 005 Amendment 001. The NIRB acknowledged receipt of the update and noted additional reporting would be required from Baffinland once final haulage numbers for 2017 were confirmed, including an analysis of potential ecosystemic and socio-economic effects related to any exceedance of road haulage activities from those predicted or permitted. The NIRB encouraged Baffinland to submit an application to amend Term and Condition 179(b) of the Mary River Project Certificate should it identify any challenges with complying in future. Baffinland later confirmed the actual tonnage of ore hauled in 2017 was 4.54 Mt, representing an approximately 7.5% exceedance of the limit specified in the Project Certificate.

In April 2018, Baffinland submitted the “Production Increase, Fuel Storage and Milne Port Accommodations Modification Proposal” (Production Increase Proposal), to the NIRB which proposed an increase in the maximum volume of ore that would be permitted to be trucked from the Mary River site to the Milne Port via the Tote Road from 4.2 Mt/a to 6 Mt/a (requiring up to 83 round trips by ore carriers to market in the open water season), as well as the addition of a 15 million-liter (ML) diesel fuel tank within the existing Fuel Storage Facility at Milne Port, and installation of a new 380-person accommodation at Milne Port. On September 30, 2018 the Ministers of Intergovernmental Affairs, Northern Affairs and Internal Trade and Crown-Indigenous Relations, on behalf of the Responsible Ministers (the Ministers), accepted the Board’s recommendation to allow the fuel increase and installation of new accommodation at Milne Port without amendment to the Project Certificate. The Ministers also varied the Board’s recommendation of not approving the Production Increase Proposal and they allowed the increase in transportation and shipping of iron ore 4.2 Mt/a to 6 Mt/a to proceed until the end of 2019. As a result of this approval, existing Term and Condition #10 (air emissions) was revised and additional new Terms and Conditions 179(c), 183 and 184 was added to the Project Certificate and re-issued on October 30, 2018 to reflect the activities associated with Production Increase Proposal. The revisions in Project Certificate No. 005, Amendment 002 also established mechanisms to audit Baffinland’s delivery of benefits in the Qikiqtani Region and compliance with environmental management commitments in relation to the Tote Road and marine shipping, and also support verification of monitoring and mitigation efforts related to the potential for effects on marine mammals due to Project shipping.

On December 6, 2019 Baffinland submitted the Extension Request to the Production Increase Proposal with a request to modify Terms and Conditions 179(a) and 179(b) of Project Certificate No. 005 to authorization the transportation and shipment of up to 6 Mt/a of iron ore via Milne Inlet, until December 31, 2020, while the Board concludes the assessment of the Phase 2 Development Proposal (the Extension Request). On March 4, 2020 the Board provided its recommendation to the Minister to amend Project Certificate No. 005 and allow Baffinland to transport and ship up to 6 Mt/a of iron ore until December 31, 2021. On May 19, 2020 the



Minister of Northern Affairs wrote to the Board on behalf of the Responsible Ministers to accept the Board's recommendation regarding Term and Conditions 179 (a) and (b) of the Extension Request and the Ministers also varied Term and Conditions 179 (c) and 183 which were included in Project Certificate No. 005, Amendment 003 to ensure those conditions were meeting their original intent on June 18, 2020.

During the 2019-2020 monitoring period, the NIRB continued the reconsideration for the Phase 2 Development proposal with the NIRB conducting a Public Hearing from November 2-9, 2019 in Iqaluit and Pond Inlet. At the Public Hearing, the Board suspended its proceedings as a result of a motion from Nunavut Tunngavik Incorporated, supported by several other intervenors. The Board had scheduled a third Technical Meeting as well as Pre-hearing Conference in March of 2020 prior to reconvening the Public Hearing. However, due to the COVID-19 pandemic and orders from the Chief Public Health Office of Nunavut, the Board cancelled the meetings scheduled for March. Since March 2020, the Board has closely monitored the advice from the Chief Public Health Office of Nunavut and hosted a third Technical Meeting via teleconference on September 14-18, 2020 and a Community Roundtable and Pre-hearing Conference in Pond Inlet, Iqaluit, and Southern Canada from September 28 to October 1, 2020. The Pre-hearing Conference Report was released on October 30, 2020 along with the NIRB providing direction regarding the resumption of the in-person Public Hearing January 25 to February 6, 2021.

The NIRB has completed reorganization of the Mary River file on its Public Registry and all documentation associated with the materials are now separated by the application numbers listed below. Materials related to the NIRB's 2019-2020 monitoring year will be filed under the application numbers that had approved Project Certificates through this period: Production Increase Proposal 124702 and Extension Request to the Production Increase Proposal 124703.

- The Original Mary River Project – [www.nirb.ca/project/123910](http://www.nirb.ca/project/123910);
- The Early Revenue Phase – [www.nirb.ca/project/124700](http://www.nirb.ca/project/124700);
- The Phase 2 Development Proposal – [www.nirb.ca/project/124701](http://www.nirb.ca/project/124701);
- Production Increase Proposal – [www.nirb.ca/project/124702](http://www.nirb.ca/project/124702); and
- Extension Request to the Production Increase Proposal – [www.nirb.ca/project/124703](http://www.nirb.ca/project/124703).

## **1.2 Project Components**

The Mary River Project involves exploration, construction, operation, closure, and reclamation of an open pit iron ore mine at Deposit No.1 and includes mining at a rate of 18 Mt/a. There are three (3) main project locations – the Mine site, Milne Port located north of the Mine site, and Steensby Port located south of the Mine site. Milne Port is connected to the Mine site by the Tote Road, approximately 100 kilometers (km) in length. The Project as originally proposed was to include the construction of a railway approximately 150 km in length to connect the Mine Site to Steensby Port; however, this infrastructure is yet to be constructed.

As currently approved, the extracted ore is crushed and transported by truck along the Tote Road then shipped from Milne Port during the open water season using contracted vessels. The approved Project also includes additional facilities at Milne Port, including the construction of a fixed ore dock, 4.2 Mt ore stockpile and reclaim area, 3,500 tonnes per hour ship loaders, a camp

to accommodate workers, and the extension or relocation of the airstrip to the west of the proposed ore stockpile. The ERP operations are expected to continue for the duration of the mine life (i.e., 21 years), and would continue in conjunction with the Mary River Project as originally proposed, once developed.

In 2018 Baffinland submitted the Production Increase Proposal to the NIRB proposing an increase in the maximum volume of ore that would be trucked and shipped from the Mary River site from 4.2 Mt/a to 6 Mt/a. On October 1, 2018, the “Production Increase Proposal” was approved by the responsible Ministers until December 31, 2019. On December 6, 2019, Baffinland submitted the Extension Request to the NIRB proposing to continue the Production Increase activities until December 31, 2020. On May 22, 2020, the Minister of Northern Affairs approved the Extension Request, allowing Baffinland to transport and ship up to 6 Mt/a of iron ore until December 31, 2021.

Baffinland reported in 2019 to the NIRB that mining and ore hauling activities from the Mine Site to Milne Port continued and that approximately 5.7 Mt/a of iron ore was mined and hauled on the Tote Road and approximately 5.86 Mt/a was shipped from Milne Port to international markets. While Baffinland indicated that no specific project activities occurred along the southern railway or at the Steensby Port site in 2019, Baffinland reported to the NIRB that the scope of the construction and site activities it undertook in 2019 included:

- Continued development and operation of the mine, ore crushing and land transportation, stockpiling and marine shipment of ore;
- The continued development and construction of infrastructure required at Milne Port, the Mine Site, and along the Tote Road;
- Ongoing operation of permitted quarry and borrow sources;
- At Milne Port, vessels carrying fuel, equipment and supplies for use at the Mine Site and Milne Port arrived during open water. Material, fuel and supplies required for operational and construction activities were transported to the Mine Site year-round via the Tote Road;
- Use of ore carrier escorts during the end of the shipping season to maximize shipping during the open water season;
- Ongoing environmental effects studies and baseline data collection will continue to support the construction and operation of the Project as well as for future engineering requirements;
- Continued environmental monitoring in accordance with the approved Project Certificate, licences, authorizations, management plans and environmental effects monitoring programs;
- Ongoing regional exploration activities including mapping, prospecting, sampling, and geophysics;
- Tote Road improvements to address fish passage, drainage, sedimentation and erosion concerns;

- Construction of additional fuel storage at the Mine Site consisting of a 15 ML tank in a new bulk storage facility;
- Site grading and laydown construction for supplies of equipment to support future construction activities and remove ponding and permafrost degradation issues;
- Erection of additional maintenance facilities to safely service equipment; and
- Inspection and replacement of geomembrane liner at the Waste Rock Facility pond to address seepage due to liner integrity issues.

## 2 MONITORING ACTIVITIES

### 2.1 General Reporting Requirements

Baffinland's *Annual Report* is a summary of the Project activities and consultation efforts with stakeholders undertaken in 2019. It also outlines the status of compliance, methods employed to complete work, a summary of results, trends, and next steps for each project Certificate Term and Condition.

On May 15, 2020 the NIRB received Baffinland's *Mary River Project 2019 Annual Report (the 2019 Annual Report)* as required by the amended Mary River Project Certificate No.005. On June 1, 2020 following a preliminary completeness check, the NIRB requested additional information and on June 5, 2020 the NIRB received documents to supplement the *2019 Annual Report* as well as submission dates for outstanding items required for the Report.<sup>1</sup>

Additionally, during the 2019-2020 monitoring period Baffinland has provided the NIRB with the following Plans and documents as required by the Project Certificate:

- Status of Project Certificate Conditions in 2019;
- 2019 Community Engagement Records;
- 2019 Marine and Terrestrial Working Group Meeting Notes;
- 2019 Photo Essays;
- Concordance to 2019 Board Recommendations;
- Two (2) 2020 3<sup>rd</sup> Party Audit Reports (April and September);
- 2019 Socio-Economic Monitoring Report;
- Follow-up Memo to NIRB February Site Visit;
- Early Warning Indicator Technical Memo;
- Baffinland's Revised Shipping and Marine Management Plan;
- 2019 Geotechnical Inspection Report;
- Marine Shipping and Vessel Management Report; and
- Status of Proponent Commitments in 2019.

---

<sup>1</sup> Document ID: 330028-330079



## **2.2 Compliance Monitoring**

At present, the NIRB has not yet issued, post-environmental assessment monitoring program (PEAMP) for the Project Certificate. PEAMP is designed to work as an instrument of the Proponent's overall monitoring efforts of the project and should provide the NIRB and parties with information respecting the activities relating to a project, its impacts and the implementation of any mitigative measures through use of the monitoring plans and programs as described in the review or reconsideration processes.

The NIRB understands that several portions of the Project have still not been fully realized and that consequently some terms and conditions cannot be fully achieved until later phases of Mary River's development as well as the ongoing assessment of the Phase 2 Development. The NIRB expects that planning, consultation, and collaboration will continue over the next year to finalize and refine management and monitoring plans and will work to finalizing the PEAMP in the future.

### **2.2.1 Compliance with NIRB Project Certificate No. 005**

#### **Proponent's Responses to the Board's 2019 Recommendations**

On October 25, 2019 as a result of the NIRB's 2018-2019 Monitoring Program, the Board made eight (8) recommendations to Baffinland to provide guidance on how to achieve compliance with the Mary River Project Certificate No 005, Amendment 002. These recommendations are outlined in [Appendix I](#), and this section also includes follow up/updates on each of the recommendations from the Proponent.

Of these eight (8) recommendations, Baffinland has completed five (5) with the remaining three (3) still in progress. The outstanding recommendations are related to:

- Fish passage and culvert obstruction;
- Arctic Char monitoring programs to be developed in consultation with the Mittimatalik Hunters and Trappers Organization; and
- Marine mammal early warning indicators.

#### **Compliance Achievements**

Appendix II documents Baffinland's compliance achievements with the Project Certificate from 2018-2019. During this reporting period, the Proponent was successful in having met most of the requirements of the NIRB Project Certificate No. 005 Amendment 002 and Amendment 003; however, there are several terms and conditions where the Proponent has not yet achieved compliance, specifically term and conditions: 17, 20, 23, 47, 49, 77, 78, 100, and 184.

On June 11, 2020 the NIRB requested that authorizing agencies with a mandate or jurisdictional responsibility for the Mary River Project provide comments and information with respect to compliance and effects monitoring. Specifically, comments were requested regarding the following as it pertains to compliance monitoring, and assessment undertaken by regulators and other authorizing agencies to establish whether the Project is being carried out within defined regulations, commitments, and agreements:

- a. Compliance Monitoring
  - i. Provide a summary of any compliance monitoring and/or site inspections undertaken in association with the Project, including specifically:
    - a. Identify the terms and conditions from the Project Certificate which have been incorporated into any permits, certificates, licences or other government approvals issued for the Project, where applicable;
    - b. A summary of any inspections conducted during the 2019 reporting period, and the results of these inspections; and
    - c. A summary of the Proponent's compliance status regarding authorizations that have been issued for the Project.

The NIRB received comments from the following parties regarding Baffinland's 2019 Annual Report:

**Table 1: Parties Comments on and Baffinland's Responses on the 2019 Annual Report to the NIRB and Associated Document ID Numbers.**

Organization	Document ID No.
Qikiqtani Inuit Association (QIA)	330847
Government of Nunavut (GN)	330834
Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)	330831
Environment and Climate Change Canada (ECCC)	330835
Fisheries and Oceans Canada (DFO)	330832
Parks Canada (PC)	330826
Transport Canada (TC)	330822
World Wildlife Fund Canada (WWF)	330904 & 330907
Oceans North (ON)	330833
Mittimatalik Hunters and Trappers Organization (MTHO)	331440
Baffinland Iron Mines Corporation (Baffinland)	331437-331439 & 331744

On September 4, 2020 Baffinland provided written responses to address all the comments identified by parties, and where applicable the Proponent also provided additional action plans and commitments aimed to address all the outstanding monitoring issues identified during site visits and inspections of the Mary River Project.<sup>2</sup>

## 2.2.2 Compliance Monitoring by Agency

### Qikiqtani Inuit Association

In 2019, the QIA completed three (3) site inspections to assess compliance with select terms and conditions of Commercial Lease Q13C301. The site inspections occurred on May 20-21, July 16-17, and October 23, 2019. A summary of their findings was not provided by either the QIA or Baffinland in relation the *2019 Annual Report*.

<sup>2</sup> Document ID No.: 331347-331439

## **Crown-Indigenous Relations and Northern Affairs Canada**

CIRNAC completed three (3) site inspections in 2019 to review compliance with the Type 'A' Water License (2AM-MRY1325) associated with the Mary River Project. The site inspections occurred on January 23-24, 2019, May 22-23, 2019, and September 17-19, 2019. A summary of their findings is outlined below:

### **Major Concerns Identified:**

- Build-up of ore in ditches at the Crusher Facility and lack of appropriate 8-meter buffer zone between crusher pad stockpile and water management structures;
- Potential for continued Acid Rock Drainage related to encapsulation of PAG rock and requested a timeline or plan for the east side of the facility;
- Inspector issued a warning regarding unauthorized waste being deposited into the non-hazardous materials landfill;
- Lack of observed shrouds at the conveyor belt post crushing;
- Repair the liners at the water management structures denoted MP-05 and MP-06 to ensure run-off is captured;
- Repair liner at the Jet "A" Fuel berm;
- Required installation of water management structures at areas along the effluent discharge;
- Required installation of appropriate erosion control measures at KM63 bridge;
- Build-up of ore at unapproved locations around Mine Site as identified by inspector;
- Installation of required ditches at the Ore Stockpile as per approved engineering drawings;
- Erosion control issues along the Mine Haul Road;
- Discontinue the use of seacans as secondary containment for the storage of wastewater treatment sludge; and
- Baffinland was requested to develop a plan prior to December 15, 2019 to prevent further TSS non-compliance issues at Camp and Shear Down lake.

As of February 2020, most of the identified concerns noted by CIRNAC inspectors were addressed by Baffinland or have actions for verification or commitments to rectify items identified.

## **Environment and Climate Change Canada (ECCC)**

ECCC completed one (1) site inspection in 2019 on July 8-11, 2019. No summary of their findings or close-out meeting was provided to the NIRB.

## **Fisheries and Oceans Canada (DFO)**

DFO indicated that the Proponent currently operates under three (3) *Fisheries Act Authorizations* (14-HCAA-00525, 06-HCAA-CA7-00084, and 18-HCAA-00160) and that one (1) site inspection was conducted by DFO during 2019.

DFO stated that the following terms and conditions: 87, 105, 109, 110, and 121 from Project Certificate No. 005 and subsequent amendments for the Mary River Project have been incorporated into DFO's Fisheries Act Authorization for the Milne Inlet Ore Dock (DFO File No.: 14-HCAA-00525). DFO also outlined that additional terms and conditions from the NIRB's Project Certificate No.: 005 for the Mary River Project, while not directly incorporated, fall under DFO's mandate and overlap with conditions in Baffinland's existing Fisheries Act Authorizations as follows:

- Milne Inlet Tote Road (DFO File No.: 06-HCAA-CA7-00084): Terms and Conditions 19, 26, 45, 47, 48(a);
- Milne Inlet Ore Dock (DFO File No.: 14-HCAA-00525): Terms and Conditions 45, 76, 88, 99, 101, 106, 113, 115, 123; and
- Milne Inlet Freight Dock (DFO File No.: 18-HCAA-00160)" Terms and Conditions 14(a). 45. 76, 88, 99, 1010, 113, 115, 123, 128.

DFO completed one (1) site inspection in 2019 on June 24-27, 2019. Due to time constraints, DFO staff were unable to inspect all culverts along the Tote Road but instead inspected those with identified concerns noted in previous *Annual Reports* (CV-187, CV-186, CV-225, CV-224, CV-223, CV-001, BG-24, BG-30, CV-217, BG-32, BG-50, CV- 104, CV-106, CV-114 & CV-115). Their overall concerns identified during their site inspection are summarized below:

- Consistent erosion and sediment control issues coupled with incorrect sediment fence placement;
- Identified perched culverts or culverts not embedded properly and damaged culverts due to ice-removal equipment causing impassible streams;
- Several recommendations were provided including replacement of culverts and hiring of a certified sediment and erosion control specialist to assess crossings on a regular basis; and
- While on site, DFO staff also visited the freight dock at Milne Port which was still under construction and discussed appropriate protocols with consultants that were responsible for its' installation.

### **2.2.3 Marine Monitoring and Marine Mitigation Workshop**

As a result of direction given by the Responsible Ministers on September 30, 2018 associated with their approval of Baffinland's "Production Increase Proposal"<sup>3</sup>, the Board hosted a Marine Monitoring and Marine Mitigation Workshop in Pond Inlet on May 1-2, 2019. Following this workshop, the Board released a summary report and associated recommendations<sup>4</sup> that resulted from community feedback.

With the Minister's decision to allow the Extension Request Proposal to proceed until 2021, the NIRB was required to host another Marine Monitoring and Marine Mitigation Workshop in the 2019-2020 monitoring year. This Workshop occurred in Pond Inlet on August 25, 2020 and due

---

<sup>3</sup> Ministers Approval Re Production Increase Proposal (Doc ID: 320546)

<sup>4</sup> Marine Monitoring and Marine Mitigation Workshop Summary Report (Doc ID: 325313)

to the parties needing additional time during the Phase 2 Development Proposal Technical Meeting to allow three (3) parties to pose questions, the issuance of the report and associated recommendations from this workshop was deferred to coordinate with the release of the Phase 2 Development Proposal Pre-Hearing Conference report. The Board's marine monitoring and marine mitigation workshop report and associated recommendations were released to the Public on November 25, 2020<sup>5</sup>.

#### **2.2.4 Performance Audit Workshop**

Term and Condition 179c was added to the Mary River Project Certificate in October 2018 as required by the Responsible Ministers, when they approved the Production Increase Amendment "to ensure that all commitments made by the proponent with respect to the 2018 production increase and delivery of benefits to Inuit are adhered to, and, can be determined through a body of evidence". The NIRB did not receive the third-party audit within the 2018-2019 reporting period as it was received October 2, 2019, which did not allow sufficient time for review and incorporation into the monitoring report and is considered within the 2019-2020 reporting period.

In December 2019 Baffinland applied to the Board for the Extension Request proposal which was subsequently approved by the Minister on May 19, 2020 (see [Section 1.1](#)). Following the receipt of the Board's recommendation on the Extension Request, the Responsible Ministers consulted with the Qikiqtani Inuit Association (QIA) and received concern that Term and Condition 179(c) is not currently providing adequate certainty regarding the submission deadlines for the performance audits and that the content of the current audits has not met the "spirit and intent" of the commitments made by the Proponent. As a result, Term and Condition 179(c) was varied to direct Baffinland to submit their bi-annual performance audits on March 31<sup>st</sup> and September 30<sup>th</sup> of each calendar year. Further, the Board was directed to host a workshop to clarify the scope of the performance audits and to ensure that the audits meet their intended purpose. Due to delays in the NIRB's process resulting from COVID-19 and the NIRB's reconsideration of the Phase 2 Development Proposal which required the same parties to participate, the Board did not schedule this workshop in the 2019-2020 monitoring period; however, as confirmed in the Board's letter to the Minister<sup>6</sup>, the Board will be scheduling the Audit Workshop in the 2020-2021 monitoring period once the Final Hearing decision is released.

### **2.3 Effects Monitoring**

Effects monitoring can be described as an assessment of the measurable change to an environmental or socio-economic component, as compared to the potential effects that were predicted to result from a proposed development. In the case of the Mary River Project, impact predictions and mitigation measures were outlined and developed throughout the impact assessment of the Project and were recorded and presented through the Final Environmental Impact Statement (FEIS), the three (3) addendums to the FEIS, and other related documents.

---

<sup>5</sup> Document ID No.: 332007

<sup>6</sup> Document ID No.: 332010

Although the NIRB is currently in the process of developing a Post-Environmental Assessment Monitoring Framework for the Mary River Project that will address in greater details the expectation of the monitoring framework, the NIRB still expects that the Proponent will continue to invest effort on impact predictions and adequacy of monitoring/mitigation plans. Baffinland has not consistently provided reporting on how the information collected compares to the predictions in the FEIS and ERP but efforts to do so have improved in recent years.

On June 11, 2020 the NIRB requested that regulatory authorities with expertise or jurisdiction at the Mary River Project provide comments and information with respect to effects monitoring for the 2019 reporting period. Specifically:

1. Effects monitoring
  - a. Whether the conclusions reached by Baffinland in the 2019 *Annual Report* are valid; and
  - b. Any areas of significance requiring further supporting information or any changes to the monitoring program which may be required.

In addition, the NIRB is requesting that regulatory authorities also provide comments and/or information associated with their respective mandate and jurisdiction, with respect to the following:

2. Compliance monitoring
  - a. Provide a summary of any compliance monitoring and/or site inspections undertaken in association with the Project, including specifically;
    - i. Identify the terms and conditions from the Project Certificate which have been incorporated into any permits, certificates, licences or other approvals issued for the Project, where applicable;
    - ii. A summary of any inspections conducted during the 2019 reporting period, and the results of these inspections; and
    - iii. A summary of Baffinland's compliance status with regard to authorizations that have been issued for the Project.

### **2.3.1 Effects Monitoring - Authorizing Agencies**

Table 2 below lists the general comments received from various authorizing agencies regarding compliance monitoring of the Mary River Project in the 2019 reporting period. On September 4, 2020, Baffinland provided written responses to address all the comments identified by parties, and where applicable the Proponent also provided additional action plans and commitments to address all the outstanding monitoring issues identified during site visits and inspections of the Mary River Project. Baffinland's response to comments is summarized in the following sections for each commenting party. For fulsome party comments and Baffinland responses, please visit the NIRB's Public Registry and search the Document ID numbers listed in [Table 1](#).



**Table 2: General Summary of Comments and Responses Received on Baffinland's 2019 Annual Report**

<b>Summaries of Comments Received</b>	<b>Baffinland Response</b>
<b>Qikiqtani Inuit Association</b>	
Noted the current monitoring framework is insufficient to understand cumulative dust effects on vegetation.	Noted that NIRB has initiated the development of the monitoring framework (PEAMP) and Baffinland will continue to participate in this initiative as needed.
Observed the terrestrial invasive species monitoring is insufficient to detect plants until after establishment.	Due to the low risk of exotic species invasion and slow growth rate on North Baffin Island, a 3–5 year survey schedule is appropriate for detecting and controlling exotic species before they become widespread. The next scheduled exotic invasive species survey will increase survey effort by incorporating Bruce Head camp to the survey route.
Noted the survey methods for caribou monitoring are inadequate to determine if the Project is having an effect.	While numerous changes to survey methodology have been adopted to date based on TEWG comments, not all have been adopted as it has not been made clear to Baffinland how these particular suggestions would improve caribou detection at low densities.
Requested the frequency of seabird surveys should be increased in order to develop a fulsome understanding of Project effects.	The 2012 survey and analysis report (EDI Environmental Dynamics Inc. 2013) concluded that bird densities were too low along Steensby Inlet to provide relevant or robust monitoring for determining potential project effects or directing mitigation for nesting birds in that area. The 2013 analysis and report (EDI Environmental Dynamics Inc. 2014) determined similar results.
Noted the inability to identify hull biofouling species requires improvement in order to better detect invasive species.	Due to safety concerns around diving on a vessel undergoing active loading, combined with the difficult access to areas where biofouling has been observed, collection of samples for identification by divers from ship hulls is not feasible. Both Golder and Baffinland's Health and Safety regulations surrounding diving prohibit divers from surveying ore carriers. That said, divers will be part of the 2020 program for monitoring offset habitat along the freight dock, checking and redeploying belt transects, and will be used opportunistically along AIS transects. During these surveys,

Summaries of Comments Received	Baffinland Response
	specimen collections will be made opportunistically to aid in identification of species.
Stated Efficacy concerns with the Marine Environment and Terrestrial Environment Working Groups.	Indicates that the provision of providing the draft monitoring reports to the MEWG for comment is done on a voluntary basis and Baffinland intends to continue this process.
Monitoring, reporting and feedback from working groups gives the impression of a “check-box” exercise.	Indicates that the provision of providing the draft monitoring reports to the MEWG for comment is done on a voluntary basis to better integrate MEWG feedback into the reports. Baffinland intends to continue this process in the coming years.
Format of groups lacks sufficient time to provide input into monitoring program design and implementation prior to the release of the <i>2019 Annual Report</i> .	Baffinland notes that the review and reporting schedule is established by NIRB including the submission of Annual Report to the NIRB on March 31 of each year with commenting periods occurring through the summer and Annual Board recommendations being public in October-November. However, Baffinland is open to further discussing the schedule of reporting documents.
Requested a schedule to be developed and materials provided further in advance of meetings.	Baffinland notes that in order for this to be accomplished, less timely information will be available to MEWG members. It takes approximately 14 days for all MEWG meeting materials to undergo translation. Subsequently, meeting materials prepared by Baffinland and its consultants would need to be completed 4 weeks in advance of a meeting. This may result in less information being available to MEWG members on monitoring program design or analysis of results. However, Baffinland is open to further discussing preferences for timing of scheduled meetings with the MEWG and the sharing of associated meeting materials.
Requested further opportunity to comment on the Terms of Reference for these groups.	Baffinland has scheduled further Working Group Meetings to discuss the Terms of Reference.
Observed consistent gaps in trend-over-time data collection and establishment of sound baseline data prior to potential expansion.	Indicated that their Annual Report includes a self-assessment of their Project Certificate Term and Condition compliance which includes an evaluation of trend-over-time data.

<b>Summaries of Comments Received</b>	<b>Baffinland Response</b>
Expressed concern regarding the recurring issues with perched and obstructed culverts and the need to take a proactive approach to prevent culvert damage.	Baffinland will continue to seek advice from DFO as part of their regular maintenance activities at crossing locations to prevent and remove any fish passage barriers in fish-bearing streams. Baffinland will continue to address outstanding or new fish passage concerns identified during the annual water crossing assessments and/or via additional direction provided by DFO.
Requested improvements to the Core Receiving Environment Monitoring Program (CREMP) involving water sediment and water quality monitoring and aquatic biota monitoring in Mine Site lakes and streams.	Baffinland provided information and justification regarding the current CREMP methodology.
Noted improvements in the Marine Environmental Effects Monitoring Program such as the addition of the Northeast sampling transects and increases in the number of sampling sites.	See comment in below cells.
Requests that Baffinland provided information regarding the need and value in collecting data on sea ice trends as this is critical to Inuit use of the ice.	Baffinland will review the available ice imagery and data to determine if differentiation of landfast ice vs. pack ice is possible for future reporting.
Noted a need to collect baseline data to further understand the impacts the Project is having on the robustness of the Pond Inlet food system and access to country food.	Baffinland has committed to provide the necessary funding and support to QIA to conduct a Pond Inlet Country Food Baseline Study. This work will be Inuit-led.
<b>Government of Nunavut</b>	
Requested methodology of snowbank height surveys to include how these surveys are timed relative to road maintenance activities.	Snowbank compliance surveys are conducted randomly and opportunistically when the Tote Road is safe to drive and Site Environment staff are available to conduct the survey. Surveys are generally avoided during periods of heavy snowfall due to safety concerns associated with driving and reduced visibility. Snowbank compliance surveys are conducted independently of road maintenance activities.

<b>Summaries of Comments Received</b>	<b>Baffinland Response</b>
Noted concern regarding the lack of definition surround the term “significant deviation” in relation to the nominal shipping route.	This comment requires NIRB's response in order for Baffinland to respond.
Requested that the caribou Height of Land survey efforts be expanded across a larger portion of the summer season or be incorporated into a GN led Height of Land survey which would include aerial surveys and collaring data.	The baseline survey work started with numerous aerial surveys, and Inuit traditional knowledge information collected on caribou abundance and population cycles. That information was used to formulate the baseline and provide a basis for monitoring program planning during operations and shared with the GN and the TEWG.
Noted concern regarding the data presented in Tables 4. 62 and 4.37 of the <i>Annual Report</i> as well as requested clarity on the origin of the data in those tables.	The percentage figures outlined in the summary Table (4.3.7) were calculated excluding ‘unknown’ results from the total number of surveys. Baffinland acknowledges that this was not clear in the Final Report. For clarity and consistency, Baffinland agrees to update these numbers to include the total number of participants (including those who responded ‘unknown’).
Encouraged further consultation with the Government of Nunavut’s Department of Education, Early Childhood Education division in respect of childcare facilities in the local study area.	Baffinland commits to more actively consult and collaborate with the GN-EDU Early Childhood Education division and requests that the GN provide at the earliest available opportunity to Baffinland the names and contact information of those staff members who should be engaged on this topic. Baffinland notes that as a mineral developer it may provide support to childcare initiatives but it will not own or operate a childcare facility in the LSA.
Requested that the Inuit Employee Survey be expanded to include Inuit residing outside of the local study area (Iqaluit and non-Nunavut communities).	Baffinland commits to examining the feasibility of administering the voluntary Inuit Employee Survey to Inuit employees residing in non-Nunavut communities and Iqaluit.
<b>Crown-Indigenous Relations and Northern Affairs Canada</b>	
Noted ineffective dust management, monitoring and potential effects on water courses, marine shoreline, and vegetation.	Through CIRNAC’s comment, they requested that Baffinland include testing measures to increase the quality of monitoring activities such as: testing for acidity/Alkalinity, identification and targeting for monitoring areas with readily visible dust deposition in vegetation and soil and clarify the base soils depth of sampling. Baffinland indicated

Summaries of Comments Received	Baffinland Response
	that they currently include soil pH in the trace metals monitoring program, in 2016 some trace metals sampling sites were repositioned in proximity to dustfall collectors to improve the comparison potential and in 2019, soil was sampled up to 10cm and in 2020, sampled up to 5cm based on reviewer feedback.
Requested testing for acidity/ alkalinity, sulphate, iron, manganese, nickel and nitrate concentrations in vegetation and soil base metal site tests.	Based on CIRNAC's comments, Baffinland will also consider analyzing and examining sulphate and nitrate concentrations to better understand the potential effects of dustfall on soil and vegetation health. Baffinland is attempting to enhance sampling design by establishing new sampling sites in areas with enough lichen for sampling over multiple years, and near dustfall collectors.
Requested a summary table in future NIRB Annual Reports identifying exceedances of daily water withdrawal limits.	To address the exceedances of daily water limits in 2019 and to prevent future events, Baffinland is committed to improving current operating practices to reduce the risk of reoccurrence. Immediate actions have been implemented onsite to address the daily water limit exceedances from 2019.
Recommended expansion of groundwater monitoring program to include wells near the Waste Rock Stockpile area, borrow pits and quarries and the rationale for not including these sites in current monitoring.	Baffinland is further evaluating the Groundwater Monitoring Program in 2020.
Acknowledged Baffinland's improvements at the Waste Rock Area but also noted several concerns regarding the current management of effluent and areas for improvement.	Baffinland intends to complete an annual sampling program on representative waste rock that will be used to further develop Baffinland's geochemical database. The results of this program will be integrated in the 2021 revision of the WRMP and will be used to validate the performance of the current criteria. This analysis will inform the need to refine the current NAG/PAG classification criteria and allow Baffinland to evaluate the need to adjust the site's sampling and testing capacity/capabilities.

Summaries of Comments Received	Baffinland Response
<p>Noted concerns regarding potential future quarry and borrow-source pits along the Tote Road for the development of rail-link. CIRNAC recommended confirmation of the origin of elevated aluminum, mercury, and copper concentrations in Shake Flask Extraction test as well as an update to the Closure and Reclamation plan to include potentially acid generating rock sources.</p>	<p>Baffinland will further evaluate the potential origin of elevated concentrations of aluminum, mercury, and copper. The Interim Closure and Reclamation Plan outlines the Site Wide and quarry specific objectives and criteria including physical and chemical stability.</p>
<p>Requested an overview of the long-term plan to address permafrost degradation in the borrow pits, a description of closure and reclamation activities and revisits to reclamation/ restoration areas with reference to target conditions of these areas.</p>	<p>For the 2020 NIRB Annual Report, Baffinland will continue to report on the development and implementation of a long term multiyear plan to address localized areas of permafrost degradation associated with the current and historic borrow areas. A summary description of closure and reclamation activities onsite is reported annually in the QIA-NWB Type 'A' Annual Report for Operations. The Interim Closure and Reclamation Plan outlines the Site Wide and quarry specific objectives and criteria</p>
<p>Recommended a more detailed analysis of unauthorized discharges and spills including the quantity spilled, causes and corrective actions taken or planned.</p>	<p>Each year Baffinland provides a detailed review of reported incidents including spills in the QIA-NWB Annual Report for Operations. All spills reported to the NT-NU Spill Line in 2019 are summarized in Table 6.1 and presented in Figure 8. In addition to the original spill report submitted within 24 hours of each spill event in 2019, a detailed follow-up report was submitted within thirty (30) days of each reported spill. The follow-up reports included a description of the event, the immediate cause(s), corrective and preventative action(s), photos, and a map showing the location of the spill.</p>
<p>Requested more information on the frequency of landfill inspections.</p>	<p>Baffinland currently sends all weekly waste reports to CIRNAC, capturing in real-time any internal non-conformances with the Waste Management Plan. For future reporting, Baffinland will consider presenting more quantified information pertaining to the landfill in next year's annual reporting.</p>



<b>Summaries of Comments Received</b>	<b>Baffinland Response</b>
Recommended that employee origin data is included for all parameters identified in T&C 134.	Please refer to Baffinland's response to GN's comment #4 above.
<b>Environment and Climate Change Canada</b>	
Noted lack of clarity regarding the newly established "triggers" under the Trigger Action Response Plan or the Surface Water and Aquatic Ecosystems Management Plan and how those triggers relate to implementation of the Trigger Action Response Plan.	The 'Trigger Action Response Plan' template has since been refined to ensure "triggers" are clear, descriptive, and related directly to an observation or event that would trigger action.
Expressed concerns regarding the rationale provided for the discontinuation of SNP station MP-C-G at Milne Port.	Effluent that would have originally been captured at MP-C-G, is now being directed in a newly constructed ditch and conveyed to Pond No. 3, where it can be collected and tested for compliance with Baffinland's Type 'A' Water Licence. Thus, the removal and not relocation of station MP-C-G was proposed.
Requested that the Proponent present the groundwater data collected graphically in order to clarify differences in up and down-gradient concentrations and highlight temporal trends.	In preparation of the 2020 groundwater report, Baffinland will consider the use of graphics to present the data collected. As part of the groundwater program expansion and with support from groundwater consultants, Baffinland will also be evaluating groundwater quality objectives for use in future monitoring.
Noted concerns that the Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines presented in table 2.2 have not been updated for zinc or manganese and requests these to be updated in future years.	Baffinland will also evaluate the newly released CCME Manganese Water Quality Guideline and determine whether it is more appropriate for use at the mine site than the BC Water Quality Guideline. Once assessed Baffinland will provide further recommendations to CIRNAC, NWB, and other relevant parties.
Recommended that the Proponent consistently apply the 3 milligrams of nitrogen per litre nitrate (mg-N/L) guidelines of the CCME Water Quality Guidelines to ensure appropriate comparisons and make possible notes of exceedances clear.	For future reporting the CCME guideline of 3 mg-N/L will be used/displayed.

Summaries of Comments Received	Baffinland Response
Recommended that the Proponent provide potential mitigation measures to reduce impacts from dust and nitrogen deposits into CLT1 from the QMR2 quarry as a result of potential localized effects occurring due to the results of nitrate exceedances for 2 consecutive years.	Baffinland proactively controls the release of ammonia at the point source. Measures are in place to reduce impacts of dust from the quarries by minimizing the creation of dust at source.
Has concerns regarding sudden increases in nitrate and sulfate at Mary River Tributary F. ECCC notes that these increases do not exceed CCME Water Quality Guidelines but that the sudden increase compared to previous data may indicate mine influence.	Discussion regarding potential causes of an increase in nitrate and/or sulphate in fall 2019 and fall 2020 or whether the fall 2019 data were anomalous will be provided in the 2020 Annual Report as per the results of the 2020 sampling program.
Requested clarification regarding the substrate at station SHAL1 near Sheardown Lake Tributary inflow noted in the Lake Sedimentation Monitoring Report.	Station substrates in Section 3.1.1 should have described SHAL1 as the littoral area characterized by soft-bottomed (silt-loam) substrate, and SHAL2 as the littoral area characterized by hard-bottomed (cobble) substrate.
Clarified their comments regarding the Autonomous Recording Units noting that although ECCC suggests that Autonomous Recording Units Red Knot surveys may not be necessary in the northern RSA, they should still be conducted in the southern RSA. Further, if Red Knot activity is discovered in the northern RSA, the Proponent should contact ECCC to discuss further monitoring.	Upon recommendation by the QIA and ECCC, Baffinland is considering deploying ARUs along the south rail line and in the Steensby Port area in suitable Red Knot habitat prior to increasing activities in these areas.
Required a more thorough review of flight log data to determine if pilots' justification is a sufficient explanation for flight height restrictions being broken and acknowledged that the Proponents committed to a further analysis of this data during the Terrestrial Environment Working Group (TEWG) meeting in June 2020.	An enhanced helicopter overflight analysis is in progress in response to TEWG requests and will be included in the 2020 Annual Report.

Summaries of Comments Received	Baffinland Response
<p>Recommended that if an altitude of 1,100 m through the Snow Goose area during moulting season cannot be maintained, pilots should re-route around the area while maintaining the 1,500 m horizontal buffer.</p>	<p>Pilots maintain a 1,100 m vertical distance when flying over the Snow Goose moulting area whenever possible. If this flight height is not possible for safety and/or operational reasons, pilots maintain a 1,500 m horizontal distance if the flight path allows. However, this 1,500 m horizontal buffer is not always practical as it results in longer flight times, which causes more overall disturbance. As a compromise, pilots sometimes fly over the eastern edge of the Snow Goose moulting area. Baffinland understands that Snow Geese are typically concentrated in the core of the moulting area and are seldom present near the edges, and as a result, overall flight time and associated disturbance is reduced.</p>
<b>Fisheries and Oceans Canada</b>	
<p>Is concerned regarding the breaking of non-landfast ice in the Regional Study Area and the current lack of both approval and assessment for this under the current Project Certificate.</p>	<p>The Production Increase Proposal Extension Request included a description of icebreaking activities and associated mitigations. Approval of the Production Increase Proposal Extension Request was provided by the Responsible Ministers, including the Minister of Fisheries and Oceans and Canadian Coast Guard on May 19, 2020, inclusive of all activities as described in the proposal.</p>
<p>Acknowledged the mitigations measures employed by Baffinland during ice-breaking activities but notes that this does not supersede the requirement to fulsomely assess and evaluate the potential impacts of those activities.</p>	<p>See above response.</p>
<p>Expressed concerns regarding the Ship-based Observer Program in that it only occurs during the shoulder seasons and not the height of the shipping season.</p>	<p>Baffinland is conducting marine mammal aerial abundance surveys during 2020, covering both Admiralty Inlet and Eclipse Sound narwhal stocks during the remainder of the shipping season.</p>
<p>Noted that several new species were noted during the Aquatic Invasive Species Monitoring Program and that the independent review of these results was not available when the <i>2019 Annual Report</i> was released. DFO looks forward</p>	<p>Final versions of the various marine environment monitoring reports will include comment responses and are also included as part of this comment response submission to the NIRB.</p>

Summaries of Comments Received	Baffinland Response
to reviewing the independent report as soon as practicable.	
DFO noted that there is currently no dedicated forum to discuss ongoing freshwater environment impacts and monitoring programs.	Baffinland continues to explore potential options for presenting relevant aspects of freshwater monitoring data to project intervenors; however, Baffinland sees no need to develop a separate working group for this.
Is concerned that the current comment/response format is not a timely mechanism for resolution of and incorporation of outstanding issues.	Baffinland will consider the request to provide presentations at least 14 days in advance of the meetings, but this remains a challenge as Baffinland has to balance the time required for translation as well as providing the most updated information possible for the working groups.
Requested that presentations for the Marine Environment Working Groups (MEWG) meetings be provided at least 14 days in advance of the meeting dates.	Baffinland will consider the request of DFO to provide presentations at least 14 days in advance of any scheduled MEWG meetings. However, it takes approximately 14 days for all MEWG meeting materials to undergo translation. Subsequently, meeting materials prepared by Baffinland and its consultants would need to be completed 4 weeks in advance of a meeting. This may result in less information being available to MEWG members on monitoring program design (i.e., as details of each program may not be determined) or analysis of results. However, Baffinland is open to further discussing preferences for timing of scheduled meetings with the MEWG.
Submitted comments on the <i>Draft Ship-based Observer Report</i> that was provided as part of the <i>2019 Annual Report</i> and through the MEWG review process.	Addressed through MEWG review and finalization of the <i>Ship-based Observer Report</i> .
<b>Parks Canada</b>	
Noted concerns with the effectiveness of the current working groups and the ongoing process of evaluating the Terms of Reference of the working groups and how these are attempting to address unresolved issues, establishing realistic timelines for report review and implementation of recommendations.	Baffinland acknowledges that revisions to the Working Group Terms of References are ongoing. Baffinland is open to revising the format for these Working Groups based on further discussions with its Members once an updated version of the Terms of References has been provided by Baffinland. It is expected that these discussions will occur in Q4 2020.

<b>Summaries of Comments Received</b>	<b>Baffinland Response</b>
Outlined the submission timelines for draft monitoring programs and the publication of the annual report resulting the NIRB's Monitoring Report not containing incorporation of MEWG/TEWG member comments.	Baffinland wishes to clarify to PC that there is an established review and reporting schedule managed by the NIRB.
Suggested that a teleconference or video workshop with the Working Group members would be beneficial in determining appropriate timelines and deadlines for draft reports and should involve consensus among Working Group members prior to finalization of materials.	Baffinland wishes to clarify to PC that there is an established review and reporting schedule managed by the NIRB.
Requested the location of Table 1.2 regarding the icebreaking assessment and daily ice charts that were used to characterize ice conditions for the current <i>2019 Annual Report</i> .	Baffinland has included in Attachment 3 an updated table that includes 2019 and latest 2020 information. Baffinland's ice analysts will continue to collect this data so that it may be presented in future annual reports when it is relevant to update the long-term dataset, though not necessarily including the table on a yearly basis, given that the daily ice coverage, as captured through Canadian Ice Service Charts, is already being included as part of annual reporting efforts.
Further noted that Baffinland should work with the MEWG to resolve issues to the Working Group comment forms describing how those issues have been resolved through consensus and how those comments have been incorporated into the final reports and the ongoing monitoring programs.	See Baffinland's response to Parks Canada comment #3.
Submitted comments on the <i>Draft Marine Environment Effects Program and Aquatic Invasive Species Monitoring Program Report</i> that was provided as part of the <i>2019 Annual Report</i> and through the MEWG review process.	Addressed through MEWG review and finalization of the <i>Marine Environment Effects Program and Aquatic Invasive Species Monitoring Program Report</i> .

Summaries of Comments Received	Baffinland Response
<b>Transport Canada</b>	
After a security assessment of the Milne Port marine facility was completed in July 2019, there were no major issues or deficiencies noted.	Baffinland indicated that no response was required.
Confirmed that the Milne Port marine facility is compliant with the <i>Marine Transportation Security Act</i> and subtending regulations.	Baffinland indicated that no response was required.
Baffinland currently holds an interim Statement of Compliance with another inspection scheduled for September 2020.	Baffinland indicated that no response was required.
As per the new Environmental Response Regulations, Baffinland has submitted their Oil Pollution Emergency Plan and Oil Pollution Prevention Plan and Transport Canada is currently reviewing the document.	Baffinland indicated that no response was required.
Confirmed that Baffinland is in full compliance with all conditions within its regulatory approvals under the <i>Navigable Waters Protection Act</i> .	Baffinland indicated that no response was required.
<b>World Wildlife Fund</b>	
Noted that the current monitoring programs are not effectively providing statistically relevant certainty that the current project is having no significant effects on several valued ecosystem components.	Baffinland will continue to provide detailed reporting on valid and robust monitoring efforts and analysis to support the general conclusions on impact predictions, and those conclusions will be based on the available evidence. Baffinland acknowledges that there may be ongoing differences in opinion on conclusions regarding Project-related effects.
Suggested that there is value in beginning a discussion with Baffinland regarding where they feel constrained in their ability to evaluate Project effects and developing and adjusting current programs to better understand those impacts.	Baffinland indicated that they would continue to provide detailed reporting on valid and robust monitoring efforts and acknowledges that there may be ongoing differences in opinions on conclusions.



Summaries of Comments Received	Baffinland Response
Requested that Baffinland confirm which additional baseline data has been collected in 2019 and how predictions reflect the inclusion of this data.	Baffinland's program includes indicators for all of the Valued Ecosystem Components and Values Socio-Economic Components that were identified in consultation with Project stakeholders throughout the Environmental Assessment process.
Requested an update to Baffinland's <i>Draft Climate Change Strategy</i> and how it intends to reduce emissions along with specific commitments and timeline targets.	Baffinland had plans to complete a Draft Climate Change Strategy that would be ready to discuss as part of external engagement activities by end of April/early May 2020. Progress came to an abrupt halt due to the COVID-19 pandemic. It was no longer feasible to move forward over the short-term due to the emerging challenges associated with managing the various health and safety and operational considerations associated with the COVID-19 crisis. As Baffinland habituates to the "new COVID-19 normal", it is ready to resume its activities related to the Climate Change Strategy initiative.
Requested that Baffinland clarify what impacts the Project may have on the climate and provide a suggested approach for how to measure those impacts.	
Further, WWF would like Baffinland to clarify the thresholds for when emissions would be determined to impact the climate.	
Regarding Condition 78, requested that Baffinland provide the data for 2019 and 2020 ice conditions for the Northern Shipping Route.	Baffinland does not ship during winter and does not break any landfast ice during transits along the Northern Shipping Route. Certain aspects of the condition are thus not relevant for existing operations. Appendix G.19 includes daily ice coverage when shipping was active in the Regional Study Area. Baffinland presented daily ice charts for each day that shipping occurred.
Requested that Baffinland clarify which monitoring programs classify narwhal behavioural response, which of those programs are occurring in the shoulder seasons and which of those programs occur along the entire RSA shipping route.	All of the information requested by WWF is available in existing / filed Project documentation, including the annual monitoring reports, the Summary of Results for the 2019 Marine Mammal Monitoring Programs Technical Memorandum (dated May 25, 2020), and Baffinland's 2019 Annual Report to NIRB.
Required clarification regarding Baffinland's narwhal monitoring programs and their ability to detect calving and nursing behaviours in order to have a greater understanding of these activities within the RSA.	

Summaries of Comments Received	Baffinland Response
Expressed concerns regarding Baffinland's understanding of Term and Conditions similar to 105 where Baffinland states these are not applicable because the monitoring programs are not detecting any significant effects. WWF is concerned that we cannot say whether the Project is having any impacts because the monitoring programs themselves lack integration, thresholds and accountability.	Disagree with WWF's comment that monitoring continues to have statistically weak findings and encourage WWF to review the power analysis evaluations included in each monitoring report which demonstrate that the monitoring programs have reasonable power for detecting Project effects.
<b>Mittimatalik Hunters and Trappers Organization<sup>7</sup></b>	
The current formatting and organization of the Annual Report creates a disjointed exercise to review with information being present in several different locations.	No direct response was provided.
Is concerned regarding the insufficient integration of IQ into monitoring and mitigation.	Identifies that the term IQ is used in a broad and inclusive manner similar to the NIRB's definition. Further, Baffinland seeks to collect and integrate IQ into its monitoring program and mitigations efforts through continued community engagements. They remain open to further discussing this request with the MHTO but remained unsure of how the current programs are not incorporating IQ sufficiently.
Requested that moving forward, Baffinland produce minutes from all meetings with the MHTO which are later confirmed to be accurate. Further, the MHTO requested that Baffinland develop a distinct IQ collection for its monitoring programs which Baffinland updates with consideration from all communities.	Baffinland commits to recording and sharing meeting minutes with the MHTO and its members being logged as contributing to the collection of IQ.
MHTO would like further details regarding Baffinland's existing community-based monitoring programs and how these have been emphasized.	Baffinland is committed to supporting community-based monitoring efforts as described in Article 17.8 'Wildlife Monitoring Program' of the Inuit Impact Benefit Agreement. This includes the provision of \$200,000 annually towards

<sup>7</sup> Due to capacity limitations, the MHTO was unable to meeting the initial deadline for comments on Baffinland's 2019 *Annual Report* and provided on September 10, 2020 and Baffinland responded on October 13, 2020.

Summaries of Comments Received	Baffinland Response
	monitoring activities developed in consideration of the research interests of Pond Inlet for a period of 10 years. This was provided in 2019 and Baffinland has not yet seen the results of the program.
Is concerned regarding the inadequacy of the current caribou monitoring and the need to expand their surveying efforts as well as meet with the MTHO to discuss this.	Baffinland remains open to discussions with members of the MHTO regarding its terrestrial monitoring programs, especially with respect to caribou data. They welcome input and request specific improvements for discussion.
Requested clarification regarding the current dust monitoring program, why some programs have been on hold and how others should be modified due to exceedances of predicted dust fall thresholds.	Baffinland remains open to discussions with members of the MHTO regarding its terrestrial monitoring programs including any concerns regarding dust fall. Baffinland takes dust-related concerns seriously and has implemented new mitigation measures over the years to minimize dust emissions. Most recently, Baffinland has found and purchased a new dust suppressant that will be trialed in the coming months on the ore piles. A summary of all measures taken to date to reduce Project-related dust is available in Baffinland's recent submission to the NIRB on Aug 21, 2020 (200821-08MN053-BIMC Follow up Re NIRB Feb 2020 Site Visit). Baffinland will continue to provide additional information when relevant updates become available.
Requested an update on the potentially invasive species that was found in Milne Inlet in the 2019 sampling as well as an update to the program to include "biota" in its ballast water sampling.	Baffinland indicated that they have come to a resolution with DFO on this matter where the initially proposed biological monitoring pilot program has been replaced by a DFO-led field program in support of the development of a risk-based approach to future compliance monitoring to prevent the introduction of aquatic invasive species. The program, intended to be executed in 2021, involves DFO's expert ballast water team undertaking the work at Milne Port (Project-specific ballast tank biological sampling conducted on a subset of vessels calling to Milne Port). The sampling to be conducted will support building a body of knowledge for D-2 treatment systems. Understanding that the rationale for this program is tied to a learning curve associated with the use

Summaries of Comments Received	Baffinland Response
	of ballast water treatment systems, the compliance sampling program and risk-based methodology will be adapted as deemed necessary based on the results of DFO's ballast water sampling program. Further updates on the program will be made available to the MHTO as relevant.
Has concerns regarding the current marine mammal monitoring program and the lack of assessment around ice-breaking during the shoulder season.	In practice, for Baffinland to ensure that the approved 6 million tonnes per annum ore production is exported over the limited shipping window (July 15 to approximately mid- to late October, dependent on prevailing ice conditions), Baffinland requires the use of an icebreaker at the beginning and the end of the shipping season to safely escort vessels to and from Milne Port along the Northern Shipping Route.
Requested from Baffinland their plan for the 2020 marine mammals monitoring.	Baffinland provided an overview of their current marine mammal monitoring programs.
Requested immediate development and implementation of a comprehensive seal monitoring program.	Baffinland provided an overview of their current marine mammal monitoring programs including aerial photographic surveys used for both narwhal and ringed seal. The further indicate that marine mammal surveys in open water are not reliable tools for conducting seal density surveys since seals are usually observed as single animals at this time of the year making them difficult to identify. Following approval of Phase 2 Development Proposal, Baffinland has committed to developing a ringed seal monitoring plan for Phase 2 Development that incorporates Inuit perspectives and effect pathways of concern into the design, planning and implementation phases. Baffinland would aim to complete the first year of monitoring in the first or second spring following approval of Phase 2 Development, and this would be expected to be undertaken in collaboration with representatives of the MHTO. Baffinland will nonetheless consider the development of a targeted seal monitoring program should Phase 2 Development Proposal not be approved, however

Summaries of Comments Received	Baffinland Response
	exact timing to develop such a program remains to be determined.
Requested that DFO confirm whether T&C 183 provides a sufficient mechanism for ensuring the protection of marine mammals and environment in consideration of Baffinland's current ice-breaking activities.	N/A
Noted disagreement with the use of icebreakers through both the winter and shoulder seasons of shipping and requests that NIRB provide a summary of where icebreaking was discussed in the northern shipping corridor.	In practice, in order for Baffinland to ensure that the approved 6 million tonnes per annum ore production is exported over the limited shipping window (July 15 to approximately mid to late October, dependent on prevailing ice conditions), Baffinland requires the use of an icebreaker at the beginning and the end of the shipping season to safely escort vessels to and from Milne Port along the Northern Shipping Route.
Is concerned regarding the use of a new and unevaluated metric for measuring auditory masking in marine mammals.	The report presents the calculation of Listening Range Reduction (LRR) rather than Listening Space Reduction (LSR) because the LRR result speaks more directly to the issue of concern, which is the distance over which narwhal will be able to detect calls.
More clarity is needed around the number and type of vessels and their associated noise levels.	Analysis is ongoing to determine more refined characterization of individual vessels and these results will be provided as they become available. A graduate student from the University of New Brunswick is also undertaking a more detailed analysis of the received sound levels for individual transits of all project vessels and a comparison of the relative sound levels from each. Results from those studies will be available in 2021.
Has concerns regarding the use of 120-dB as the lower limit of disturbance for narwhal based on evidence from the Bruce Head Shore-based Monitoring Report and 2017 Integrated Narwhal Tagging Study.	Significant behavioral responses observed in the Bruce Head study and in the 2017-2018 Tagging Study occurred at relatively restricted spatial extents (at closer distances than those corresponding with the 120 dB disturbance zone).

Summaries of Comments Received	Baffinland Response
Suggested the application of Southall (2007) severity response scale is inappropriate without applying estimates for how long it took animals to return to “normal” behaviour.	Changes were considered prolonged (or long-term) if they persisted beyond the vessel exposure period (consistent with the time period an animal would occur within the 120 dB exposure zone of a passing ship).
Noted inappropriate use of 4 km as the limit for estimating impacts of sound on marine mammals when disturbance has been noted at larger distances.	In the 2014-2017 Bruce Head Shore-based Monitoring Report (Golder 2019), RAD data suggested effects occurred within 10 km, and not at longer distances. The decision to decrease the spatial extent from 15 km to 10 km was based on an integrated review of the results from the 2014-2017 Bruce Head Shore-based Monitoring Program, the 2017-2018 Narwhal Tagging Study (Golder 2020) and the Passive Acoustic Monitoring Program (JASCO 2020). Significant behavioral responses observed in the Bruce Head study and in the 2017-2018 Tagging Study occurred at relatively restricted spatial extents (at closer distances than those corresponding with the 120 dB disturbance zone).
Noted concerns that results from each individual monitoring report are located across several reports rather than combined in a succinct manner. ON feels that this creates challenges to seeing correlations regarding the overall impact of the Project to marine mammals.	N/A
<p>Recommended that the NIRB reorganize marine monitoring requirements to allow information to be focused on:</p> <ul style="list-style-type: none"> <li>• What are the distances from each type of project-related ship at which noise levels from 100dB to 135dB will be received?</li> <li>• How do the underwater noise levels from ship transits change during ice-breaking?</li> <li>• Based on observations, at what estimated underwater noise levels did different levels of disturbance initially occur?</li> </ul>	N/A

<b>Summaries of Comments Received</b>	<b>Baffinland Response</b>
Recommended that Baffinland create a table that outlines the different effects, distances and received sound levels.	There is no scientific justification for computing distances to received sound levels lower than 120 dB re 1 µPa. JASCO does not see value in including these distances in this data summary report.
Expressed concerns regarding the monitoring timelines and the limitations the current timeline has on the ability for each year results to feed into subsequent years monitoring programs, specifically with respect to incorporation of MEWG comments.	Baffinland notes that there is an established review and reporting schedule managed by the NIRB. Baffinland also wishes to clarify that the provision of draft technical monitoring reports to the MEWG is a voluntary measure that Baffinland has adopted in an effort to better integrate MEWG feedback into the reports.
Noted concerns regarding the need for further detail and discussion around the Early Warning Indicators amongst MEWG members prior to the establishment of those indicators and associated thresholds.	Baffinland has expressed an interest in further meetings, discussions and collaboration with the MEWG on this topic.
Submitted comments on the <i>Draft Passive Acoustic Monitoring Report</i> , the <i>Draft Ship-based Observer Report</i> and the <i>2017 Integrated Narwhal Tagging Report</i> that were provided as part of the <i>2019 Annual Report</i> and through the MEWG review process.	Addressed through MEWG review and finalization of the <i>Passive Acoustic Monitoring Report</i> , the <i>Ship-based Observer Report</i> and the <i>2017 Integrated Narwhal Tagging Report</i> .

### **NIRB's Review of Baffinland's 2019 Annual Report**

The NIRB has reviewed Baffinland's *2019 Mary River Project Annual Report* which included a summary of Baffinland's compliance with terms and conditions pertaining to the Mary River Project Certificate and provides the following comments.

Baffinland has submitted all their required management plans through the submission of their *2019 Annual Report*. If there were any changes to these, the NIRB requests that Baffinland submit the most up to date version of the management plan to the NIRB's Public Registry so that Parties can access them as required.

In general, Baffinland has made consistent efforts to improve compliance with the Mary River Project Certificate year over year; however, to date, they have been unsuccessful in achieving full compliance with key areas of concern including but not limited to:

- Consistent and effective comparison of ongoing monitoring data to baseline data and the predicted impacts outlined in the FEIS and subsequent addendums (i.e., ERP, Production Increase Proposal and the Extension Request to the Production Increase Proposal);



- Challenges incorporation of feedback from interested parties through the two (2) processes Baffinland has for comment, the annual report comment processes administered by the NIRB and the Working Groups administered through the Project Certificate;
- Demonstration of integration of Inuit Qaujimajatuqangit into ongoing monitoring program design and implementation; and
- Timely implementation of proposed mitigations measures leading to delays in publication of results and subsequent adaptation to programs.

The specific valued ecosystem components of the Mary River Project where Baffinland has faced challenges in achieving full compliance are listed below and the NIRB and Board have made recommendations related to the following topics where applicable:

- Aquatic/Freshwater Environment;
- Marine Environment and Monitoring;
- Air Quality and Climate Change; and
- Socio-economic impacts and Inuit Employment targets.

The NIRB agrees with QIA, GN, CIRNAC, ECCC, PC, WWF, and ON that the main text of the *2019 Annual Report* contains inconsistencies ([Table 1](#)) in monitoring programs and limited incorporation of advice brought forward by the Marine and Terrestrial Working Group members. The NIRB also agrees that the current format of the report is not clear regarding the effectiveness of vegetation, dust, caribou, and marine mammal monitoring programs. The NIRB advises Baffinland that future annual reports should summarize, interpret, and discuss the results of all environmental and socio-economic monitoring as required in the Project Certificate in the main document of the annual report.

Reviewers should be able to read the main text of the annual report and understand the results of monitoring programs through a summary of analysis and results from the year highlighting specific temporal trends in the data themselves and the effectiveness of mitigation measures. As currently written, the reviewer is required to locate and access various reports and documents from separate locations both internal and external to the NIRB submission provided by Baffinland and while this could be required for some topics or larger data sets, limiting this exercise would be beneficial to the reviewer. Should detailed data, analysis, and results be required within the report, this information could be presented within appendices.

In addition, Management Plans and Program summaries should also provide a summary of activities that occurred during the reporting year applicable to management plans/programs in place, and make recommendations on the following:

- How existing impacts will be resolved or minimized;
- How non-compliance and/or impacts will be avoided in the future;
- Whether the monitoring program is still sufficient and effective; and
- How to enhance the monitoring program, if required.

The NIRB appreciates the work that Baffinland has taken to date to manage the amount of materials submitted and that most of the reference documentation were submitted to the NIRB through appendices; however, the Proponent remains responsible for ensuring that information is readily available to the reviewer by summarizing the information in a concise manner. Without these general discussions and summaries, it is difficult for the Board and other reviewers to ascertain whether or not impacts are being observed as a result of the Mary River Project, in addition to determining whether observed impacts or reported data are in line with the predictions provided within the FEIS and/or amendments and applicable permit and license requirements. This is required to determine trends at the Project, whether existing monitoring programs are effective, and if additional monitoring or mitigation needs to propose.

### **3 COVID-19 UPDATE**

On May 7, 2020 the NIRB corresponded with all proponents that had project certificates with the Board to note that the NIRB would be continuing to fulfill its on-going project assessment and monitoring responsibilities during the COVID-19 pandemic, but noting that modifications to the Board's normal practices may be required to ensure compliance with public health measures imposed to prevent the spread of COVID-19. In the Board's correspondence, proponents were encouraged to contact NIRB to identify whether their COVID-19 response measures would have implications for their respective operations and monitoring programs, particularly their ability to fulfill their environmental protection and monitoring requirements, including highlighting any effects on compliance reporting for the 2020-2021 reporting year.

Baffinland submitted the following update on June 24, 2020 to the NIRB regarding changes at site:

- Baffinland intends to make every effort to meet all regulatory requirements but seeks flexibility as alternative plans are developed to meet Project Certificate requirements;
- Community Engagement related Terms and Conditions are being affected in the short term as in-person meetings are limited owing to Public Health Orders;
- Community engagement efforts will be continued through radio shows, prepared information packages for community members and teleconferences with local organizations where possible;
- T&C 35 - The GN has suspended all research for the 2020 season, Baffinland is discussing with all parties on alternative options to complete this;
- MEWG and TEWG Meetings are scheduled to continue occurring through a teleconference format until such a time when in-person meetings become feasible;
- Nunavummiut will not be able to participate in environmental monitoring due to travel restrictions in place by the GN;
- No Nunavummiut will return to site until safely able to do so;
- The GN has provided notice that the Qikiqtaaluk Socio-Economic Monitoring Committee meetings have been postponed indefinitely;
- In-person training initiatives have been postponed indefinitely;

- Potential access limitations to technologies could influence the ability of Nunavummiut to take part in online training programs;
- Baffinland faced challenges in obtaining NRI research licenses and GN wildlife permits;
- Baffinland faced additional hurdles unique to this year with DFO requiring research plans to be approved by the MHTO, due to capacity challenges at the MHTO, this was proving to be difficult;
- Failure to obtain the above listed permits, poses concerns to the completion of:
  - Vegetation monitoring;
  - Marine Environmental Effects Monitoring Program;
  - Bruce Head Shore-based Monitoring Program;
  - Marine Mammal Aerial Survey;
  - Underwater Passive Acoustic Monitoring Program;
  - Bird Monitoring;
  - Noise, Air Quality and Climate Monitoring;
  - Freshwater Environment Monitoring; and
  - Geotechnical Inspections.

The results and follow-up to Baffinland's COVID-19 monitoring challenges will be forthcoming through the submission of the 2020-2021 *Annual Report* to the NIRB.

## 4 NIRB SITE VISIT/SITE UPDATE

As part of the NIRB's continuous monitoring of the Project, the NIRB visited the Mary River site from February 11-13, 2020. For a comprehensive review of the NIRB's site visit and observations, please refer to the NIRB's 2020 February Site Visit Report.<sup>8</sup> The NIRB also conducted an information session in Igloolik after the site visit to provide updates to community members regarding the results of the Board's monitoring program for the Mary River Project. The concerns and issues expressed by community members during this meeting have been included the site visit Report and have been incorporated into NIRB's monitoring program where appropriate. The following specific observations were noted during the 2020 winter site visit.

### *February 2020*

#### **Dust Emissions**

During the NIRB's February 2020 site visit, the Monitoring Officers noticed an increased amount of dust being emitted at the crusher facility when compared to previous site visits. Over the past several years, in response to the Board's previous recommendations, Baffinland has installed a series of hoods, shrouds and bellows on the crusher conveyor system to reduce dust emissions. Prior to the NIRB's February site visit, Baffinland had removed several hoods from the conveyor system for maintenance purposes which resulted in significant dust dispersion from the crusher while NIRB staff were on site. Baffinland staff committed to re-installing this equipment immediately and provided a follow-up update to dust on site in August 2020.

---

<sup>8</sup> Document ID No.: 329904

## *Summer Site Update*

Owing to travel restrictions imposed by Nunavut's Chief Public Health Officer as a result of the ongoing COVID-19, NIRB staff were unable to organize a site visit in the summer of 2020. NIRB staff remain committed to working with the Proponent to obtain observations of site facilities that are of interest to the Board and its mandate for the 2019-2020 monitoring period. NIRB staff will endeavor to continue to meet their obligations under Part 7 of Article 12 of the *Nunavut Agreement* and s. 135(4) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14 (*NuPPAA*) to monitor post environmental assessment of a Project in future years as practicable owing to Chief Public Health Officer directions.

CIRNAC inspectors will be visiting the Mary River site October 13, 2020 and observed the site for the Project Certificate and the NIRB and/or Board may have future recommendations.

## **5 AREAS REQUIRING FURTHER STUDY OR CHANGES TO THE MONITORING PROGRAM**

The NIRB would like to highlight some items that would assist the Proponent in moving towards achievement with its project certificate.

### **Emissions of Dioxins and Furans from Waste Incineration**

Baffinland indicated within the *2019 Annual Report* that dioxins and furans were released from waste incineration at the Project site. These pollutants of concern including dioxins and furans which are formed, in part, by incomplete combustion (PICs) that reacts in the flue gas to form the dioxins. Based on the reported levels of dioxin and furan emissions from the incinerators, the Proponent should make improvement to the combustion efficiency and air-pollution control operations in order to lessen the formation of dioxins and furans and reduce environmental risks. The NIRB requests that Baffinland submit a memo discussing why waste incineration is causing the release of dioxins and furans from the incinerator plants.

- The NIRB requests that the Proponent identify, and describe, the operating parameters of the incinerators and explain how design features that have the greatest influence on emissions have been optimized to prevent the formation and release of dioxins and furans into the environment. It is requested that this be provided within 60 days receipt of the Monitoring Report.

### **Adaptive Strategies for Dust Deposition**

Baffinland reported pursuant to Term and Condition 21 of the Project Certificate that annual terrestrial dustfall exceeded the predicted threshold levels at select locations of the Project site. These exceedances occurred despite application of dust suppressant along the Tote Road and implementation of dust management protocols across the site suggesting that modeling prediction have underestimated dustfall across the site. The amount of dust entering the aquatic and marine environments, including on sea ice directly, from key sources such as crusher, screen,

ore stockpiles is not fully known and there are concerns from the communities that impacts have not been properly monitored and mitigated.

In addition, no information was provided in the *2019 Annual Report* on how the Proponent intends to address dust fall on sea ice and fresh water including strategies for monitoring and mitigating further dust deposition around the Project sites in response to community concerns related to excessive dust from the Project site. Without the implementation of adaptive management strategies for dust management, the Monitoring Officers are concerned that dustfall exceedances above predicted threshold levels will continue to be a consistent feature of the Mary River Project and may result in unanticipated effects or new predicted impacts to sea ice, freshwater and terrestrial environment that was not predicted in the FEIS or the subsequent FEIS Addendums. In conjunction with the Board's Recommendation regarding dust regarding the Marine Workshop recommendations.<sup>9</sup> The NIRB requests that Baffinland continue to implement dust management protocol across the site and update the adaptive management strategies for dust management for the approved Project.

- The NIRB requires the Proponent to update the "Adaptive Management" Section of the Air Quality and Noise Management Plan and the Road Management Plan, to provide information about the specific changes to Mine design and operations that would be implemented for fugitive dust control as well as the means to evaluate effectiveness of the dust management protocols across Project sites to address any unanticipated effects or new predicted impacts on the environment.

The revised Air Quality and Noise Management Plan and the Road Management Plan shall be submitted as part of 2020 annual report.

### **Fish Sampling**

Baffinland is required pursuant to Condition 48a to develop plans to conduct additional surveys for the presence of Arctic char in freshwater bodies and ongoing monitoring of Arctic char health where applicable, within watersheds proximal to the mine, Tote Road and Milne Inlet Port project development areas, including but not limited to, Phillips Creek, Tugaat, and Qurluktuk. It is also expected that the Proponent shall consult with the Mittimatalik Hunters and Trappers Organization (MHTO) regarding the design, timing, and location of proposed surveys and ongoing monitoring. The Monitoring Officers note from Baffinland's 2019 Annual Report, that Arctic char population surveys have been undertaken in Camp Lake, Sheardown Lake, Mary Lake and in Reference Lakes near the Mine Site as part of the Project's Core Receiving Environment Monitoring Program (CREMP), but no information was provided on the status of Arctic char health monitoring in those watersheds listed in the Project Certificate.

---

<sup>9</sup> Document ID No.: 332006

- The NIRB requests Baffinland to collaborate with the MHTO to identify additional waterbodies that may be impacted by ore dust and other constituents that could be potentially harmful to fish and biota aquatic environment.

It is requested that an update on the recommendation be provided and incorporated into Baffinland's next annual report to the NIRB.

Term and Condition 48(a) also requires Baffinland to provide plans to conduct additional surveys for the presence of Arctic char in freshwater bodies and implement ongoing monitoring of Arctic char health in areas affected by the Project in consultation with the MHTO. Baffinland noted a significant effort to capture and assess the health of Arctic char in associated water bodies through its *2019 Annual Report* and has methodologies outlined in its Aquatic Effects Monitoring plan. Baffinland has further indicated that funding is available to the MHTO to support community-based monitoring through the Inuit Impact Benefit Agreement and that this funding was dispersed in 2019 with results of the MHTO monitoring program to be forthcoming. Term and Condition 48(a) directs Baffinland to work collaboratively with the MHTO to allow traditional knowledge and community-based monitoring be incorporated into Baffinland's monitoring programs. The NIRB notes the efforts that Baffinland has taken to date to provide the Community of Pond Inlet with funding to complete community-based monitoring of Arctic char and other species of interest; however, further consultation with the MHTO is required to develop and incorporate community-based monitoring into Baffinland's ongoing monitoring programs.

- The NIRB requests Baffinland clearly identify its 2020 Annual Report which monitoring suggestions have been put forward by the MHTO and how and when those were incorporated. The memo should be provided to the NIRB within 60 days of receiving the recommendation.

### **Effluent Discharge and Exceedances**

Under Project Certificate Terms and Conditions 24 and 46, the Proponent is required to ensure that runoff from its facilities meets discharge requirements. In 2019, Baffinland reported five (5) discharges of effluent in 2019 did not comply with the applicable discharge criteria, two at the Sailivik Camp Sewage Treatment Plant (STP) (MS-01B), the Mobile Treatment System at the Milne Port Contaminated Snow Containment Berm (MP-04A) and at the Waste Rock Facility Water Treatment Plant. Baffinland outlined that some of these samples were further investigated and further sampling indicated that discharge criteria has returned to normal. With regards to the Mobile treatment system, Baffinland indicated that its use was halted due to temperatures and would be reassessed in the spring.

- The NIRB requests Baffinland provide information on the current status of water treatment options in the affected infrastructure (e.g., Sewage Treatment Plant, the Waste Rock Facility, and the Mobile Treatment System at the Milne Port Contaminated Snow Containment Berm) and clarify if effluents were released when they did not meet the discharge requirements and if so, reasoning for why. The Proponent is also expected to describe all measures it has taken to date to improve the effectiveness of treatment systems in the affected systems to avoid similar exceedances in the future. The Board

further requests that this be outlined in Baffinland's Quality Assurance and Quality Control Plan.

It is requested that this information be provided within 60 days' receipt of the NIRB's monitoring report.

### **Blasting and Explosives Residue Monitoring**

Baffinland reported, pursuant to Term and Condition 20 of the Project Certificate that there were elevated levels of ammonia and nitrate in runoff from blasted areas around the Project area when compared to baseline concentrations. Baffinland noted that the majority of their grab samples indicated ammonium and nitrate levels below the CCME water quality guidelines. Despite this explanation, no information was provided regarding treatment of the runoff containing elevated levels of explosives residue or related by-products from the Project site.

- The NIRB requests Baffinland clarify whether the selected samples were exceedances to CCME guidelines or only elevated compared to baseline values. In addition, the NIRB requests that Baffinland provide a description of site-specific initiatives in place or under development for proper treatment of runoff containing elevated levels of ammonia nitrates or related by-products.

It is requested that this be provided within 60 days' receipt of the monitoring report.

### **Caribou Monitoring**

Baffinland currently conducts a Height of Land Survey program to monitor caribou presence and activity near the Project regional study area. Through the commenting period on the *2019 Annual Report* as well as the TEWG meetings, the QIA and GN have noted concerns regarding adequacy of sampling efforts as well as the scale that these surveys are conducted. The current surveys are noting very few caribou sightings annually, suggesting that to further understand the caribou presence and ecology of the regional study area, it may be necessary to expand the scale of these efforts.

- The NIRB requests that Baffinland work in consultation with the TEWG to expand its caribou surveying by either increasing the survey efforts and monitoring range using its current techniques or to collaborate with the GN to facilitate larger scale surveys using radio collars or aerial surveys and will review the update in the 2020 Annual Report.

### **Helicopter Flights**

Term and Conditions 59 and 71 of the Project Certificate requires all Project related aircraft to maintain minimum altitudes to minimize impacts to wildlife and Inuit harvesters. In their *2019 Annual Report*, Baffinland indicated that they contracted pilots to complete flight logs after each flight detailing any deviations from the minimum altitudes or restricted areas. Baffinland stated that compliance with these restrictions was 91% in 2019; however, low altitude helicopter flights and their effects on wildlife remain an outstanding concern as noted by QIA, GN, and ECCC through both their review of the *2019 Annual Report* and discussions during TEWG meetings. Further, in the February 2020 TEWG meeting, Baffinland committed to provided further analysis



on the flight data provided; however, parties still noted concerns regarding what constitutes reasonable rational for deviations from the minimum flight heights and restricted areas.

- The NIRB requests Baffinland include additional detail regarding the rational provided by pilots when deviating from flight altitude restrictions in its 2020 Annual Report; including providing the pilots log and definitions regarding what constitutes acceptable rational for a deviation.

### **Ship Hull Biofouling**

To satisfy Term and Condition 91 of the Project Certificate, Baffinland is required to conduct ship hull biofouling monitoring. Further, Baffinland reported in Appendix G8 of the *2019 Annual Report* that most of the ship surfaces below the water lines were found free of biofouling with the exception of small areas of the sterns of four (4) ships where barnacles were found. This recommendation is intended to work in conjunction with recommendations resulting from the 2020 Marine Workshop.

- The NIRB requests that Baffinland provide information on the planned strategies in place or under development for preventing barnacles and algae from coating ship hulls with a detailed discussion of their demonstrated effectiveness.

It is requested that this be provided within 60 days' receipt of the Monitoring Report.

### **Marine Sediment Contamination**

Baffinland reported that it observed benzene and toluene in some marine sediments collected under the Marine Environmental Effects Monitoring Program (MEEMP), but no information was provided on their concentration levels and possible source of origin. In addition, Baffinland further reported that polycyclic aromatic hydrocarbons (PAHs) was observed in sediment samples at five (5) stations, with the concentrations of acenaphthylene and dibenz(a,h)anthracene exceeding the Canadian Council of Ministers of the Environment (CCME) and Interim freshwater sediment quality guidelines (ISQGs) at some stations in the north transect. Arsenic and nickel were also observed to be elevated in the marine sediments and this recommendation is intended to work in conjunction with recommendations resulting from the 2020 Marine Workshop.

- The NIRB requests that that Baffinland provide a memo regarding the concentrations of benzene, toluene, and polycyclic aromatic hydrocarbons and discuss their possible origin in the marine sediments of the northern transect and describe what strategies are in place and/or under development to prevent any negative effects to benthic macroinvertebrate and sediment communities.

It is requested that this be provided within 60 days' receipt of the Board's monitoring report.

### **Early Warning Indicators**

Baffinland is required pursuant to Terms and Conditions 110, 111, and 112 of the Mary River Project Certificate to develop monitoring early warning indicators (EWI), thresholds and monitoring protocols to prevent impacts of ship noise on marine mammals in consultation with the Marine Environment Working Group (MEWG). The goal of this monitoring effort is to ensure the rapid identification of negative impacts due to Project shipping activities. Baffinland has several marine monitoring programs outlined in their Shipping and Marine Wildlife Management Plan as well as their 2019 *Annual Report* which are provided to the MEWG for comment.

In 2019 and 2020, Baffinland increased their efforts to finalize the EWI's through consultation with the MEWG; however, consensus within the group has not occurred. As a result, Baffinland provided a technical memo to the Board in August of 2020 introducing the selected EWI as the proportion of immature narwhal with an associated threshold. Since Baffinland was unable to achieve consensus among MEWG members prior to submission of this memo, Baffinland committed to host a topic specific teleconference with the MEWG to support continued discussion on potential EWI selection. Through review of the Project Certificate, the NIRB notes that Terms and Conditions 110, 111, and 112 are aimed at producing early warning indicators with respect to acoustic disturbance in marine mammals.

- The NIRB requests that Baffinland continue to work with the MEWG to review and refine the current EWI including a commenting period for MEWG members and submission of finalized EWI and associated MEWG comments on the costs and benefits of selecting this EWI and submit information within the 2020 Annual Report regarding the discussions that occurred, how discussions were incorporated into the EWI, and the final EWI. If the EWI is not finalized by the next annual report, the NIRB expects that the Proponent would discuss why not and when it anticipates submission of the final EWI to the NIRB.

Further, the NIRB requests that Baffinland provide the rationale for the selection of the current EWI as submitted in August of 2020 and how they intend to link this behavioral response variable to an acoustic response in marine mammals.

### **Marine Environment Working Group**

Pursuant to Term and Condition 184, Baffinland is to discuss compliance status of marine related terms and conditions including ship-based observer programs, noise exposure assessments, and the identification of other mitigation measures that have the potential to further reduce potential impacts to marine mammals at the MEWG meetings. In the 2019 Annual Report the NIRB noted that Baffinland provided information regarding how they met the term and condition; however, it is uncertain how or where MEWG feedback was used to assist in determining the compliance of Terms and Conditions regarding impacts to marine mammals.

- The NIRB requests Baffinland provide information within 60 days on how it intends to meet the Term and Condition and report on progress annually to the Nunavut Impact Review Board.

## 6 FINDINGS

The objectives of the NIRB's monitoring program as indicated in Section 12.7.2 of the *Nunavut Agreement* and s. 135(3) of the *NuPPAA* include:

- a) To measure the relevant effects of projects on the ecosystemic and socio-economic environments of the Nunavut Settlement Area;
- b) To determine whether and to what extent the land or resource use in question is carried out within the predetermined terms and conditions;
- c) To provide the information base necessary for agencies to enforce terms and conditions of land or resource use approvals; and
- d) To assess the accuracy of the predictions contained in the project impact statements.

As discussed previously, during the 2019–2020 monitoring period, Baffinland demonstrated compliance with most of the reporting requirements as contained in the Project Certificate, and as applicable to the current phase of the Mary River project; however, the Board notes several deficiencies with respect to some monitoring items including mitigation measures across the Project site. The Board has identified several outstanding items requiring follow-up action by Baffinland to ensure that Baffinland achieves full compliance with the Mary River Project Certificate in 2020-2021. The Board recommendations requiring further follow up include:

### **DUST**

Dust production at the both the mine site, Tote Road, and Milne Port have historically received recommendations from the Board over several years. As a result of these recommendations, Baffinland has actively explored and implemented mitigation measures to reduce dust emissions on site. At the crusher facility, Baffinland has been progressively installing hoods, shrouds, and bellows along the conveyor system. Along the Tote Road, Baffinland has been testing and applying a new dust suppression product *DustStop* and through trials in 2019, Baffinland has found this product to be effective at reducing dust along the road resulting in the product use being expanded to the entire road in 2020. At Milne Port, Baffinland has attempted to reduce dust produced at the stockpile but is still exploring options including the stockpiling techniques and installation of equipment along the conveyors.

Although there have been noted improvements included in NIRB site visits and parties and community feedback, dust produced at the Mine Site and Milne Port stockpile remains an ongoing concern. During the February 2020 winter site visit, the Monitoring Officers observed that several dust control systems including shrouds and hoods were removed from the crusher plant causing large dust plumes to be observed during crushing operations and during the commenting period for the *2019 Annual Report*, Crown-Indigenous Relations and Northern Affairs Canada staff noted that during their May 22-23, 2019 site visit, these equipment had been removed from the crusher facility resulting in large dust plumes being produced. Baffinland stated that the shrouds and hoods were removed due to maintenance activities, the Monitoring Officers have noted that removal of this dust control systems are becoming consistent observation during site visits and is causing excessive of fugitive dust to be released at the crusher

facility to the surrounding environment. Monitoring Officers discussed this with the Baffinland team on site who indicated that this mitigation equipment was removed for maintenance activities and would be immediately re-installed. In light of both the historical concerns and efforts made to date to reduce dust production on site, the Board recommended that Baffinland provide a memo indicating:

- a) Description of the dust control equipment installed at the crusher plant including details of the frequency of maintenance and length of time dust control systems are removed for maintenance;
- b) Description of inspection, maintenance procedures, and monitoring initiatives in place at the crusher plant to ensure effective implementation of the preventative and control measures for dust; and
- c) Possible effects of these maintenance activities on overall dust deposition throughout the year.

### **Fish Passage**

Pursuant to Term and Condition 47 of the Project Certificate, Baffinland is required to ensure that all Project infrastructure in watercourses are designed and constructed in such a manner that they do not unduly prevent and limit the movement of water in fish bearing streams or rivers. The Board has made recommendations between 2016-2019 regarding the maintenance of fish passages as Baffinland has consistently had damaged or hanging culverts. Baffinland's approach takes to fish passage connectivity is to review the culverts, determine where repairs are needed, in consultation with DFO, and repair the discussed culverts. This results in a delay between the identification of concern and its correction. During the commenting period on the *2019 Annual Report*, QIA suggested establishing a proactive approach to maintaining fish passage through Project infrastructure. This approach is supported by the Board and further described in its 2020 Board Recommendations.

The Board requires Baffinland to continue to maintain connectivity for fish species present in streams and ensure that all existing culverts are functional and provide a summary of their consultation with Fisheries and Oceans Canada regarding problematic culverts in 2019 along with a detailed plan within 60 days. This information shall also be included within future annual reports to the Nunavut Impact Review Board.

### **Working Groups and Adaptive Management Strategy**

Baffinland is required pursuant to Terms and Conditions 49 and 77 of the Mary River Project Certificate to establish a Marine Environment Working Group (MEWG) and Terrestrial Environment Monitoring Group (TEWG) to consult and advise on the monitoring programs of the Project. At the request of group members, the NIRB has participated as an observer in working group meetings since 2018 and has noted the ongoing concerns among group members. As a result of efficacy concerns, the GN has led the process of revising the Terms of Reference for these groups through consultation with all group members, these Terms of Reference are expected to be finalized in 2021.

Through the commenting period of the *2019 Annual Report* the QIA, GN, DFO, ON and WWF provided comments regarding the working groups and where advice/results of discussion implemented. Group members further expressed concerns regarding the draft monitoring reports not having group member comments incorporated prior to submission to the NIRB as part of the annual report. The Board requires that Baffinland provide a clear list of monitoring suggestions provided by MEWG and TEWG members dating back to 2018, and whether these suggestions were implemented into monitoring and the rationale if they were not. Further, Baffinland shall facilitate commenting periods on draft monitoring reports to the MEWG and TEWG with sufficient time to incorporate member feedback into the Annual Report provided to the Board on March 31 of each year.

### **Groundwater Management**

Terms and Conditions 17, 20, and 23 of the Project Certificate states that Baffinland is required to develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater resources. The Board has made recommendations in 2017, 2018, and 2019 regarding the development of a Groundwater Management Plan and implementation of such a plan across key project facilities. In the 2019 Recommendations, the Board requested that a Groundwater Monitoring Plan be developed and implemented. In their response, Baffinland indicated that they have been monitoring groundwater for several years; however, there were challenges with operating groundwater monitoring wells in an arctic environment and that an expansion of their plan would be required to further understand the groundwater chemistry. In their *2019 Annual Report*, Baffinland indicated that a groundwater monitoring program was implemented and further indicated that sample sizes were low resulting in a limited ability to identify long-term trends and understand groundwater chemistry. Baffinland also indicated that the Groundwater Monitoring Plan was included as part of their Surface Water and Aquatic Ecosystem Management Plan and that they would be looking to continue expansion of this program.

The Board requires the Baffinland continue to expand their groundwater monitoring program including the installation of groundwater wells near the waste rock facility, quarries and borrow pits as noted by Crown-Indigenous Relations and Northern Affairs Canada. Further, the Board is requesting that Baffinland provide a standalone Groundwater Management Plan to allow for easy review of the current program, comparisons to Final Environmental Impact Statement Addendum predictions and possible areas of improvement or expansion.

### **Updated Ice Information and Assessment of Activities**

Under Term and Condition 100 of the Project Certificate, Baffinland is required to supplement baseline information and improve predictions for potential impacts to marine mammals through ensuring that mitigation measures are designed with consideration for the impacts on marine mammals when they might be less mobile (e.g., sensitive areas, polynyas, and fuel spills). Term and Condition 78 of the Project Certificate requires the Proponent to incorporate updated ice information into an appropriate management plan.

Baffinland reported that it has compiled ice information from the 2011 ice condition study for the approved Project, but the NIRB has been unable to locate this information as incorporated into an appropriate management plan. In 2017, Baffinland provided correspondence to the Board indicating that they would be using an ice-breaker vessel to safely escort ships through the Northern Shipping Route during the shoulder season. Ice-breaking or management activities were discussed as part of the original Mary River Project through Steensby Inlet; however, through the Early Revenue Phase, Production Increase, and Production Increase Extension Request, no formal assessment of the potential effects of these activities has occurred. Through community consultations, Marine Workshops, the Marine Environment Working Group meetings, and *Annual Report* commenting periods the Board has received comments from several parties regarding the ongoing ice-management activities of the *MSV Botnika* and its potential affects on marine mammals.

The Board requested Baffinland provide an assessment of the ongoing ice-management activities using the icebreaker (*MSV Botnika*) including the potential effects of these activities on noise levels and marine mammal activity along the Northern Shipping Route within 60 days, subject to the outcome of the Marine Monitoring Workshop recommendations. Also within the 60 day time frame, Baffinland must update a management plan of their choosing to include this additional information on impacts along with historical ice-information in order to inform the use of the ice-breaker vessel.

## 7 SUMMARY


Baffinland commenced construction of the Mary River Project in May 2013, and to date the Project is largely being conducted as committed to in the Final Environmental Impact Statement for the Early Revenue Phase, Production Increase Proposal, and the Extension Request to the Production Increase Proposal Addendums. Since issuance of the original NIRB Project Certificate in December 2012 and the amendments on May 28, 2014, October 30, 2018, and June 18, 2020, Baffinland has made strong efforts to continue to work towards compliance with the Terms and Conditions of the Project Certificate. However, several issues noted during the NIRB's site visit and as discussed throughout this report remain outstanding, which require Baffinland's attention. These issues are further addressed in the Board's 2019 and 2020 Recommendations issued to the Proponent.

Despite the ongoing review process for the "Phase 2 Development Proposal" by Baffinland, the Board expects that Baffinland devote sufficient time and attention to addressing the recommendations accompanying this monitoring report to ensure full compliance with Project Certificate No. 005. Pursuant to *Nunavut Agreement* Sections 12.7.2, 12.7.3 and s. 112(1) of the *NuPPAA*, the NIRB will continue to work with Baffinland and other authorizing agencies to conduct and coordinate monitoring efforts, and to review results and Project compliance in accordance with the requirements set out in the Mary River Project Certificate No. 005 Amendment 003.

Prepared by: Cory Barker, M.Sc.  
Title: Technical Advisor I  
Date: December 23, 2020

Signature: 

Reviewed by: Kelli Gillard PAg, CTAJ  
Title: Manager, Project Monitoring  
Date: December 23, 2020

Signature: 



## **Appendix I: BAFFINLAND'S FOLLOW-UP TO 2019 BOARD RECOMMENDATIONS**

## **Attachment 1**

### **Baffinland Response to Board Recommendations**

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
N/A	Reportable Spills	<p>Pursuant to Terms and Conditions 17, 24, and 46 of the Project Certificate, Baffinland is required to ensure that all Project effluent should satisfy discharge requirements of the relevant regulatory authority as outlined in their Fresh Water Supply, Sewage and Wastewater Management Plan as well as the Metals and Diamond Effluent Regulations Emergency Response Plan prior to discharge.</p> <p>As noted in their 2018 Annual Report, Baffinland stated several exceedances in their effluent from fuel storage run-off areas, the Waste Rock Facility and several other large sewage and fuel related spills outlined in Table 4.3 of their 2018 Annual Report. Baffinland stated when it reported these 44 reportable items that protocols from Baffinland's Sewage and Waste Water Management Plan as well as their Spill Contingency Plan were followed to minimize environmental impacts.</p>	<p>The NIRB is requesting that Baffinland clarify what each of the events were listed in the table and whether there was a discharge or a batch exceedance as it processed the effluent and it did not meet discharge criteria. It is requested that the volumes be reported in litres vs cubic meters for readers. Information related to each of these events, how they were handled and how Baffinland has addressed the issue through changes to site practices, new operations or new equipment remains unclear to the NIRB.</p> <p>Therefore, the NIRB is requesting an update on the 2018 Effluent exceedances as well as any preventative actions taken or adaptive management in plans related to these 44 spills within 30 days of receiving this report and that Baffinland include this information within all its annual reports in the future.</p>	<p>For consistency with Baffinland's Type 'A' Water Licence No. 2AM-MRY1325 volume reporting requirements, spills are reported in cubic metres.</p> <p>Baffinland is unclear on how the NIRB identified a total of 44 spills during 2018. To address this, Baffinland has summarized below what was previously included in Section 4.5.2 of the 2018 Annual Report to the NIRB.</p> <p>During 2018, thirty-six (36) spills were reported to the Northwest Territories-Nunavut (NT-NU) Spill Line, CIRNAC and QIA, including twenty-three (23) sewage/greywater spills, four (4) sediment releases and nine (9) spills involving other operational effluents and materials. Overall, this represented a decrease of 25% when compared to the frequency of reportable spills in 2017. From 2017 to 2018, there was a decrease in the number of spills in all discharge types excluding sewage. In volume, for sewage (both treated and untreated) the amount of discharge released decreased by 92%. Investigations into the cause of spills that occurred on site in 2018 were conducted so that effective long-term corrective actions could be implemented to reduce the frequency of spills at Project sites.</p> <p>As outlined in the Project's Fresh Water Supply, Sewage and Wastewater Management Plan (BAF-PH1-830-P16- 0010), in the event that water quality monitoring indicates that effluent no longer meets the applicable water quality discharge criteria, discharge of effluent will be halted immediately and recirculated back through treatment or to the appropriate containment pond. Troubleshooting and further water quality monitoring are implemented until compliant results are obtained before discharge recommences.</p> <p>In accordance with Baffinland's Spill Contingency Plan, once a potential spill is identified, a spill report is submitted within 24 hours of each spill event. In the time period between sample collection and data availability, appropriate spill prevention and mitigation measures are put in place. These measures are specific to each spill type, and are detailed in each spill follow-up report submitted within thirty (30) days of each reported spill. The follow-up reports include a description of the event, the immediate cause(s), corrective and preventative action(s), photos, and a map showing the location of the spill. The follow-up spill reports and original spill reports are provided in the QIA-NWB Annual Report for Operations, and have also been attached as requested by NIRB in Attachment 2.</p>	Attachment 2: Summary of 2018 Reportable Spills

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
N/A	Terrain Stability Issues	<p>During the commenting period on the 2018 Annual Report the NIRB received comments from QIA and CIRNAC regarding the status of borrow pits, Tote Road, and site infrastructure related to the impacts of permafrost thaw. The NIRB observed these areas and had similar concerns and all parties agree that it is important to have Tetrattech Engineering continue to include these in the monitoring program. However, CIRNAC commented specifically that permafrost does not appear to be a priority through the geotechnical program as there appears to be no review or comments on available ground temperature monitoring data. QIA commented that it was not aware of how permafrost was monitored and what localized permafrost degradation along the Tote Road and Mine Haul Road do not include any information related to location or investigations. As the maintenance of Permafrost integrity is of utmost importance for the site reclamation, it is important to understand Baffinland’s approach to permafrost monitoring.</p>	<p>The NIRB requires Baffinland develop maps and tables indicating the location and degree of permafrost degradation and submit them to the NIRB within 30 days of receipt of this report.</p> <p>Further, if it does not exist, the NIRB requests a timeline to develop a permafrost monitoring plan or inform the NIRB where the information can be found on permafrost monitoring at the Mary River Mine Site. This program should include, but is not limited to, a program to collect data from ground temperature cables installed at the mine site and port site in order to monitor conditions in constructed infrastructure. The NIRB expects either the information or the timeline to develop a permafrost monitoring program within 30 days of receipt of this report.</p>	<p>Baffinland has provided the requested tables that indicate the location and degree of permafrost degradation at the Tote Road and Borrow Sources (see Attachment 3). These were developed in 2014. Additional mapping completed in 2019 will be included in the recommendations report prepared by Tetra Tech (discussed below), which is forthcoming.</p> <p>In development of the Final Environmental Impact Statement (Baffinland, 2012), between 2006 and 2008 more than fifty ground temperature monitoring instruments (thermistor cables) were installed and monitored to determine typical ground temperatures in the overburden soils and bedrock in the Project area. This baseline has been used to inform specific design considerations as the Project has advanced over the years. During the modification process for new waste or water retention facilities, Baffinland supplies required construction stability information including test pitting or bore hole data to interveners. Existing infrastructure, such as bridge crossings on the Tote Road are evaluated by a professional engineer registered in NT-NU bi-annually, the results of which are captured in Appendix G of the Annual Report to the NIRB (Bi-Annual Geotechnical Inspection Reports).</p> <p>NIRB has noted that “CIRNAC commented specifically that permafrost does not appear to be a priority through the geotechnical program as there appears to be no review or comments on available ground temperature monitoring data”. Baffinland wishes to clarify that the Company is continuously mitigating potential impacts to permafrost as a result of Project activities. For example, specific permafrost degradation areas adjacent to the Tote Road and borrow locations were reinforced with armour stone and slope redesigns during 2018 through general road maintenance programs and through the continuance of the Tote Road Earth Works Execution Plan.</p> <p>To support further characterization of stability associated with permafrost degradation, in September 2019 Baffinland retained Tetra Tech to evaluate areas of potential permafrost degradation at the Mine Site, Milne Port and along the Tote Road. Tetra Tech was also retained to assess borrow pits and problematic areas identified by both internal parties and external regulators including QIA, CIRNAC, and NIRB. Additionally, Baffinland has conducted bi-annual geotechnical inspections since the start of Project operations, which evaluates the stability and any potential subsidence as a result of permafrost degradation.</p> <p>Following receipt of the Tetra Tech report, Baffinland will review the outcomes and recommendations to assist in prioritizing higher risk areas and determining an appropriate schedule and required actions for additional monitoring and mitigation.</p>	Attachment 3: 2014 Tetra Tech Tote Road and Borrow Source Evaluation

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
1	Dust	<p>At the time of the August 2019 site visit, the NIRB staff noted that dust emissions, including visible dust plumes generated from the crusher plant were significantly reduced in comparison to previous monitoring years. Proper engineering designs and controls have been implemented by Baffinland and have reduced emissions at the crusher plant as well as the addition of chutes to further enclose particles during ship loading. During the March 2019 site visit, NIRB staff noted significant dust deposition around the site and on the sea ice at Milne Inlet resulting from Ore stockpiling activities; however, in August of 2019 as much as the sea ice was melted prior to the visit, dust around the site appeared to be reduced with notable reduction in dust being disbursed by ship-loading activities. However, dust at Milne Port and along the Tote Road continue to be an ongoing concern.</p> <p>During the comment period for the 2018 Annual Report, the Qikiqtani Inuit Association, the Government of Nunavut, and Crown-Indigenous Relations and Northern Affairs Canada expressed concerns related to the dust program at the Mary River site. In the subsequent written response to items discussed during the 2019 August site visit, Baffinland stated it had conducted a micro trial of Dust Stop in August 2019 on the Mine Site and Tote Road from km 103.5 to 97 to determine efficacy of the product on site. Baffinland observed improved dust suppression through the application zones and Dust Stop also showed signs of water shedding during rain events supporting road sealant and application lifespan. In September 2019 once additional Dust Stop was received, Baffinland stated it would be implementing an expanded trial in order to assess success in a larger area and if</p>	<p>The Board requires that within 30 days Baffinland submit the design of the experiment including the method, areas selected for trial, observations, timeline and evidence of conclusion for the expanded dust trial which commenced in September for the Mary River Project. Further, if applicable Baffinland is required to report in its 2019 Annual Report to the NIRB an updated its Air Quality and Noise Abatement Management Plan (2017) and Roads Management Plan (2017) with the results of the experiment and the plans should clearly indicate when application of dust suppressants (including water) should be completed.</p>	<p>As previously described in Baffinland’s follow-up submission to the NIRB summer site visit (provided on August 26 and September 27, 2019, respectively), Baffinland has taken several measures to reduce dust onsite. Baffinland continues to implement changes to its existing monitoring and mitigations to effectively identify and control impacts of dust deposition. This includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Evaluate new technologies and equipment retrofits to reduce potential local sources of dust.</li> <li>• Evaluating effectiveness of new dust suppressants in an Arctic setting.</li> <li>• Upgrading monitoring to address regulator concerns and to collect new parameters.</li> <li>• Continuing to engage with regulators and the community.</li> </ul> <p>In 2018 specific actions taken by Baffinland for dust management include continual development of new dust suppression alternatives at Milne Port such as redesigning the ore pads to position fines in the centre and lump ore around the margins, installation of downwind fencing and proper positioning of the conveyors to minimize distances when stock piling. Calcium chloride and water has also been applied on road surfaces throughout operations to mitigate dust emissions. Based on feedback received from communities, the QIA and other regulators, Baffinland actioned an implementation plan for testing new dust suppression products with increased durability and longevity for site infrastructure.</p> <p>The use of Dust Stop, produced by Cypher Environmental was first trialed in August of 2019. Dust Stop is an approved product for dust suppression under Nunavut’s Environmental Guideline for Dust Suppression on unpaved Roads. Dust Stop is expected to have a longer lasting durability for both traffic and rainfall impact, as it promotes a hard, competent water repellant surface when properly applied.</p> <p>The 2019 trial involved an initial application of the product along a 4 km stretch (from km 103.5 to km 97) of the Tote Road. A representative from Cypher Environmental was onsite to instruct the road maintenance personnel on the use and application of the product. Baffinland has attached two documents from Cypher Environmental which outlines the method and recommendations for application (Attachment 5). These instructions and methods were followed by Baffinland staff. Improved dust suppression was visually observed over a three-day period throughout the application zones and the product also showed signs of water shedding during rain events supporting improved road sealant and application lifespan (see Attachment 4). Two initial applications of the product along the entire tote road (24 hrs apart), followed by routine application to maintain the coating on the roads every two weeks, is planned for 2020.</p> <p>Baffinland will amend the Air Quality and Noise Abatement Management Plan (2017) and</p>	Attachment 4: Dust Stop Trial Summary

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
		deemed successful, Baffinland would procure more to be delivered in the 2020 sealift.		Roads Management Plan (2019) with the results of the expanded trial application and comprehensive procedures for the application of dust suppressants on site as needed.	

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
2	Fish Passage and Sampling	Pursuant to Term and Condition 47 of the Project Certificate, Baffinland is required to ensure that all Project infrastructure in watercourses are designed and constructed in such a manner that they do not unduly prevent and limit the movement of water in fish bearing streams or rivers. In their 2018 Annual Report, Baffinland has noted that 2 crossings (CV-111 and BG-29) contained physical obstructions and a total of seven (7) culverts were perched. Of those seven (7), one (BG-50) prevented fish passage. Board Recommendation #8 from 2018 relates to concerns regarding fish crossing at that same culvert (BG-50), despite receiving an update from Baffinland referencing general repairs of crossings to fish bearing streams, culvert BG-50 remains an outstanding concern.	The Board requests Baffinland continue to maintain connectivity for fish species present in streams and ensure that all existing culverts are functional. Baffinland shall provide the Nunavut Impact Review Board with a summary of how it has consulted with Fisheries and Oceans Canada and modified its fish habitat monitoring program and updated associated to address issues related to culvert perching and fish passage problems along the Tote Road.	<p>As part of continuous Tote Road upgrades initiated since 2013/2014 Baffinland has undertaken annual assessments of water crossing infrastructure along the Tote Road with the objective of maintaining connectivity for fish at water crossings, and ensuring that all existing culverts are functional. Results from these assessments and associated works are reported annually to DFO at the end of each calendar year. Additionally, consultation with DFO occurs throughout the year on site-specific issues as needed (see Attachment 5).</p> <p>As reported in the Mary River Project Early Revenue Phase - Tote Road Upgrades, Fish Habitat Monitoring 2018 Annual Report (Baffinland, 2018) Baffinland undertakes annual assessments of water crossing infrastructure along the Tote Road with the objective of maintaining connectivity for fish at water crossings, and ensuring that all existing culverts are functional. As noted by NIRB, some concerns were identified in 2018, however, Baffinland wishes to clarify that corrective actions were implemented upon observation. Remedial actions were summarized in the Tote Road monitoring report submitted to DFO (see information related to corrective actions undertaken for CV-111, BG-50 and BG-29 Attachment 5).</p> <p>Subsequent to direction provided by ECCC in the summer of 2016, Baffinland has implemented various works to minimize the potential for sedimentation and erosion. A Tote Road Earthworks Execution Plan (TREETP) was developed in April 2017 (Golder 2017) to address outstanding concerns (e.g., damaged culverts, embankment erosion, etc.). The TREETP outlines the planned sedimentation mitigation measures to be completed throughout 2017 to 2019.</p> <p>Baffinland will continue to address outstanding or new fish passage concerns identified during the annual water crossing assessments and/or via additional direction provided by DFO.</p>	Attachment 5: Summary of Corrective Actions and Correspondence with DFO
3	Fish Passage and Sampling	Term and Condition 48(a) requires Baffinland to provide plans to conduct additional surveys for the presence of Arctic char in freshwater bodies and implement ongoing monitoring of Arctic char health in areas affected by the Project in consultation with the Mittimatalik Hunters and Trappers Organization (MHTO). While Baffinland noted a significant effort to capture and assess the health of Arctic char in associated water bodies through its 2018 Annual Report and has methodologies outlined in its Aquatic Effects Monitoring plan, there has	The Board requests Baffinland provide the summary of consultation with the Mittimatalik Hunters and Trappers Organization in 2018 to conduct this required consultation toward the Arctic char monitoring framework and how it has updated the monitoring plan to incorporate this feedback especially to better understand where fish would be present to enable actual observations to be collected. The submission should also include information regarding the timeline and anticipated activities including consultation and implementation of the sampling program in 2019 are to be provided within 30 days.	<p>Baffinland has not undertaken consultation with MHTO specific to the AEMP, however meetings with the MHTO to discuss the Project and associated environmental effects monitoring activities do occur regularly throughout the year. For example, as reported in the 2018 NIRB Annual Report Appendix B Community Engagement Records, a Community Group Meeting was held with the MHTO on 7 June 2018 where several comments related to fish health and water quality were discussed.</p> <p>Furthermore, to support community led monitoring initiatives Baffinland is also providing \$200,000.00 annually (in accordance with IIBA Article 17.8) to the MHTO. In 2019, the MHTO utilized community-based monitoring funding from Baffinland to undertake an Arctic char sampling program at six different sampling locations. The Arctic char samples collected will be sent to a laboratory for body burden (metals) analysis and to compare</p>	N/A



No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
		been little indication of this work being performed in consultation with the MHTO.		<p>concentrations to Health Canada guidelines, where guidelines exist. Should the MHTO wish to share these results with Baffinland, they may be incorporated into future monitoring reports, and if relevant and agreed upon with the MHTO, may influence future studies conducted by Baffinland or the MHTO.</p> <p>The Core Receiving Environment Program, a component study of the AMEP that addresses fish populations, is implemented annually in August during the open water season. To address outstanding requirements for PC Condition No. 48(a) Baffinland is committed to facilitating a meeting with MHTO in 2019 prior to the field program in August to review the components of the AEMP and seek feedback.</p>	
4	Marine Mammal Monitoring Protocol	<p>Baffinland is required pursuant to Terms and Conditions 110 and 111 of the Mary River Project Certificate to develop a monitoring protocol to prevent impacts to marine mammals from Project shipping activities in consultation with the Marine Environment Working Group (MEWG), and to determine appropriate early warning indicators that will ensure rapid identification of negative impacts along the shipping routes. Baffinland has several marine monitoring programs outlined in their Shipping and Marine Wildlife Management Plan as well as their 2018 Annual Report; however, none of these documents clearly outline the required protocol and the 2018 Annual Report does not include any information regarding the timeline to complete the plan nor how feedback from the MEWG would be incorporated into any marine plans. In the meeting minutes that Baffinland included in the 2018 Annual Report, it is noted that several MEWG meeting discussions have revolved around this topic of early warning indicators for marine mammal health and development of thresholds; however, to date, no definitive conclusions have been provided.</p>	<p>The Board requires that within 30 days Baffinland provide a definitive update and a timeline for the development of the early warning indicators of negative impacts associated with vessel noise and activities on marine mammals with the Marine Environmental Working Group. Further, Baffinland is required to report in its 2019 Annual Report to the NIRB the specific indicators being developed noting how the Marine Environmental Working Group has been involved in identifying such indicators for use, including a description of how the indicators are to be used to inform marine mammal-vessel interactions.</p>	<p>A summary of all activities undertaken by Baffinland and the MEWG to-date with respect to the development of EWIs has been included as Attachment 6. This summary demonstrates meaningful efforts by Baffinland to illicit feedback from MEWG members and the MHTO on the identification of the moist suitable variables to use as EWIs to achieve compliance with PC Conditions No. 110 and 111.</p> <p>Baffinland also notes that marine mammal monitoring data on the following variables are currently being collected:</p> <ul style="list-style-type: none"><li>- Relative abundance and distribution</li><li>- Group composition (e.g. gender ration, mother/calf pairs to infer calving rates_</li><li>- Change in behaviour (e.g. travel speed, change in direction, distance from shore, etc.)</li><li>- Mortality</li><li>- Underwater noise leevls</li><li>- Narwhal vocal behaviour (e.g. call rate, proportional call use, call frequency)</li><li>- Narwhal abundance, distribution and density in the RSA</li><li>- Dive behavior</li><li>- Surface Movement</li></ul> <p>Long-term datasets on these variables allow Baffinland to assess the EWIs against past years, complement trend analysis and inform the implementation of additional adaptive management measures if thresholds (pending their establishment with the MEWG) for these indicators are reached. Therefore, it is important to clarify that the only forward-looking work with the MEWG that remains is finalizing the variables that will be carried forward as EWIs and the establishment of thresholds for these indicators. A timeline for finalizing this work with the MEWG has been included in Attachment 6.</p> <p>Baffinland also notes that although EWIs have not yet been formally established Baffinland has responded proactively to community concerns by adopting additional</p>	Attachment 6: EWI November 2019 Update

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
				mitigation measures and adapting its marine mammal monitoring programs based on MEWG feedback.	
5	Survey of Baseline Metal Levels in Foraging Caribou	Term and Condition 35 requires that Baffinland undertake monitoring of baseline metal levels in organ tissue from caribou harvested within the local study area prior to commencing operations. In their 2018 Annual Report as well as the Terrestrial Environment Mitigation and Monitoring Plan, Baffinland indicated that due to the low population of caribou near the Project, they deem that this condition is not applicable to the current monitoring period. In respect of the current limitations imposed on caribou hunting by the Government of Nunavut since January 1st, 2015, the Board still expects that once the ban is lifted, these experiments and participation from either regulatory agencies or the Terrestrial Environmental Working Group be completed.	The Board requests Baffinland to develop a timeline in conjunction with the Government of Nunavut, the Mittimatalik Hunters and Trappers Organization and other Terrestrial Environment Working Group members to complete development of a sampling protocol and study methodology to monitor baseline metals in organ tissue from caribou and/or other wildlife harvested in the regional study area. The timeline is due in 30 days and a complete update on the implementation of the program is expected in the 2019 Annual Report.	<p>As described in the Annual Report to the NIRB, PC Condition No. 35 has been discussed with the TEWG several times, however, a clear plan for collaboration has yet to be established among working group members. Baffinland insists that collaboration with other stakeholders and interested parties (e.g. the GN and MHTO) is critical for the development of a final timelines and the successful implementation of this monitoring program.</p> <p>In an effort to address Board Recommendation No. 5, EDI (on behalf of Baffinland) recently met with the Primary Investigator for The Northern Contaminants Program. Baffinland believes that this potential collaboration is the most beneficial way to address the requirements of PC Condition No. 35, as monitoring results would be analyzed by a third party on a regional scale and will contribute data to an Arctic-wide program. A Standard Operating Procedure for the tissue collection and analysis is included in Attachment 7. Another benefit of this approach is that there are no sample kits are required for this procedure, which reduces previous implementation challenges.</p> <p>A proposed timeline, subject to agreement and participation of external parties, is as follows:</p> <ul style="list-style-type: none"><li>January to March 2019: Establish an agreement between Gamberg Consulting, Baffinland, the GN and the MHTO for the collection and analysis of organ tissue for North Baffin caribou in 2020 through the Northern Contaminants Program.</li><li>March to June 2020: Schedule an in-person meeting between Gamberg Consulting and the MHTO to provide an overview of the research conducted through the Northern Contaminants Program and to discuss and plan for the collection of organ tissue samples by local hunters.</li><li>TBD: Hunters wishing to participate collect and submit organ samples as instructed whenever caribou are harvested.</li><li>TBD: Samples analyzed in the lab and results reported and presented in person.</li></ul> <p>Further updates of work undertaken in 2019 related to PC Condition No. 35 will be included in the 2019 Annual Report to the NIRB.</p>	Attachment 7: SOP for Caribou Tissue Sampling

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
6	Groundwater Management	<p>Term and Condition 17, 20, and 23 of the Project Certificate states that Baffinland is required to develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater resources. In the 2018 Annual Monitoring Report, Baffinland indicated that a groundwater monitoring program was implemented at various Mine Site locations and select water samples collected downstream of active quarries showed elevated levels of ammonia and nitrate levels when compared to baseline measurements and furthermore that the 2018 groundwater monitoring sample sizes were very low resulting in a limited data set and a limited ability to identify long-term trends. To date, the management plan has not been completed nor has there been any timeline presented by Baffinland to complete this plan and groundwater monitoring has not been that successful to date. The Plan should include a consistent, site-wide groundwater monitoring program for all major project facilities likely to affect groundwater resources (mining, landfill, etc.) as well as increased sampling efforts for the Groundwater Monitoring Program as currently it is not able to identify any trends.</p>	<p>The Board requests Baffinland develop and implement a Groundwater Monitoring and Management Plan to monitor, prevent and/or mitigate the potential effects of the Project on groundwater. This management plan should include consistent and site-wide groundwater monitoring program for all major project facilities likely to affect groundwater resources. This program should have an increased sampling effort for the Groundwater Monitoring Program with incorporation of information from other northern mine sites and should closely monitor water samples collected for elevated chemical levels and apply mitigations when exceedances are noted.</p>	<p>Following review of the comments pertaining to Baffinland’s 2018 Groundwater Program provided by the Board, it should be noted that there several incorrect references to both groundwater and surface water results as presented in Baffinland’s 2018 NIRB Annual Report. To clarify the Board’s interpretation of the results, Baffinland has outlined the corrections below.</p> <p>In reference to the Board’s comment, “In the 2018 Annual Monitoring Report, Baffinland indicated that a groundwater monitoring program was implemented at various Mine Site locations and select water samples collected downstream of active quarries showed elevated levels of ammonia and nitrate levels when compared to baseline measurements”. The information referenced in the above comment refers to surface water run-off results, not groundwater results. As outlined in PC Condition No. 20 of the Annual Report to NIRB (Section 4.6.4, page 77), “During 2018, surface water runoff downstream of active quarries and mining areas were monitored for the water quality parameters outlined by the Type A Water Licence, including parameters related to explosives residue, such as ammonia and nitrate. Although select water samples collected downstream of active quarries and mining areas showed elevated ammonia and nitrate levels in comparison to baseline concentrations, the majority of samples were below the established Canadian Council of Ministers of the Environment (CCME) water quality guidelines for ammonia and nitrate (CCME, 2010; CCME, 2012)”. In reference to the 2018 groundwater results, there was <u>no</u> indication of elevated ammonia or nitrate.</p> <p>The 2018 groundwater program involved installation of shallow groundwater wells up-gradient and down-gradient of the Non-Hazardous Waste Landfill using drive point piezometers. A copy of the 2018 Groundwater Monitoring Program Report (submitted as Appendix E.11 of the 2018 QIA &amp; NWB Annual Report for Operations) can be found in Attachment 8.</p> <p>Baffinland notes that implementing a groundwater program in a permafrost-rich environment presents significant methodological challenges including quantifying groundwater direction, flow and interpretation of groundwater quality. Additionally, groundwater flow dynamics are driven primarily by the permafrost table elevations rather than soil stratigraphy, resulting in significant challenges to determine flow direction and gradient.</p> <p>Baffinland agrees with NIRB that an expansion to the groundwater monitoring program is required to gain a better understanding of natural groundwater chemistry at the Project site. Due to the challenges associated with sampling methodologies for groundwater data collection in a permafrost environment and the challenges in interpreting this data, however, long-term trends will likely not be identified even with an expanded dataset.</p>	<p>Attachment 8: 2018 Groundwater Monitoring Program Report</p>

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
				Despite these operational challenges, Baffinland is committed to retaining groundwater consultants that are specialized in Arctic environments, to further assess the current program and provide recommendations in 2020.	
7	Waste Management	<p>During the March and August 2019 NIRB site visits, it was observed again that the current fence at the landfill was insufficient in containing wind-blown debris and not sufficient to eliminate carnivore access to the area. Pursuant to condition 64, Baffinland is required to have complete fencing around their landfill unless it can present an alternative to a fence to the Board for consideration. The Board notes that the Waste Management Plan (2018) submitted to the NIRB stated that the landfill only required a fence for windblown debris which does not match the project certificate requirements for this Project. The NIRB staff on the 2019 site visits noted that the condition of the fencing around the landfill had not improved compared to previous years as Baffinland has yet to install a complete long-term fence as recommended by the NIRB in 2014, 2015, 2016, 2017 and 2018. Further in 2019 NIRB staff observed wildlife (e.g., foxes) scavenging within the landfill and noted it in the 2019 August Site Visit Report. NIRB staff discussed during the site visit the lack of a fence and Baffinland committed to submitting plans for the construction of a fence to enclose the landfill and commence construction as materials were on the 2019 sea lift; on August 26, 2019 Baffinland submitted the plans for a full fence around the landfill in its written response to the NIRB following the site visit.</p>	<p>The Board requires Baffinland install the fence around the landfill immediately and once the fence is constructed Baffinland will submit a final report to the Nunavut Impact Review Board which includes photos, modifications during construction, and inspection schedule.</p> <p>The Board requires Baffinland submit an updated Waste Management Plan to reflect the requirement of a wildlife fence specifically for carnivores and to limit wildlife attraction to site within 30 days. Subsequently Baffinland shall provide information regarding the maintenance of the fence within each Annual Report.</p>	<p>Baffinland is committed to minimizing impacts to wildlife through onsite Project activities, and is fully committed to operating the Landfill in accordance with Baffinland’s NWB approved Waste Management Plan. As the Board has previously been made aware, significant effort was undertaken in both 2018 and 2019 to improve onsite management and segregation of waste with the objective of minimizing human-wildlife interactions at the landfill and other locations across the Project site.</p> <p>It is Baffinland's understanding that the intent of PC Condition No. 64 has been met as reported in the 2018 NIRB Annual Report. It is also noted that the Board had previously assigned Baffinland a status of “complete” in 2017, with respect to PC Condition No. 64.</p> <p>Nevertheless, it is acknowledged that input from the NIRB site visits conducted in years prior to 2018 have resulted in recommendations to improve the condition of fencing at the landfill facility for the purpose of reducing windblown debris, to which significant effort has been expended to date.</p> <p>As discussed during the NIRB summer site visit in 2019 and in the August and September submissions to NIRB, in an effort to reduce windblown debris, Baffinland is committed to operating the Mine Site Landfill as per the approved Waste Management Plan. A 275 metre fence was installed on the west side (downwind) of Cell 1 in the fall of 2018 to address concerns of potential wind-blown debris sourcing from the landfill to the tundra. The fence also repurposed over 800 used tires as part of Baffinland's used tire disposal and recycling initiative. The fence captures windblown debris from the landfill effectively (see Attachment 9).</p> <p>In 2019, after procuring additional materials on the summer sealift, Baffinland fully enclosed the active cells at the landfill in accordance with the Landfill Fence Design that was submitted to NIRB on August 26, 2019. Images of both the completed fencing and the Landfill fence design have been included as Attachment 9. Maintenance inspections of the fence will be incorporated in ongoing inspections of the Landfill.</p> <p>Baffinland will continue to work with the QIA, CIRNAC and NWB to assess future recommendations for the Landfill operation as per the approved Waste Management Plan. Baffinland will not be updating the approved Waste Management Plan as the plan specifies how wastes are to be managed at the Project, and is not intended to provide specifics on infrastructure or design considerations. Additionally, all domestic wastes containing food, or items in contact with food (e.g. wrappers) are secured in animal-</p>	Attachment 9: Landfill Enclosure Design and Completion Photos



No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
				proof storage bins or seacans until incinerated or backhauled, there are no food wastes deposited at the landfill.	
8	Cross-Cultural Training	<p>During the Final Hearing for the original Mary River Project in 2012, the Board expressed concerns regarding the lack of cross-cultural training provided to non-Inuit staff as Baffinland was not certain where the majority of the staff for the site would be coming from. Since the project was originally approved, NIRB continues to be concerned about the ongoing frustration from Nunavut communities resulting from Baffinland not meeting its local hiring targets in addition to challenges with retention of these local hires. The Board would like to stress the importance of cross-cultural training provided by Baffinland to non-Inuit staff to ensure an inclusive work environment for all employees.</p>	<p>The Board requires Baffinland to provide a detailed description of their cross-cultural training programs for employees. This document should include a description of the current programs offered as well as how they were developed and whether or not Inuit were consulted prior to, or as part of, the program development. Baffinland shall provide a discussion on the success and challenges associated with this program to date and include the rational for determining the overall effectiveness of cross-cultural training programs implemented, and how the program's effectiveness will be evaluated in the future. The Board requests this information to be provided to the NIRB within 30 days.</p>	<p>Baffinland would like to address the comment from the Board where it was indicated that the Board is concerned about the ongoing frustration from Nunavut Communities related to local hiring targets before addressing the request for additional information related to cross cultural training. Since 2017, the company has seen marked growth in Inuit employment both in terms of the total number of Inuit employed and in overall number of hours worked. Inuit employed as a percentage of the total workforce is an important indicator, but it does not provide an accurate understanding of the total number of Inuit benefiting from employment at Mary River.</p> <p>Since 2013, Baffinland has been delivering on-line Cultural Awareness training as a mandatory requirement for all employees and contractors working at the Mary River Project. This training includes key messages and input from Baffinland's management team, Cultural Advisors, the Head of Northern Affairs and several other Inuit employees. The training program was developed by engaging a third party resource along with Baffinland's management and employees in 2013. If an employee is re-hired or has been absent from the workplace for a period of more than one hundred and eighty days (180), it is required that the training be completed again by all personnel arriving at site as part of their employment.</p> <p>In 2017 a <i>Respectful Workplace Program</i> was developed to provide training to all employees and contractors. This training covers various aspects of building a respectful workplace but focuses specifically on diversity, and cultural awareness</p> <p>Leadership and Coaching Modules were delivered to supervisors, superintendents and managers at site in 2019. Leadership and Coaching Modules focused on providing management with the skills to lead a diverse workforce, and focused on working with Inuit specifically.</p> <p>A new initiative was developed in in 2018-2019 to further focus Baffinland's overall Cultural Engagement Programming at the Project. This initiative is called the <i>Inuit Cultural Engagement (ICE) Program</i>.</p>	Attachment 10: Cross-Cultural Training Summary Report

No.	Topic	NIRB Comment	NIRB Recommendation	Baffinland Response	Attachments
				<p>Cultural training programs are continually evaluated by Baffinland management. Effectiveness of these programs are central to Baffinland’s values and critical in the continued success of Baffinland’s efforts to develop and maximize Inuit workforce participation at the Project. Further, the Mary River Inuit Impact and Benefit Agreement provides oversight to Cultural Training Programs at Mary River. IIBA Article 11, “Workplace Conditions”, ensures that the Company and the Qikiqtani Inuit Association have in place appropriate measures to ensure effective cross cultural training is in place at the Project.</p> <p>A detailed report describing the above efforts and preliminary results of some activities have been included in Attachment 10.</p> <p>Baffinland believes that it has a robust Cultural Training Program in place at the Mary River Project. However, the Company knows that it must continually improve this programming to ensure its effectiveness on site. Whether through formal evaluations (e.g. surveys) or through informal feedback during training program delivery, Baffinland remains committed to continually improving in this area.</p>	

**Appendix II: NIRB'S ASSESSMENT OF BAFFINLAND'S PROJECT CERTIFICATE COMPLIANCE IN THE  
2019-2020 MONITORING PERIOD**

**Board Guidance on General Regulatory and Administrative Responsibilities**

<b><u>Term &amp; Condition</u></b>	<b><u>Reporting Requirements</u></b>	<b><u>Compliance Achievement</u></b>	<b><u>NIRB Comment</u></b>
<b>General Regulatory Requirements</b>			
1. Appointment of Monitoring Officer(s)	n/a	Active In Compliance	Completed by NIRB
2. NIRB to report annually on the monitoring program (in English and Inuktitut)	Annually	Active In Compliance	Completed by NIRB
3. NIRB to conduct periodic community meetings updates regarding its Monitoring Program	n/a	Active In Compliance	Completed by NIRB
4. NIRB to schedule periodic site inspections.	n/a	Active In Compliance	Completed by NIRB
5. Proponent must obtain all required federal and territorial permits and other approvals and shall comply with the requirements of such regulatory instruments.	n/a	Active In Compliance	
6. Duty to Comply with environmental laws and regulations and/or regulatory instruments, prompt action to remedy non-compliance and report any non-compliance.	Annually	Active Deficient – in progress	A total of Five (5) exceedances related to Water Licence 2AM-MRY1325 and MDMER regulation in 2019.
7. Posting of adequate performance bonding.	n/a	Active In Compliance	
<b>Monitoring Records</b>			
8. Information requirements for monitoring reporting.	Annually	Active In Compliance	
9. Make significant monitoring results and/or summaries of significant results available in English and Inuktitut, to the extent feasible.	Annually	Active In Compliance	Executive summaries for all plan updates, reports and studies were provided in the 2020 Annual Report in both French and Inuktitut.
10. Maintain the records, including results, of all Project-related monitoring	n/a	Active In Compliance	



<b><u>Term &amp; Condition</u></b>	<b><u>Reporting Requirements</u></b>	<b><u>Compliance Achievement</u></b>	<b><u>NIRB Comment</u></b>
data and analysis for the life of the Project, including closure and post-closure monitoring.			
11. Maintenance of an up to date the Environmental Impact Statement and the updated environmental monitoring programs developed for the Project as new information is collected.	Updated as indicated by new baseline data or monitoring results.	Active In Compliance	
12. Publicly-accessible Project-specific web portal or web page to make available in a central location all significant non-confidential monitoring and reporting information submitted to regulatory authorities	n/a	Active In Compliance	Website completed by Baffinland and updated regularly with monitoring plans, reports and results.
<b>On-going Engagement in Project Monitoring, Modelling, Management and Reporting</b>			
13. Provide on-going opportunities for consultation and comment on any substantive revisions to the Project-specific monitoring program, modelling, studies, management plans, management measures, and reporting.	Continuous/ongoing.	Active Deficient - in progress	The NIRB notes that this is largely completed through the Project Working Groups which are currently reviewing their Terms of Reference. As such, NIRB has noted the Proponents efforts here while acknowledging there is still progress to be made.
14. To the extent feasible, the NIRB will provide an opportunity for comment on any substantive revisions to the Project-specific monitoring, modelling, studies, management plans, management measures, and reporting provided by the Proponent under the Project Certificate.	Ongoing.	Active In Compliance	Completed by NIRB

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
Glossary	<b>In Compliance:</b> The Proponent has fulfilled its obligations described under the Term and Condition as set out in the Project Certificate for the monitoring period.			
	<b>Deficient – in progress:</b> Proponent has partially fulfilled its obligations described under the Term and Condition as set out in the Project Certificate for the monitoring period.			
	<b>Non-Compliance:</b> Proponent has not met its obligations described under the Term and Condition as set out in the Project Certificate for the monitoring period.			
	<b>Not Yet Active:</b> The term and condition is not active to the current phase of the Project in this monitoring period.			
	*Some NIRB Evaluation terms may have been modified from 2018-2019 to match newly established criterion for the 2019-2020 Monitoring Period; these new terms do not necessarily reflect a change in evaluation.			
Climate				
1	GPS/tidal gauge monitoring of sea levels and storm surges	Partial Compliance	Milne Inlet *Active Deficient – In progress	Related to T&C 83. Baffinland collected data in 2014 and removed the gauges for 2015 and 2016. Baffinland has re-installed the tidal gauge system at Milne Port during the 2017, 2018 and 2019 open-water season from June- October. Baffinland noted that at Milne Port, the tidal gauges detected no observable sea level rise from 2017- 2019. <b>With no observable change noted in 2019, Baffinland has determined that tidal gauge installation will not be undertaken in 2020 but will be revaluated in future years.</b> At Steensby Inlet Baffinland has not installed any tidal gauges as there is no shipping from this area yet.
			Steensby Inlet Not Yet Active	
2	Validation and update of climate change impacts of the project on the LSA and RSA.	Partial Compliance	Active In Compliance	Baffinland indicated that this term and condition was not applicable in 2019 and has been working with a consulting firm to draft an amended climate change strategy. They are currently working through Stage 1 (assessment) of that strategy and will continue to update the NIRB through its Annual Report as it progresses to Stage 2 (external engagement). WWF has further noted concerns regarding the absence of an appropriate climate change strategy today on the Project.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
3	Exploring and implementing steps to reduce GHGs.	Partial Compliance	Active In Compliance	In 2019, Baffinland constructed the Mine Haul Road Cross Cut which reduced the distanced travelled for mine haul trucks which is estimated to have resulted in a fuel savings of 55,000 L in 2019. With a full year of usage, this route is estimated to save 99,000 L of diesel fuel per year. As mentioned in T&C 2, Baffinland is also working with a consultant to amend their Climate Change strategy and reduce GHG emissions. Baffinland has been actively looking for ways to reduce fuel use, which has resulted in the installation of 2 GE generators in 2019 which are 22 % more effective than existing generators. GE generators will continue to be installed through 2020 and are also exploring the possibility of thermo-electric or fluid heat exchange recovery systems to recover heat energy from diesel generator exhaust and incinerators.
4	Engage Inuit in climate change related research and studies.	Partial Compliance	Active In Compliance	Baffinland is currently amending its Climate Change strategy using an external consultant. Once the draft is completed it will be shared as part of the engagement phase for incorporation of Public comment and IQ prior to finalization.
5	Reasonable measures to ensure that Project-site weather related information is publicly available.	In Compliance	Active In Compliance	Baffinland makes the weather for the Mary River Project locations (Mine Site and Milne Port) publicly available on their website at <a href="http://www.baffinland.com">www.baffinland.com</a> and through the Weather Network.
6	Provide results of SO <sub>2</sub> , NO <sub>x</sub> , and GHG emissions calculations using fuel consumption or other relevant criteria.	In Compliance	Active In Compliance	Baffinland provided a Table summarizing their 2019 annual emissions in their self-assessment of T&C 6: GHG = 180,794 t-CO <sub>2</sub> eq SO <sub>2</sub> = 14 t(SO <sub>2</sub> ) NO <sub>x</sub> = 4, 083 t (NO <sub>2</sub> )

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				Baffinland has also acknowledged their commitment to continue seeking efficiencies and improvements to their Climate Change Strategy and reduction of GHG's on site.
<b>Air Quality</b>				
<b>7</b>	Update AQ and noise abatement plan to include continuous SO <sub>2</sub> and NO <sub>2</sub> monitoring at port sites to capture operations phase ship-generated emissions for several seasons.	In Compliance	Milne Inlet Active In Compliance	Baffinland has been undertaking ongoing monitoring of SO <sub>2</sub> and NO <sub>2</sub> levels at both Milne Port and the Mine Site. Both SO <sub>2</sub> and NO <sub>2</sub> levels remained below Ambient Air Quality Standard (AAQS) for the 1-hour, 24 hour and annual limits in 2019.  Air Quality and Noise Abatement Management Plan (March 2020).
			Steensby Inlet Not Yet Applicable	
<b>8</b>	Demonstrate through SO <sub>2</sub> and NO <sub>2</sub> monitoring at the mine site and ports that emissions remain within predicted levels. Provide rationale and mitigation measures for exceedances.	In Compliance	Milne Inlet Active In Compliance	In 2019, Baffinland's overall SO <sub>2</sub> levels across all sites were very low, the greatest SO <sub>2</sub> measurement taken represented 6% or less of the AAQS. Overall NO <sub>2</sub> levels were considered moderate with the greatest concentration being measured at 76% of the AAQS.  Air Quality and Noise Abatement Management Plan (March 2020).
			Steensby Inlet Not Yet Active	
<b>9</b>	Provide calculations of GHG emissions at the port sites and other Project sources including Project associated aircraft.	In Compliance	Milne Inlet Active In Compliance	Total calculated GHG emissions in 2019 were 180,794 t-CO <sub>2</sub> eq compared to 156,000 t-CO <sub>2</sub> eq in 2018. Baffinland attributes this increase to the overall increase of fuel consumption on Project sites because of increase mine production in 2019. <b>The NIRB reminds Baffinland that a comparison table of several years GHG production is requested for this T&amp;C.</b>
			Steensby Inlet Not Yet Active	

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
10	Update to dust management plan to include monitoring and management plans	Partial Compliance	Active *Deficient – In progress	Baffinland reported that their dust management and monitoring was incorporated into the Air Quality and Noise Abatement Management Plan (2020), the Roads Management Plan (2020) and Dust Mitigation Action Plan (2016). A new product for dust suppression along the Tote Road was successfully test in 2019 and its usage will be increased in 2020. As a result of consultation with the MHTO and QIA, six (6) additional dust fall monitoring stations were installed along the Tote Road to further assess the effectiveness of dust mitigation measures.
11	Develop and Implement Incineration Management Plan.	In Compliance	Active In Compliance	Baffinland adheres to the process for batch waste incineration as outlined by Environment and Climate Change Canada including conducting waste audits at both the Milne Port and Mary River Facilities. Air Quality and Noise Abatement Management Plan (2020) Waste Management Plan which includes the Incinerator Operation Procedure (2020)
12	Conduct at least one stack test immediately following commissioning new incinerators.	In Compliance	Active In Compliance	Stack testing was performed in 2013 when the incinerators were commissioned and again in 2019. Results from the 2019 test indicate mercury concentrations below the applicable Canadian Council of Ministers of the Environment Canada Wise Standards (CCME CWS); however, both the Milne Port and Mine Site incinerators had exceedances of dioxin/furan parameter standards compared to CCME CWS. Adjustments have been made to the programming of the incinerator as well as posted guidelines around the facility. Additional testing will occur in 2020 to confirm the effectiveness of the corrective actions. The incinerator at the 380-person camp also indicated exceedances of dioxin/furan parameter standards compared to the CCME CWS.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				Corrective actions have been taken and this incinerator will not be put into operation until stack testing can be redone in 2020. Air Quality and Noise Abatement Management Plan (2020) Waste Management Plan (2020)
<b>Noise and Vibration</b>				
<b>13</b>	Work with Fisheries and Oceans Canada to select overpressure threshold applied to explosives for the protection of fish and aquatic life.	In Compliance	Active In Compliance	No blasting occurred in 2019 within setback distances detailed by the DFO as detailed in Baffinland 2018 Annual Report. Surface Water and Aquatic Ecosystem Management Plan (2020) Environmental Protection Plan (2016) Quarry Blasting Operations Management Plan (2013)
<b>14</b>	Conduct noise and vibration monitoring at Project accommodations in summer and winter during all phases of the Project.	In Compliance	Active In Compliance	Baffinland indicated that noise and vibration monitoring at the Mine site and Milne Port accommodations is scheduled annually by its Health and Safety staff. Results from 2019 indicated noise levels below 75dBA which is within acceptable ranges. Steensby is not yet active.
<b>14a</b>	Demonstrate appropriate adaptive management practices during construction for activities with the potential to disrupt marine mammals.	In Compliance	Active In Compliance	Baffinland reported that in 2019, they constructed a Freight Dock at Milne Port. Underwater acoustic measurements were taken at the beginning of construction to ensure activities were within required levels but were not carried out continuously throughout construction. Noise was noted within appropriate ranges and DFO indicated that they met with consultants during construction of the dock to discuss protocols. BIM Environmental Protection Plan (2016) Sediment and Erosion Control Plan (2019) Construction Environmental Management Plan (2019)

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
14b	Demonstrate appropriate adaptive management practices for project activities with the potential to disrupt terrestrial wildlife and Project site users.	Partial Compliance	Active *Deficient – In progress	Baffinland indicated in their 2019 Annual Report that noise levels are monitored in relation to worker health and safety, therefore mitigation measures to reduce noise and sensory disturbance are implemented with respect to human safety. Baffinland has engaged with the TEWG and is with the support of a consultant will run a Zone of Influence Noise Monitoring Pilot Study in 2020. As progress of project noise in relation to wildlife is unclear, NIRB expects to review the results of the Zone of Influence Pilot study. Air Quality and Noise Abatement Management Plan (Baffinland, 2020)
15	Collaborate with the QIA and local Hamlets when undertaking consultation with communities regarding railway, tote road and marine shipping operations. Provide visuals and discuss safety considerations.	In Compliance	Active In Compliance	Baffinland continues to work with local communities and the QIA regarding safety considerations for those interacting with the Project. Through the established Mary River Community Group, safety considerations are being evaluated regularly. In their 2019 Annual Report, Baffinland has provided a summary of their community group meetings.
Hydrology or Hydrogeology				
16	Ensure that water related infrastructure is consistent with FEIS and FEIS addendum.	In Compliance	Active In Compliance	Baffinland ensures that the water related infrastructure and facilities constructed on Site are consistent with those proposed in the FEIS and related addendums. In 2019, Baffinland constructed several water related infrastructures including: maintenance and repair of perimeter ditches, routine surface water management, assembly and installation of the sewage and potable water treatment plant at Sailivik Camp and Initial construction for the Milne Port Ore stockpile expansion. *The railway not yet active.



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
17	Develop and implement measures to ensure that all effluent satisfies discharge criteria established by relevant regulatory authorities.	Non-Compliant	Active *Deficient – in progress	<p>Related to Terms and Conditions 24 and 46.</p> <p>In 2019, a total of 5 effluent discharges did not comply with the applicable discharge criteria (4mg/L of ammonia; Lead 0.001mg/L):</p> <p><b>May 1, 2019</b> - Exceedance of total ammonia (9.45mg/L) at MS-01B (Sailivik Camp); Baffinland believes this was a sampling error, subsequent samples confirmed that total ammonia met discharge criteria.</p> <p><b>November 12, 2019</b> – Exceedance of total ammonia (47mg/L) at MS-01B (Sailivik Camp); Baffinland believes this was due to temporary upset conditions and subsequent tests confirmed ammonia levels had returned to withing criteria.</p> <p><b>September 8, 2019</b> – Exceedance of total lead (0.00117mn/L) at the mobile Oily Water Treatment System (OWTS) while located at contaminated snow berm (MP-04A). The OWTS was subsequently halted due to freeze up and will be reassessed.</p> <p><b>2019</b> - General Operation of the Waste Rock Facility Water Treatment Plant (WRF WTP). Through 2019 sampling, 1 Exceedance of mean monthly concentration of TSS (15 mg/L) and 1 non-compliance of the MDMER grab sample criteria for TSS (30mg/L) To minimize future exceedances, Baffinland will continue to train employees to follow the protocols outlined in their Sampling Program - Quality Assurance and Quality Control Plan (2020). Fresh Water Supply, Sewage and Wastewater Management Plan (2020)</p> <p>Metals and Diamond Mining Effluent Regulations Emergency Response Plan (2019)</p> <p>Baffinland indicated the cause for several of the exceedances may be due to lab error or incorrect collection method; moving forward</p>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				Baffinland continues to train employees and update Standard Operating Procedures to reduce preventable errors. The NIRB looks forward to receiving information on progress and/or improvements in Baffinland's 2020 Annual Report.
18	Confirm and update, as needed, the approximate fill time of the mine lake pit identified in the FEIS.	In Compliance	Active In Compliance	Current mining operations have not yet developed a pit at Deposit No. 1; however, Baffinland has developed an Interim Closure and Reclamation Plan (2018) should it become necessary.
19	Develop and implement adequate water infrastructure monitoring to ensure that natural water flow is not significantly hindered. Monitor and report water withdrawal rates and water use for domestic and industrial purposes.	In Compliance	Active In Compliance	During the 2019 Annual Report, Baffinland noted that they continued to monitor water crossings to ensure that surface water flows were undisrupted. Reports were submitted to the QIA and NWB. Total daily water withdrawal limit from Camp Lake was not exceedance however, there were 12 incidents where withdrawal limits for domestic use were exceeded, further, they are believed to be the result of mis-categorization. There was 1 other exceedance in daily water volume withdrawn from Camp Lake at KM 32 due to higher water use for the use of temporary ice crossing. In the summer months, exceedances also occurred while using water for dust suppression measures. Further discussions on these exceedances are provided in the 2019 QIA & NWB Annual Report for Operations. Fish Habitat Monitoring - 2019 Annual Report - Early Revenue Phase - Tote Road Upgrades (2019) Roads Management Plan (2020) Surface Water and Aquatic Ecosystem Management Plan (2020)

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
<b>Groundwater and Surface Waters</b>				
<b>20</b>	Monitor the effects of explosive residue and by-products from Project related blasting. Implement measures to ensure explosives do not negatively effect the surrounding area.	Partial Compliance	Active *Deficient – In Progress	Select water samples showed elevated levels of ammonia and nitrate in comparison to baseline measurements. See the Aquatic Effects Monitoring plan (2015) and Sampling Program - Quality Assurance and Quality Control Plan (2020).
<b>21</b>	Ensure that the scope of the Aquatic Effects Monitoring Program (AEMP) is consistent with the requirements in the condition.	In Compliance	Active Deficient – In Progress	The current revision of the Project's AEMP (2015) appears to meet the requirements of the intended scope for T&C 21.  <b>The NIRB reminds Baffinland that they are expected to include clearly and succinctly in the relevant section of the annual report a comparison of monitoring data that has been collected to date so readers can view the direct comparison to the FEIS and any subsequent amendment.</b>
<b>22</b>	Develop a Sediment and Erosion Management Plan.	In Compliance	Active In Compliance	A sediment and Erosion Management Plan is incorporated into Baffinland's Surface Water and Aquatic Ecosystem Management Plan (SWAEMP, 2020).
<b>23</b>	Develop and implement Groundwater Monitoring and Management Plan.	Non-Compliant	Active *Deficient – In progress	Baffinland has included a Groundwater Monitoring Program as part of their Surface Water and Aquatic Ecosystem Management Plan (SWAEMP, 2020). During 2019, groundwater was sampled at 5 monitoring wells, 3 down-gradient and 2 up-gradient of the landfill facility. The current dataset does not allow for evaluation of any significant trends; however, Baffinland committed to continuing this program to gain a greater understanding of the groundwater chemistry on site.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				The NIRB reminds Baffinland that despite a lack of significant trends in the current data, a comparative table of the monitoring results year over year would provide helpful insight into the program.
24	Ensure that effluent discharge conditions are met all times	Non-Compliant	Active *Deficient – In progress	<p>Related to Terms and Conditions 17 and 46.</p> <p>In 2019, a total of 5 effluent discharges did not comply with the applicable discharge criteria (4mg/L of ammonia; Lead 0.001mg/L):</p> <p><b>May 1, 2019</b> - Exceedance of total ammonia (9.45mg/L) at MS-01B (Sailivik Camp); Baffinland believes this was a sampling error, subsequent samples confirmed that total ammonia met discharge criteria.</p> <p><b>November 12, 2019</b> – Exceedance of total ammonia (47mg/L) at MS-01B (Sailivik Camp); Baffinland believes this was due to temporary upset conditions and subsequent tests confirmed ammonia levels had returned to withing criteria.</p> <p><b>September 8, 2019</b> – Exceedance of total lead (0.00117mn/L) at the mobile Oily Water Treatment System (OWTS) while located at contaminated snow berm (MP-04A). The OWTS was subsequently halted due to freeze up and will be reassessed.</p> <p><b>2019</b> – General operation of the Waste rock Facility Water Treatment Plant (WRF WTP). Through 2019 sampling, 1 Exceedance of mean monthly concentration of TSS (15 mg/L) and 1 non-compliance of the MDMER grab sample criteria for TSS (30mg/L) To minimize future exceedances, Baffinland will continue to train employees to follow/update protocols outlined in their Sampling Program - Quality Assurance and Quality Control Plan (2020). Fresh Water Supply, Sewage and Wastewater Management Plan (2020)</p>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				Metals and Diamond Mining Effluent Regulations Emergency Response Plan (2019) The NIRB looks forward to receiving information on progress and/or improvements in Baffinland's 2020 Annual Report.
25	Identify sensitive landforms and develop and implement measures to minimize Project impacts on identified landforms.	Partial Compliance	Active In Compliance	Baffinland engaged with a consultant to undertake geotechnical surveys of: the Bulk Fuel and Waste Storage Facilities, Water Management Ponds and Drainage Infrastructure, Polishing and Waste Stabilization Ponds and Selected water crossings and areas along the Tote Road. Specific areas along the Tote Road have been identified as high priority and Baffinland plans to further address these areas in 2020. Greater detail of the geotechnical investigations can be found in Baffinland's 2019 Annual Report. Borrow Source Management Plan - Kilometer 97 (2014).
26	Develop and Implement Erosion Management Plan.	Partial compliance	Active In Compliance	An erosion management plan is included in the Project's Surface Water and Aquatic Ecosystem Management Plan (2020). Erosion and terrain stability issues remain at various locations along the Tote Road but are being mitigated through the Roads Management Plan (2020) on a regular basis.
27	Record notes on impacts to the aesthetic value of the Project area heard in public consultations.	In Compliance	Active In Compliance	Baffinland provided a complete list of their public consultations in 2019 and indicated that these consultations did not reveal any significant concerns regarding impacts to the aesthetics of the topography and landscape of the Project.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
28	Monitor Project effects on permafrost and ensure its integrity.	Partial Compliance	Active *Deficient – In progress	Similar to previous years, localized permafrost degradation has been identified along the Tote Road and Mine Haul Road. Baffinland continues to have a third-party conduct bi-annual geotechnical inspections, results are reported in their Annual Report and mitigations are applied as per the Roads Management Plan (2020). Environmental Protection Plan (2016) Railway has not been constructed yet.
29	Provide construction design and drawings for review and acceptance by relevant authorities. Provide as-built drawings to authorities following construction.	In Compliance	Active In Compliance	See Baffinland's <i>2019 Annual Report</i>
30	Develop site-specific quarry operation and management plans before the development of any potential quarry site or borrow pit.	Partial Compliance	Active In Compliance	Baffinland has developed a Borrow Pit and Quarry Management Plan (2020). Site specific management plans for any new quarries and borrow sources will be developed prior to use.
<b>Vegetation</b>				
31	Ensure that Project activities are planned and conducted to minimize the Project footprint.	In Compliance	Active In Compliance	Baffinland has completed all the required construction activities for the Project within the Project Development Area (PDA). No unauthorized land disturbance occurred in 2019. Environmental Protection Plan (2016) Terrestrial Environment Mitigation and Monitoring Plan (2016)
32	Ensure that all supplies brought to site are clean of soil that could contain plant seeds not naturally occurring in the area.	In Compliance	Active In Compliance	Baffinland has service agreements and contracts were updated in 2018 to include the clause "All equipment delivered to site must be free and clear of soils that may contain seeds of invasive species". In 2019, an exotic species (Tomato Plant; <i>Solanum lycopersium</i> ) in

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	Inspect vehicle tires prior to initial use in Project area.			vegetative state was observed growing at the sewage/effluence discharge area; however, due to its growing requirements and the arctic conditions, it was not able to develop flowers. See the <i>Draft 2019 Terrestrial Environment Annual Monitoring Report</i> .
33	Include relevant monitoring and management plans within the TEMMP.	In Compliance	Active In Compliance	The TEMMP is regularly updated regularly to reflect any changes to programs and results of analysis. Terrestrial Environment Mitigation and Monitoring Plan (2016).
34	Conduct soil sampling to determine levels of metals in soils where berry producing plants are, near any potential development area prior to commencing operations.	In Compliance	Active In Compliance	Soil sampling occurred in 2019 to evaluate metal concentrations. According to Baffinland, metal concentrations in soil in 2019 remained low or undetectable. Some increase in metal concentrations were observed when compared to baseline data; however, all soil samples were below Canadian Council of Ministers of the Environment (CCME) guidelines. Terrestrial Environment Mitigation and Monitoring Plan (2016) <i>Draft 2019 Terrestrial Environment Annual Monitoring Report (2020)</i>
35	Monitor baseline metal levels in organ tissue of caribou harvested within the local study area, prior to commencing operations.	Non-Compliant	Active *Deficient – In progress	Baffinland remains of the opinion that due to the caribou population being small, and harvests being limited this Term and Condition is not applicable. In 2019, Baffinland further engaged with the Terrestrial Environment Working Group (TEWG) to develop a protocol for tissue sampling but has yet to come to a full agreement. In 2019, Baffinland also engaged the Primary Investigator for the Northern Contaminants Program and they believe that this planned regional collaboration is a key aspect to a successful program. Baffinland proposed a schedule to move into compliance which includes establishing an agreement between a consultant, the GN, and the MHTO in early 2020 scheduling of in-person meetings to



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				<p>discuss and plan protocols, locate hunters wishing to participate in the program and analyzing any future samples.</p> <p>Despite the lack a completed tissues sampling program being established, the NIRB recognizes the initiative taken and progress made by Baffinland to further develop this program so that it can be implemented once the caribou populations return to sustainable levels. The NIRB looks forward to further information from Baffinland in the 2020 Annual Report.</p>
36	Establish an on-going monitoring program of vegetation used as caribou forage near Project development areas, prior to commencing operations.	In Compliance	Active In Compliance	Annual vegetation surveys were conducted in 2014-2019; however, no evidence of change in vegetation abundance due to Project affects were determined. See the 2019 <i>Draft Terrestrial Environment Annual Monitoring Report</i> .
37	Incorporate methods to evaluate the potential introduction of invasive plant species into the Terrestrial Environment and Monitoring Plan. Report non-indigenous plant species to the Government of Nunavut.	In Compliance	Active In Compliance	<p>In 2019, Baffinland focused exotic and invasive vegetation monitoring on surveying previously disturbed areas within and adjacent to the Project footprint using presence/absence sampling methods. Throughout the 2019 monitoring, garden tomato plants (<i>Solanum lycopersium</i>) were discovered near the sewage outflow station at the Mine Site. Due to required growing conditions and the Arctic environment, the plant was unable to develop flowers and not considered to be an invasive threat.</p> <p>Terrestrial Environment Mitigation and Monitoring Plan (2016)</p>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
38	Review and adjust all monitoring information and management plans annually and adjust as needed to prevent/reduce adverse project effects on vegetation.	In Compliance	Active In Compliance	Baffinland made several changes to the TEMP as a result of discussions at the TEWG meetings such as an expansion of the metals analysis and the addition of a soil moisture regime. Baffinland plans to continue this monitoring in accordance with the TEMMP and guidance by the TEWG in 2020. Terrestrial Environment Mitigation and Monitoring Plan (2016)
39	Develop a progressive revegetation program for disturbed areas no longer in use.	In Compliance	Active In Compliance	In 2019, Baffinland retained EDI to perform a desktop review of available practices to Arctic mine reclamation which highlighted several challenges such as the availability of organic topsoil, the probability of moisture retention and the availability of suitable plant/seed sources. This review indicated that the primary techniques focused on enhancing soil water and nutrient retention. Following a pilot study developed by EDI, 2 test areas were used to assess reclamation practices. These plots will be revisited in 2020 to evaluate the success of various methods. Interim Closure and Reclamation Plan (Baffinland 2018)
40	Include revegetation plans in the Site Reclamation Plan that promotes progressive reclamation compatible with the surrounding environment.	In Compliance	Active In Compliance	Provided in the Interim Closure and Reclamation Plan (2018). A Mine Closure Working group will be established in 2020 to further these discussions.
41	Maintain a 100-m naturally vegetated buffer between the high water mark of any fish-bearing water bodies and permanent quarries with the potential for acid rock	In Compliance	Active In Compliance	No new quarries were developed in 2019 and existing quarries maintained a 100 metre buffer from the high water mark to any fish bearing bodies. The 100 metre buffer from the high water mark to any fish bearing water bodies will be maintained in any future quarry development. Borrow Pit and Quarry Management Plan (2014)

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	drainage, unless otherwise approved.			Q1 Quarry Management Plan (2020) QMR2 Quarry Management Plan (2017)
42	Maintain a 30-m naturally vegetated buffer between the mining operation and adjacent water bodies.	In Compliance	Active In Compliance	Baffinland performs regular inspections during construction activities to ensure that all Project-related operations are greater than 31 m from any water body except where authorized under the Type 'A' Water License and DFO letters of Advice. In 2019, no Project-related operations were conducted within 30 m of a water body. Surface Water and Aquatic Ecosystems Management Plan (2020) Environmental Protection Plan (2016)
43	Submission of a Site Drainage and Silt Control Plan to the relevant authorities prior to the start of construction.	In Compliance	Active In Compliance	Drainage plans for Project sites and silt/sediment control measures used at the Project are outlined in the Project's Surface Water and Aquatic Ecosystem Management Plan (2020).
44	Meet or exceed guidelines for blasting thresholds set by Fisheries and Oceans Canada for the protection of fish and fish habitat.	In Compliance	Active In Compliance	No blasting occurred in 2019 within the required setback distances established by the DFO.
45	Adherence to the No-Net-Loss principle at all phases of the Project.	In Compliance	Active In Compliance	In 2019, Baffinland has focused its ongoing monitoring programs to assess the presence of fish, habitat quality and fish passage. 2019 Annual Report submitted to DFO summarizes the assessments made by the third-party Professional Fisheries Biologists as well as the corrective actions taken. 27 of 36 water crossings observed no fish passage of habitat issues. The remaining 9 (BG-29, BG-01, CV-106, CV-111, CV-114, CV-129, CV-216, CV-226 and BG-50) passages were blocked by a perched culverts or physical barriers. All instances were correct except for the perched culverts at CV-111 and CV-225 where

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				<p>step-pool rock ramps were not feasible. Additional efforts will be undertaken in 2020 to correct the perching concerns.</p> <p>Fish Habitat Monitoring -2019 Annual Report- Early Revenue Phase-Tote Road Upgrades (2019)</p>
46	Ensure runoff from fuel storage and maintenance facility areas, sewage and wastewater other facilities generating liquid effluent and runoff meet discharge requirements.	Non-Compliant	Active *Deficient – In progress	<p>Related to Term and Conditions 17 and 24.</p> <p>During freshet 2019, water quality was monitored at the Mine Site and along the Tote Road, throughout this monitoring, several Total suspended Solids (TSS) exceedances occurred along with 1 unauthorized release of sediment. These were reported to ECCC, CIRNAC NWB and NT-Nu Spill Line. At sampling conducted for the Tote Road Monitoring Program, 2 crossings with elevated TSS levels were also measured to have elevated TSS levels up stream which suggests the occurrence is natural. Baffinland did and will continue to follow the adaptive measures outlined in its Sedimentation and Dust Mitigation Action Plan.</p> <p>Baffinland also reported the same 5 effluent discharges that exceeded their criteria as mentioned in T&amp;C 17 &amp; 24 notes:</p> <p><b>May 1, 2019</b> - Exceedance of total ammonia (9.45mg/L) at MS-01B (Sailivik Camp); Baffinland believes this was a sampling error, subsequent samples confirmed that total ammonia met discharge criteria.</p> <p>The NIRB looks forward to receiving information on progress and/or improvements in Baffinland's 2020 Annual Report.</p> <p><b>November 12, 2019</b> – Exceedance of total ammonia (47mg/L) at MS-01B (Sailivik Camp); Baffinland believes this was due to temporary upset conditions and subsequent tests confirmed ammonia levels had returned to withing criteria.</p>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				<p><b>September 8, 2019</b> – Exceedance of total lead (0.00117mn/L) at the mobile Oily Water Treatment System (OWTS) while located at contaminated snow berm (MP-04A). The OWTS was subsequently halted due to freeze up and will be reassessed.</p> <p><b>2019</b> – General operation of the Waste rock Facility Water Treatment Plant (WRF WTP). Through 2019 sampling, 1 Exceedance of mean monthly concentration of TSS (15 mg/L) and 1 non-compliance of the MDMER grab sample criteria for TSS (30mg/L) Baffinland indicated the cause for several of the exceedances may be due to lab error or incorrect collection method; moving forward Baffinland continues to train employees and update Standard Operating Procedures to reduce preventable errors.</p> <p>Dust Mitigation Action Plan (2016)</p> <p>Fresh Water Supply, Sewage and Wastewater Management Plan (2020)</p> <p>Metal Mining Effluent Regulations Emergency Response Plan (2019)</p> <p>Sampling Program - Quality Assurance and Quality Control Plan (2020)</p> <p>Sedimentation Mitigation Action Plan (2016)</p> <p>Surface Water and Aquatic Ecosystem Management Plan 2020)</p> <p>Tote Road Earthworks Execution Plan (2017)</p>
47	Design and construct all Project infrastructure so as they do not prevent or limit the movement of water in fish bearing streams.	Non-Compliant	Active *Deficient – In progress	<p>In 2019, Baffinland hired a Professional Fisheries biologist consulting firm to assess fish bearing water crossings. Fish were observed in all known fish crossings except for CV-115 and CV-102 due to low flow conditions. 27 of 36 water crossings observed no fish passage of habitat issues. The remaining 9 (BG-29, BG-01, CV-106, CV-111, CV-114, CV-129, CV-216, CV-226 and BG-50) passages were blocked by a perched culverts or physical barriers. All instances were correct except for the perched culverts at CV-111 and Cv-225 where step-</p>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				pool rock ramps were not feasible. Additional efforts will be undertaken in 2020 to correct the perching concerns. Fish Habitat No Net Loss and Monitoring Plan (2007)
48	Engage with Fisheries and Oceans Canada and the QIA to explore Project specific thresholds for blasting that would exceed guidelines.	Non-Compliant	Active In Compliance	To date, there has been no need to undertake blasting in or near water. Should this become necessary, Baffinland committed to engaging the QIA and DFO.
48(a)	Conduct additional surveys for the presence of arctic char in freshwater bodies and ongoing monitoring of arctic char health where applicable, within watersheds proximal to the mine, Tote Road and Milne Inlet Port project development areas, including but not limited to, Phillips Creek, Tugaat and Qurluktuk. Consult with MHTO re: the design, timing, and location of proposed surveys and ongoing monitoring.	Non-Compliant	Active *Deficient – In Progress	Baffinland has documented in the 2019 Core Receiving Environment Monitoring Program (CREMP) that no adverse mine-related affects have been found regarding Arctic char. Baffinland have not directly engaged with the Mittimatalik Hunters and Trapper’s Organization regarding their monitoring plan; however, through the IIBA Baffinland supplied provided funding for the MHTO to complete their own freshwater monitoring but has not yet received any results.  <b>The NIRB encourages Baffinland to actively engage with the MHTO on the monitoring of fishes in the freshwater environment and the development of a complete monitoring program and its results and looks forward to further information in the 2020 annual report.</b>
<b>Terrestrial Environment</b>				
49	Establish a Terrestrial Environment Working Group (TEWG) to serve as an advisory body.	Partial Compliance	Active In Compliance	The TEWG was established in 2013. Baffinland’s 2019 Annual Report documents all TEWG meetings and rough transcripts. Development of updated Terms of Reference are currently under review by Parties and anticipated by end of 2020.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
50	Develop and implement a Project specific terrestrial monitoring plan.	In Compliance	Active In Compliance	In 2019, Baffinland prepared the Terrestrial Environment Mitigation and Monitoring Plan (TEMMP) which contains a detailed description of all terrestrial monitoring at the Project. This plan was also circulated to the TEWG for review and comments. Terrestrial Environment Mitigation and Monitoring Plan (2016)
51	Consider and, where appropriate, cooperate with relevant regional and/or community-based monitoring initiatives that raise issues or produce information pertinent to mitigating project-induced impacts. Give special consideration for supporting regional studies of population health and harvest programs for North Baffin caribou.	In Compliance	Active In Compliance	In 2018, Baffinland provided funding and logistical support for the Government of Nunavut's North Baffin Island Caribou population survey but there were no surveys planned for 2019. Baffinland has regularly engaged with several Federal, Territorial, and Non-Government Organizations including the Mittimatalik Hunters and Trapper's association through TEWG meetings.  Terrestrial Environment Mitigation and Monitoring Plan (2016) <i>Draft 2019 Terrestrial Environment Annual Monitoring Plan (2020)</i>
52	Initiate and develop a timeline to test and implement deterrence mechanisms for caribou near hazardous areas, within 3 months of issuances of the Project Certificate. Report information back to the Terrestrial working group.	Non-Compliant	Active *Deficient – In progress	Baffinland has initiated a stop work policy when wildlife is present to reduce hazardous conditions. Other mechanisms have been discussed in the TEWG meeting December 2013 such as: Inukshuks, electric fenced, wildlife fencing and berms; however, it was suggested within the TEWG that caribou interaction mitigations should be developed should Project-caribou interactions become a concern if the caribou population increases. <i>Draft 2019 Terrestrial Environment Annual Monitoring Report (2020)</i> Terrestrial Environment Mitigation and Monitoring Plan (2016)



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				<b>The NIRB looks forward to additional information regarding the further development of deterrents on site and details regarding the implementation of deterrents should caribou numbers increase.</b>
<b>53</b>	Proponent shall demonstrate all measures outlined in the condition to mitigate impacts to caribou. d) Is not yet active.	In Compliance	a), b), c), and e) Active In Compliance	Baffinland has created the Caribou Decision Tree as presented in the <i>Draft 2019 Terrestrial Environment Annual Monitoring Report</i> to detail actions to take if and when caribou are observed on site.  Terrestrial Environment Mitigation and Monitoring Plan (2016)
<b>54</b>	Provide an updated Terrestrial Environment Monitoring Plan which includes all aspects included in the condition.	In Compliance	Active In Compliance	The Terrestrial Environment Mitigation and Monitoring Plan is reviewed annually and updated as needed. Terrestrial Environment Mitigation and Monitoring Plan (2016)
<b>55</b>	Develop an adaptive management plan applicable to wolves and wolf habitats in collaboration with the Government of Nunavut.	In Compliance	Active In Compliance	No significant wolf population has been identified in the Project area and therefore work is on hold for now; however, protocols exist and are ready to be implemented should they be required. <i>Draft 2019 Terrestrial Environment Annual Monitoring Report.</i> Terrestrial Environment Mitigation and Monitoring Plan (2016)

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
56	Develop a progressive strategy for the recovery of terrestrial wildlife habitat that is consistent with the <i>Nunavut Wildlife Act</i> . To ensure progressive reclamation of disturbed wildlife habitat.	In Compliance	Active In Compliance	In 2019, Baffinland performed a pilot study which evaluated several approaches to revegetation. Baffinland further indicated that an Interim Mine Closure and Reclamation Plan (2018) was in place to support the rehabilitation of affected areas to viable and self-sustaining ecosystems/habitat that are functional. Baffinland is also planning for the establishment of a Mine Closure Working Group in 2020 to provide an opportunity for local communities, QIA, and other interested parties to discuss closure planning, research, and progressive reclamation.
57	Report annually on terrestrial environment monitoring efforts including information included in the condition.	In Compliance	Active In Compliance	<i>Draft</i> 2019 Terrestrial Environment Annual Monitoring Report (2020) Terrestrial Environment Mitigation and Monitoring Plan (2016)
58	Incorporate a review section in the NIRB annual report including the information outlined in the condition.	In Compliance	Active In Compliance	The 2019 <i>Draft</i> Terrestrial Environment Annual Monitoring Report. Terrestrial Environment Mitigation and Monitoring Plan (2016)
59	Ensure that aircraft maintain, whenever possible altitudes outlined in the condition. Develop measures to ensure all employees and subcontractors providing aircraft services are respectful of wildlife and Inuit harvesting that may occur in the Project development area.	Partial Compliance	Active *Deficient – In progress	Baffinland reports that their aircraft contracts ensure pilots maintain the minimum height requirements and that their pilots were 93 % compliant in 2019. Aircraft can deviate from these heights at the pilot's discretion for safety, slinging, surveying etc... If the pilot provides a rational for the low altitude, then Baffinland deems it to be compliant. This remains a contentious issue at the TEWG meetings with several parties. Baffinland has provided a summary of helicopter flight height deviations and their associated rational. Parties have requested through both the TEWG meetings and the 2019 Annual Report commenting period that Baffinland provide

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				greater detail of the rational provided by Pilots when deviating from these regulations. <i>Draft</i> 2019 Terrestrial Environment Annual Monitoring Report. Terrestrial Environment Mitigation and Monitoring Plan (2016)
60	Develop a blasting program to minimize the effects of blasting on terrestrial wildlife, prior to construction.	In Compliance	Active In Compliance	No known harm or disturbance has occurred to wildlife by blasting during the construction. Quarry Blasting Operations Management Plan (2013) Borrow Pit and Quarry Management Plan (2014) Environmental Protection Plan (2016)
61	Implement a stop work policy when wildlife in the area may be endangered by Project work, whenever practical and not causing human safety concerns.	In Compliance	Active In Compliance	Environment Mitigation and Monitoring Plan (2016) Environmental Protection Plan (2016)
62	Prohibit Project employees from transporting firearms to site and from operating firearms in the Project area for the purpose of wildlife harvest.	In Compliance	Active In Compliance	Baffinland policy prohibits employees from carrying firearms on site. In 2019, no incidences of Project personnel hunting or fishing within Baffinland's Project Development Area. Weapons on Site Policy (2019) Hunting and Harvesting Policy (2013)
63	Liaise with local Hunters and Trappers Organizations in advance of carrying out terrestrial wildlife surveys. Meet with the organizations in person annually to discuss wildlife monitoring.	In Compliance	Active In Compliance	Baffinland provided a list of engagements with all HTO's, Inuit Organization and Hamlets in 2019. Wildlife Monitoring and Mitigation programs are also reviewed at the TEWG meetings which have local HTO members in the group.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
64	Ensure the environment protection plan incorporates waste management provisions to ensure carnivores are not attracted to Project site(s).	Non-Compliant	Part A and B Active In Compliance	In 2019, Baffinland completed the construction of a fence around the landfill at Mary River to minimize windblown debris and keep wildlife out. There is also metal skirting around the base of accommodations buildings. Generally, wildlife interaction with site is low; however, as predicted in the FEIS, Arctic fox sightings have increased over the life of the Project as habituation has occurred. Baffinland has indicated their plans to expand the landfill as the project progresses and has had their plans approved by the Nunavut Water Board. The committed to keeping each cell enclosed throughout their expansions to ensure that there is always a perimeter fence around the facility. Environmental Protection Plan (2016) Waste Management Plan (2018)
<b>Birds</b>				
65	Ensure all employees at site receive bird awareness training (avoidance of nests and large concentrations of foraging and moulting birds).	In Compliance	Active In Compliance	Baffinland Site Environment Department Employees have continued to receive annually bird survey training. Environmental Protection Plan (2016)
66	Avoid bird Species at Risk and their nests; establish avoidance zones as per TEMMP.	In Compliance	Active In Compliance	No Species at Risk nests or eggs have been encountered during project activities. Terrestrial Environment Mitigation and Monitoring Plan (2016)
67	Ensure mitigation and monitoring strategies for bird Species at Risk are updated for consistency with applicable status reports, recovery	In Compliance	Active In Compliance	Baffinland coordinates with Environment and Climate Change Canada to develop mitigation and monitoring strategies for Species at Risk through the TEWG meetings. In 2019 Baffinland, ECCC and CWS deployed 9 passive autonomous recording units to detect Red Knot vocalizations. Baffinland indicated that no Red Knots were detected, therefore this monitoring would not be occurring in 2020.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	strategies, action plans and management plans.			ECCC has further indicated in their comments on the 2019 Annual Report that Red Knot surveys can be suspended for the Northern RSA but they should be continued for the southern RSA. Terrestrial Environment Mitigation and Monitoring Plan (2016)
68	Install flashing red, red strobe or white strobe lights and guy-wire deterrents on communications towers. Consider reducing lighting when possible in areas where it may serve as an attractant to birds or other wildlife.	In Compliance	Active In Compliance	Reflectors have been installed on guy wires of current communications towers and will continue to be done in future construction activities. Strobe lights were found to not be relevant mitigation measures since bird are mostly present during the period of 24 hour sunlight. Draft 2019 Terrestrial Environment Annual Monitoring Report Terrestrial Environment Mitigation and Monitoring Plan (2016).
69	Prior to bird migrations and nesting, identify and install nesting deterrents (e.g. flagging) to discourage birds from nesting that will be disturbed by construction/clearing activities.	In Compliance	Active In Compliance	In 2019 there were no attempted nesting attempts in cleared area and no deterrents were used. Draft 2019 Terrestrial Environment Annual Monitoring Report Terrestrial Environment Mitigation and Monitoring Plan (2016).
70	Protect any nests found (or indicated nests) with a buffer zone as per setback distances outlined in the TEMMP.	In compliance	Active In Compliance	13 pre-clearing surveys were conducted between May 31 and August 5, 2019 and no nests were located. Terrestrial Environment Mitigation and Monitoring Plan (2016) <i>Draft 2019 Terrestrial Environment Annual Monitoring Report</i>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
71	Subject to safety requirements, the Proponent shall require all project related aircraft to maintain a cruising altitude of at least:	Partial Compliance	Active *Deficient – In progress	Terrestrial Environment Mitigation and Monitoring Plan (2016)
	a. 650 m during point to point travel when in areas likely to have migratory birds			There were no observed concentrations of migratory birds in 2019; however, the minimum flight altitude of 650 m was determined as most areas where Baffinland operated from June through September were likely to have migratory birds.
	b. 1100 m vertical and 1500 m horizontal distance from observed concentrations of migratory birds			No concentrations observed
	c. 1100 m over the area identified as a key site for moulting snow geese during the moulting period (July-August), and if maintaining this altitude is not possible, maintain a lateral distance of at least at least 1500 m from the boundary of this site			Baffinland deems that their pilots were 93 % compliant on flight altitude requirements when pilots rational was taken into consideration. In general, helicopter flight frequency and altitude remain a contentious issue at the TEWG meetings with several parties. Baffinland has provided a summary of helicopter flight height deviations and their associated rational. Parties have requested through both the TEWG meetings and the <i>2019 Annual Report</i> commenting period that Baffinland provide greater detail of the rational provided by Pilots when deviating from these regulations.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
72	Ensure that pilots are informed of minimum cruising altitude guidelines and that a daily log or record of flight paths is maintained and available for regulatory authorities.	Partial Compliance	Active *Deficient – In progress	Pilots are contracted to follow flight altitude regulations set in place by Baffinland through the Project Certificate. However, pilots are not fully compliant, some non-compliances are due to flight requirements such as weather, movement of personnel and equipment, pilot safety concerns or alter rational provided. From Baffinland's perspective, their pilots are 93 % compliance; however, they deem an event as compliant if there was a rational provided by the pilot.
73	Develop detailed and robust mitigation and monitoring plans for migratory birds taking into consideration input from relevant organizations.	In Compliance	Active In Compliance	Regular annual monitoring programs were carried out in 2019 including the addition of passive acoustic monitoring for Red Knots. Terrestrial Environment Mitigation and Monitoring Plan (2016) <i>Draft</i> 2019 Terrestrial Environment Annual Monitoring Report <i>Draft</i> 2019 Ship-based Observer (SBO) Monitoring Report
74	Develop and update relevant monitoring plans for migratory birds prior to construction including the key indicators included in the condition.	In Compliance	Active In Compliance	Regular annual monitoring programs were carried out in 2019 including the addition of passive acoustic monitoring for Red Knots. Terrestrial Environment Mitigation and Monitoring Plan (2016) <i>Draft</i> 2019 Terrestrial Environment Annual Monitoring Report <i>Draft</i> 2019 Ship-based Observer (SBO) Monitoring Report
75	Report annually on terrestrial habitat loss due to the Project to verify impact predictions and project footprint.	In Compliance	Active In Compliance	There was no Project construction carried out in 2018 outside of the PDA. <i>Draft</i> Terrestrial Environment Annual Monitoring Report Terrestrial Environment Mitigation and Monitoring Plan (2016) Environmental Protection Plan (2016)



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
<b>Marine Environment</b>				
<b>76</b>	Develop a comprehensive environmental effect monitoring program to address concerns and identify potential impacts on the marine environment.	In Compliance	Active In Compliance	See Baffinland's 2019 Annual Report for a full list of results from their 2019 monitoring programs. <i>Draft 2019 Marine Environmental Effects Monitoring Program (MEEMP)</i>
<b>77</b>	Establish a Marine Environment Working Group.	In Compliance	Active In Compliance	The MEWG was established in 2013 and met 3 times in 2019 (1- in person, 2 teleconference) to guide and review the development of the MEEMP and other marine monitoring efforts.
<b>78</b>	Update baseline information for landfast ice using a long-term dataset and with inter-annual variation.	In Compliance	Active Deficient – In progress	In 2011, an ice conditions study was completed by ENFOTEC Technical Services Inc. This ice study is since updated periodically, most recently in 2015 for the ERP and in 2016 for the Phase 2 proposal. This study will continue to be updated as new data becomes availability.
<b>79</b>	Provide the Canadian Hydrographic Services with bathymetric data and other information in support of Project shipping where possible.	In Compliance	Active In Compliance	Baffinland has entered into a collaborative agreement with Canadian Hydrographic Survey for their nautical charting program and collecting additional bathymetry data around the ore dock in 2016.
<b>80</b>	Prior to commercial shipping of iron ore, a detailed risk assessment is to be conducted for Project related shipping accidents.	In Compliance	Active In Compliance	Baffinland retains the services of a contractor to respond to potential spills along the shipping route within Milne Inlet and maintains equipment at the Milne Inlet facility. Oil Pollution Emergency Plan training was conducted with Baffinland staff in 2019 as well as a mock spill exercise was performed to ensure spill readiness. Baffinland is committed to conducting annual spill response exercises and training.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				Emergency Response Plan (2018) Oil Pollution Emergency Plan - Milne Inlet OPEP (2017) Shipping and Marine Wildlife Management Plan (2016) Spill at Sea Response Plan (2015) Spill Contingency Plan (2017)
81	Reassess the potential for ship wake impacts to cause coastal change following changes to the proposed shipping route.	Partial Compliance	Northern Route Active In Compliance	There were no significant changes to the proposed shipping routes in 2019 and as such, no reassessment has occurred. Should changes to the shipping route be proposed, Baffinland is committed to undertake the required assessment.
			Southern Route Not Yet Active	
82	Encouraged to have ore carriers to subjected to sea trials to measure wake characteristics at various speeds.	Not Applicable	*Not Yet Active Not Yet Applicable	Baffinland suggests that this T&C was intended for the purpose-built ore-carriers on the Project and largely for the southern shipping route. Since the current operation is using commercially available ships in the northern route, no sea-trials have been conducted to date but they remain committed to the performing the sea-trials to assess erosion due to ship wake should they use purpose-built vessels in the future.
83	Install tidal gauges at Steensby and Milne Ports to monitor sea levels and storm surges.	Partial Compliance	Milne Inlet *Active Deficient – In progress	Related to T&C 1.  Baffinland collected data in 2014 and removed the gauges for 2015 and 2016. Baffinland has re-installed the tidal gauge system at Milne Port during the 2017, 2018 and 2019 open-water season from June-October. Baffinland noted that at Milne Port, the tidal gauges detected no observable sea level rise from 2017- 2019.  <b>With no observable change noted, Baffinland has determined that tidal gauge installation will not be undertaken in 2020 but will be revaluated in future years.</b>
			Steensby Inlet Not Yet Active	

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				At Steensby Inlet Baffinland has not installed any tidal gauges as there is no shipping from this area yet.
83 (a)	Identify potential for and conduct monitoring to identify effects of sediment redistribution associated with construction and operation at Milne Port	Partial Compliance	Active *Deficient – In progress	<p>In 2018, Baffinland conducted hydrodynamic and sediment transport modelling near Milne Port. In 2019, Golder conducted a background review of hydrology and geomorphology in the Phillips Creek estuary to better understand the observed fluvial processes. Baffinland further provided documentation regarding hydrodynamic modelling at Milne Port as part of Phase 2 Development Proposal document submission.</p> <p><i>Draft 2019 Marine Environmental Effects Monitoring Plan (2018).</i></p> <p><b>The NIRB reminds Baffinland that documents submitted as part of the Phase 2 Proposal do not automatically meet requirements for the monitoring of the approves Project. If documents are to be considered as part of the ongoing monitoring, they need to be submitted as stand-alone documents.</b></p>
84	Update sediment redistribution modelling once ship design has been completed and sampling should be undertaken to validate the model and inform sampling sites and the monitoring plan.	Non- Compliant	Not Yet Active Not Yet Applicable	<p>Baffinland has stated that this condition is not currently applicable as it related to the use of purpose-built vessels that have not yet been used. Ship wake modelling was performed in 2018 for the Phase 2 suggest that wakes are expected to be minimal along the Northern Shipping Route. As Baffinland have not performed ship wake modelling for the southern route and no sediment dispersion modelling was completed for Milne Port shipping.</p> <p><b>The NIRB reminds Baffinland that documents submitted as part of the Phase 2 Proposal do not automatically meet requirements for the monitoring of the approves Project. If documents are to be</b></p>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				<b>considered as part of the ongoing monitoring, they need to be submitted as stand-alone documents.</b>
85	Develop a monitoring plan to verify Project impact predictions associated with sediment redistribution resulting from propeller wash in shallow water locations along the shipping route. Additional mitigation measures are required if monitoring detects negative impacts.	Not Applicable	*Not Yet Active Not Yet Applicable	Baffinland believes this concerns the southern shipping route, which is inactive. Baffinland will develop a monitoring plan to verify predictions of sediment redistribution resulting from propeller wash in shallow locations along the shipping route when the southern shipping route is active.
86	Prior to commercial shipping of iron ore, use more detailed bathymetry collected from Steensby and Milne Inlets to model anticipated ballast water discharges from ore carriers. This information should be used to update ballast water discharge impact predictions and sampling should be conducted to validate the model.	Partial compliance	Milne Inlet Active *Deficient – In progress	2018 Ballast water dispersion modelling are presented in TSD 18 as part of Baffinland's FEIS Addendum for the Phase 2 submission. This work was completed for the Milne Port portion of the project but has yet to be completed for Steensby Port since that portion of the Project is inactive.  <b>The NIRB reminds Baffinland that documents submitted as part of the Phase 2 Proposal do not automatically meet requirements for the monitoring of the approved Project. If documents are to be considered as part of the ongoing monitoring, they need to be submitted as stand-alone documents.</b>
			Steensby Inlet Not Yet Active	
87	Develop a detailed monitoring program at several sites over the long term to evaluate	In Compliance	Milne Inlet Active In Compliance	The Marine Environmental Effects Monitoring Plan (MEEMP) in place and carried out in 2019. Aquatic invasive species monitoring yielded 3 new taxa that were not present during baseline studies;

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	changes to marine habitat and organisms and to monitor for non-native introductions resulting from Project-related shipping. Initiate program several years prior to any ballast water discharge at Steensby or Milne Inlets.		Steensby Inlet Not Yet Active	however, none of these taxa were identified as invasive or non-indigenous.
88	Prior to commercial shipping of iron ore, provide update risk analysis regarding ballast water discharge to assess the adequacy of treatment and implications on the receiving environment.	In Compliance	Active In Compliance	A Risk Assessment undertaken in 2013 indicated that the shipping operations through Milne Inlet were unlikely to increase the potential for AIS introductions because of ballast water discharges or ship hull fouling at Milne Port.  Ballast Water Management Plan (2019)
89	Develop and implement a ballast water management program that may include the treatment and monitoring of ballast water discharges in a manner consistent with or exceeds applicable regulations. The management program should reflect all inclusions outlined in the condition.	In Compliance	Milne Inlet Active In Compliance	In 2019, 9 of the 41 ore carriers that services Milne Port has International Maritime Organization (IMO) approved D-2 ballast water treatment systems installed on board as part of a Canada's ratification of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (IMO 2017) that entered into force on September 8, 2017 (IMO 2017). Ballast Water Management Plan (2019)  Steensby Inlet not yet active

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
90	Incorporate into the Project Shipping and Marine Wildlife Management Plan provisions to achieve compliance with the requirements under the International Convention for the Control and Management of Ships Ballast Water and Sediment (2004) or its replacement regulation as amended.	In Compliance	Active In Compliance	Ballast Water Management Plan (2019)  Steensby Inlet not yet active
91	Develop a detailed monitoring plan for Steensby and Milne Inlets for fouling that complies with all applicable regulatory requirements and guidelines issued by Transport Canada.	In progress	<div>Milne Inlet Active In Compliance</div> <div>Steensby Inlet Not Yet Active</div>	<p>Baffinland indicated that ship hull biofouling monitoring was included in the <i>Draft</i> Marine Environmental Effects Monitoring Plan (MEEMP, 2019) and its associated Aquatic Invasive Species (AIS) Program. This program was undertaken using ROV's equipped with high resolution cameras. This work was only completed at Milne Inlet since the Steensby Inlet aspect of the Project is inactive. The Board is upgrading the status of this T&amp;C to in compliance due to the need for active shipping required to complete this activity.</p> <p>Compared to other T&amp;C's (e.g., #1) that relate to both Steensby and Milne Inlet and can be done passively with the presence of vessels or not.</p>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
92	Ensure that the Proponent maintains the necessary equipment and trained personnel to respond to all sizes of potential spills in a self-sufficient manner.	In Compliance	Active In Compliance	Baffinland has spill response plans in place and spill response training exercises are carried out annually. Emergency Response Plan (2018) Spill Contingency Plan (2018) Oil Pollution Emergency Plan (2020) Spill at Sea Response Plan (2015)  Steensby Inlet not yet active
93	Prior to construction, based on vessel selection, reassess the risk analysis of using vessel - based fuel storage with the inclusions outlined in the condition.	Not Applicable	*Not Yet Active Not Yet Applicable	The use of vessel-based fuel storage is not currently proposed.
94	Consult directly with affected communities regarding its plans for over-wintering of fuel in Steensby Inlet.	Deferred	*Not Yet Active Not Yet Applicable	Overwintering of fuel at Steensby Inlet is not currently proposed.
95	Meet or exceed all regulatory regulations and requirements to the practice of overwintering of a fuel vessel at Steensby Inlet with reporting to NIRB and Transport Canada.	Deferred	*Not Yet Active Not Yet Applicable	Overwintering of fuel at Steensby Inlet is not currently proposed.



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
96	Update the NIRB on the results of all compliance monitoring and site inspections undertaken by government agencies for the overwintering of a fuel vessel at Steensby Inlet.	Deferred	*Not Yet Active Not Yet Applicable	Overwintering of fuel in Steensby Inlet is not currently proposed.
97	Prior to commercial shipping of iron ore, conduct fuel spill dispersion modelling that minimally includes those items outlined in the condition.	In Compliance	Active In Compliance	Oil spill modelling was conducted in 2015 and there have been no changes to the Project's shipping practices since. Emergency Response Plan (2018) Spill at Sea Response Plan (2018)  Steensby Inlet not yet active
98	Incorporate the results of revised fuel dispersion modelling into its impact predictions for the marine environment and the spill response and emergency preparedness plans.	Complete	Active *In Compliance	Fuel Spill modelling was conducted in 2015 and informed several spill-response plans. Spill at Sea Response Plan (2018) Emergency Response Plan (2018) If there are changes to the Project, the Proponent may be required to update its predictions and/or associated plans and submit to the NIRB.
<b>Marine Wildlife</b>				
99	With the Marine Environment Working Group, consider and identify priorities for conducting supplemental baseline assessments for the items outlined in the condition.	In Compliance	Active In Compliance	In compliance through the ERP phase of the project and its associated Marine Environmental Effects Monitoring plans (2016).  Monitoring activities in Steensby Inlet are inactive.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
100	Update the Project Shipping and Marine Wildlife Management plan to include avoidance of polynyas and mitigation measures designed for potential fuel spills along the shipping lane during the winter months.	Not Applicable	Milne Inlet *Active Deficient – In progress	Baffinland indicated that there is currently no winter shipping or ice breaking occurring as part of the Mary River Project so there is no need to address fuel spills during winter months in the Shipping and Marine Wildlife Management Plan (2016).  Steensby Inlet not yet applicable
101	Incorporate all items outlined in the condition into the appropriate monitoring plans.	Applicable items are complete for 2018. Some items are Not applicable in 2018.	Milne Inlet Active In Compliance	Baffinland has been compliant with Terms and Conditions that apply to Milne Inlet but not for Steensby as Steensby is inactive. <i>Draft 2019 Marine Environmental Effect Monitoring Program and AIS Monitoring Report</i> <i>Draft 2019 Ship-based Observer Report</i> <i>Draft 2019 Marine Mammal Aerial Survey Report</i> <i>Draft 2017-2018 Integrated Narwhal Tagging Study</i> <i>Draft Bruce Head Short-based Monitoring Report</i> <i>Draft 2019 Passive Acoustic Monitoring Report</i>
			Steensby Inlet *Not Yet Active	
102	Ensure that routing of project vessels is tracked and recorded for both the southern and northern shipping routes, with data made real-time available to communities in Nunavut and Nunavik.	In Compliance	Active In Compliance	Minute by minute vessel information is made publicly available via the Baffinland website and through Baffinland's Shipping Monitor's office in the Mittimatalik Hunters and Trappers Organization building in Pond Inlet  Steensby Inlet not yet active

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
103	Report annually to the NIRB regarding project related ship track and sea-ice information including all items outlined in the condition.	In Compliance	Active In Compliance	Baffinland has reported no significant deviations from the nominal shipping route in 2019 by Project Ore carriers and a summary and rational for any minor deviations is indicated in their 2019 Annual Report. <i>Draft 2019 Ship-Based Observer Program</i> <i>Draft 2019 Marine Mammal Aerial Survey</i> Steensby Inlet not yet active
104	Plan shipping routes to Steensby Port in accordance with the items outlined in the condition. Summarize all incidences of significant deviations from the nominal shipping route presented in the FEIS to/from Milne and Steensby Ports.	In compliance	Milne Inlet Active In Compliance	There were no significant deviations from nominal shipping routes to/from Milne Port in 2019 and a summary and rational for any minor deviation is provided.  Steensby Port is current inactive.
			Steensby Inlet *Not Yet Active	
105	Ensure that measures to reduce the potential for interaction with marine mammals particularly in Hudson Strait and Milne Inlet area identified and implemented prior to commencement of shipping operations.	Partial Compliance	Active *Deficient – In progress	Interactions between marine mammals and ships are monitored using Bruce Head as part of the Narwhal Monitoring Program, the Ship-based Observer Program and various other marine monitoring programs. Ore carriers rarely exceeded 9 knots along the northern shipping route and follow up was completed if excessive speeds were noted.  No activity took place at Steensby port in 2019.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
106	Ensure that shipboard observers are employed during seasons where shipping occurs and provided with the means to effectively carry out the duties. The role of shipboard observers should be taken into consideration in the design of any Project purpose-built ships.	Partial Compliance	Active *Deficient – In progress	Baffinland's Ship-based Observer Program included placing observers on board the <i>MSV Botnica</i> which spotted ringed seal, harp seal, bowhead whale, bearded seal, Polar Bear, and beluga whale. A frequent critique of this program through both the MEWG and Annual Report comments is that this monitoring program is only run using ice-breakers during shoulder season shipping. Parties are concerned that the monitoring is not taking place at the height of the shipping season, a time when shipping is most likely to have an impact on marine mammals. Because the purpose-built ships have yet to be commissioned by Baffinland, the <i>MSV Botnica</i> acts as a stand in.
107	Revise the proposed 'surveillance monitoring' to improve the likelihood of detecting strong marine mammal, seabird or seaduck responses occurring too far ahead of the ship to be detectable by observers aboard the ore carriers.	In Progress	Active *Deficient – In progress	Baffinland has indicated that their Ship-based Observer Program is their main program for wildlife observation through the Northern Shipping Corridor and they provide the observation results from their program in 2019; however, they do not list any updates to the surveillance monitoring such as those suggested in the Project Certificate to detected wildlife responses that are too far ahead of the ship to be detectable by on-board observers. <i>Draft 2019 Ship-based Observer Program</i>  Southern shipping route not yet active
108	Ensure that data produced by the surveillance monitoring program is analyzed by experienced analysts (in addition to being discussed as proposed in the FEIS) to maximize effectiveness in providing baseline information	Partial Compliance	Northern Route Active *Deficient – In progress	See NIRB notes from T&C 107.  <i>Draft 2019 Ship-based Observer Program</i>
			Southern Route Not Yet Active	

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	and/or detecting potential effects. Data from the long-term monitoring should be treated with the same rigor.			
109	Conduct a monitoring program to confirm the predictions in the FEIS with respect to disturbance effects from ships noise on the distribution and occurrence of marine mammals.	Partial Compliance	Active *Deficient – In progress	Baffinland uses the Ship based observer program and the Bruce head shore-based monitoring program to confirm FEIS predictions in Milne Inlet. No Studies were conducted in Hudson Straight, Foxe Basin or Steensby Inlet. <i>Draft 2019 Marine Mammal Aerial Survey</i> <i>Draft 2017–2018 Integrated Narwhal Tagging Study</i> <i>Draft Bruce Head Shore-based Monitoring Program</i> <i>Draft 2019 Passive Acoustic Monitoring Program</i>  Southern shipping route not yet active
110	Immediately develop a monitoring protocol that includes acoustical monitoring to assess short, long term and cumulative effects of vessel noise on marine mammals. Work with the MEWG to identify appropriate early warning indicators that will ensure rapid identification of negative impacts along southern and northern shipping routes.	Partial Compliance	Active *Deficient – In progress	As a result of the Board’s 2018-2019 Recommendations, Baffinland has increased their effort to establish Early Warning Indicators through the Marine Environment Working Group Meetings. Baffinland has provided suggestions to the MEWG on the function EWI’s but has struggled to get written feedback on those indicators. At the June 2020 MEWG meeting, Baffinland indicated that in order to move into compliance on this T&C, they would be submitting something to the NIRB this monitoring year. The NIRB received this submission in August 2020; with the EWI selection of the decrease in proportion of immature Narwhal. The Board is pleased with the progress being made on the topic of EWI’s but encourages further discussion and feedback from members of the MEWG regarding the EWI selected by Baffinland. Further, the selected EWI is a behavioural response that has potential to be cause by increased vessel noise; however, the current description

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
				<p>and monitoring of this EWI does not clearly demonstrate direct causation between a decrease in proportion of immature Narwhal and increase in vessel noise. <b>NIRB requests that Baffinland further explain the direct link between to better understand the selection of this EWI. NIRB notes that Baffinland has several years of data on this variable and is looking forward to reviewing subsequent reports on the subject matter.</b></p> <p>Technical Memo: Early Warning Indicators for Marine Mammals (2020)  <i>Draft 2019 Passive Acoustic Monitoring Program.</i></p> <p>Southern shipping route not yet active</p>
111	Develop clear thresholds for determining if negative impacts as a result of vessel noise is occurring.	Partial Compliance	Active *Deficient – In progress	<p>Baffinland has continued to retain Jasco Applied Sciences to run the Passive Acoustic Monitoring Program. Through consultation with the MEWG members, the development of thresholds for determining negative impacts is ongoing.  <i>Draft 2019 Passive Acoustic Monitoring Program</i></p> <p>Southern shipping route not yet active</p>
112	Prior to commercial shipping of iron ore, in conjunction with the MEWG, develop a monitoring protocol that includes acoustical monitoring that provides an assessment of the negative effects of vessel noise on marine mammals. Consideration of early warning	Partial Compliance	Active *Deficient – In progress	<p>See Comments on T&amp;C 110  <i>Draft 2019 Passive Acoustic Monitoring Program</i></p>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	indicators and thresholds of impacts should be included.			
113	Conduct monitoring of marine fish and fish habitat including monitoring for Arctic Char stock size and health condition in Steensby and Milne Inlets, as recommended by the MEWG.	In Compliance	Active In Compliance	Baffinland has been monitoring fishes and fish habitat (including Arctic char) in consultation with the Marine Environment Working Group through the Marine Environmental Effects Monitoring and Aquatic Invasive Species Program.  Steensby Inlet not yet active
114	In the event of the development of a commercial fishery in Steensby Inlet or Milne Inlet areas, in conjunction with the MEWG, shall update the monitoring program for fish and fish habitat to ensure that the ability to identify Arctic Char stock(s) and any changes in stock size and structure of affected stocks and fish health is maintained to address any monitoring issues relating to the commercial stock fishery.	In Compliance	Active In Compliance	There are no commercial fisheries located in Steensby or Milne Inlet. Baffinland will adapt its monitoring programs accordingly should a commercial fishery be developed.  Steensby Inlet not yet active
115	Continue to explore off-setting options in both the freshwater and marine environment to offset serious hard to fish which will result from the	In Compliance	Active In Compliance	Baffinland has engaged with the most affected communities throughout the regulatory process and afterwards regarding habitat offset of the Ore dock. Construction of a new freight dock began in 2019 and Baffinland is currently seeking an extension with DFO to complete the habitat offset measures. Monitoring results from the



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	construction and infrastructure associated with the project.			Milne Port Ore dock offsetting activities have proven to be effective at supporting biological activity.  Steensby Inlet not yet active
116	Prior to construction, develop mitigation measures to minimize the effects of blasting on marine fish and fish habitat, marine water quality and wildlife that includes compliance with the Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters.	Not Applicable	*Not Yet Active Not Yet Applicable	Blasting in the marine environment has not occurred during the life of the project. If required, Baffinland will develop plans with the MEWG and DFO.
117	Ensure that blasting in, and near, marine water shall only occur during periods of open water. Blasting in, and near, fish-bearing freshwater should occur to the greatest degree possible in open water. Blasting during ice-covered periods must meet requirements established by Fisheries and Oceans Canada.	Not Applicable	*Not Yet Active Not Yet Applicable	Blasting in the marine environment has not occurred during the life of the project. If required, Baffinland will develop plans with the MEWG and DFO. Surface Water and Aquatic Ecosystem Management Plan (2020) Quarry Blasting Operations Management Plan (2013)
118	Prior to construction, incorporate into the appropriate mitigation plan,	In Compliance	Active In Compliance	Ore docks were constructed at Milne Port in 2014 and were fully compliant with marine environment monitoring thresholds as per the 2014 Aquatic Effects Management Plan.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	thresholds for the use of specific mitigation measures meant to prevent or limit marine wildlife disturbance.			
119	In conjunction with the MEWG, monitor ringed seal birth lair abundance and distribution for at least two years prior to the start of ice-breaking to develop a baseline, with continue monitoring over the life-time of the project.	Deferred	Not Yet Active Not Yet Applicable	No winter shipping has occurred during the current phase of the Project.
120	Ensure, subject to vessel and human safety, that all Project shipping adhere to mitigation measures outlined in the condition for the protection of marine wildlife.	In Compliance	Active In Compliance	In 2019, Baffinland ships noted no deviation from the nominal shipping route and most ships were compliant with the new 9 knot speed limit. Baffinland will continue to monitor live ship track data to ensure adherence to the Shipping and Marine Wildlife Management Plan (2016).
121	Immediately report any accidental contact by Project vessels with marine mammals or seabird colonies to Fisheries and Oceans Canada and Environment Canada, respectively.	In Compliance	Active In Compliance	There were no observations of accidental contact between project vessels and marine mammals; however, one sea-bird strike occurred during the Ship-based Observer Program. The strike was believed to be the result of low visibility and was appropriately reported.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
122	Summarize and report annually to the NIRB regarding accidental contact by Project vessels with marine mammals or seabird colonies through the applicable monitoring report.	In Compliance	Active In Compliance	There were no observations of accidental contact between project vessels and marine mammals; however, one sea-bird strike occurred during the Ship-based Observer Program. The strike was believed to be the result of low visibility and was appropriately reported.
123	Provide sufficient marine mammal observer coverage on Project vessels to ensure that collisions with marine mammals and seabird colonies are observed and reported throughout the lifecycle of the Project. The marine wildlife observer protocol should include those items outlined in the condition.	In Compliance	Active In Compliance	Baffinland uses the Ship-based Observer Program to monitor for marine mammal and sea-bird observations. <i>Draft 2019 Ship-based Observer Program</i>
124	Prohibit all Project employees from recreational boating, fishing and harvesting of marine wildlife in Project areas, including Steensby and Milne Inlets.	In Compliance	Active In Compliance	No incidences of Project personnel hunting or fishing within the Project Development Area occurred in 2019. Baffinland Hunting and Harvesting Policy (2016) Environmental Protection Plan (2016)

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
125	Prior to the use of acoustic deterrent devices, carry out consultations with communities along the shipping routes and nearest to Steensby and Milne Inlet Ports to assess acceptability of the devices. Feedback from consultation should be incorporated into the mitigation plan.	Not Applicable	*Not Yet Active Not Yet Applicable	No acoustic deterrents have used on the Project to date.
125(a)	Consult with potentially affected communities and groups, particularly the Hunters and Trappers Organizations regarding the identification of Project vessel anchor sites and potential areas of temporary refuge for Project vessels along the shipping routes within the Nunavut Settlement Area. Feedback from the consultation should be incorporated.	Partial Compliance	Active *Deficient – In progress	Baffinland continued to engage with the Mittimatalik Hunters and Trappers Organization and the Hamlet of Pond Inlet regarding vessel anchorage locations in 2019. However, communities remain unhappy with several anchorage locations, specifically those at Ragged Island and the community members would like those locations to be changed.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
126	Design monitoring programs to ensure that local users of the marine area in communities along the shipping route have opportunity to be engaged throughout the life of the Project in assisting with monitoring and evaluating potential Project-induced impacts and changes in marine mammal distributions.	In Compliance	Active In Compliance	Baffinland indicated that 23 Inuit (20 from Pond Inlet) were employed for the 2019 monitoring season. These researchers took part in the Passive Acoustic Monitoring Program, the Ship-based Observer Program, the Shore-based Observer Program and several other programs.
127	Ensure that communities and groups in Nunavik are kept informed of Project shipping activities and are provided with opportunity to participate in the continued development and refinement of shipping related monitoring and mitigation plans.	In Compliance	Active In Compliance	Baffinland provides real time information using <i>Exact Earth</i> on all Project vessels through their website, <a href="http://www.baffinland.com">www.baffinland.com</a> . In 2019, Baffinland also hired 2 shipping monitors to work in their office in Pond Inlet.
128	Consult with local communities as fish habitat off-setting options are being considered and demonstrate incorporation of this input in the design of the Fish Habitat Off-Setting Plan.	Partial Compliance	Active In Compliance	In 2019, Baffinland continued its consultation with local community members and no significant offset measures were identified through these meetings regarding the construction of the Ore Dock or the Freight Dock at Milne Inlet. DFO inspected the Freight Dock during its construction to ensure regulations were being met and protocols followed.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
<b>Population Demographics</b>				
<b>129</b>	Encouraged to engage in the work of the Qikiqtaaluk Socio-Economic Monitoring Committee along with other agencies and affected communities, endeavoring to identify areas of mutual interest into a collaborative monitoring framework that includes socio-economic priorities related to the Project, communities and the North Baffin region as a whole.	In Compliance	Active In Compliance	Baffinland's 2019 Socio-Economic Monitoring Report assesses the socio-economic performance of the Project annually. Report has revealed positive, negative and inconsistent results when compared to the initial predictions of the FEIS. Baffinland suggests that longer term monitoring will be necessary to draw firm conclusions. Socio-Economic Monitoring Plan (2019)
<b>130</b>	Consider establishing and coordinating with smaller socio-economic working groups to meet Project specific monitoring requirements throughout the life of the Project.	In Compliance	Active In Compliance	Baffinland has continued to engage with Qikiqtaaluk Socio-Economic Monitoring Committee, the Socio-Economic Monitoring Working Group, the Government of Nunavut, the Government of Canada, and the Qikiqtani Inuit Association to help meet specific monitoring requirements. The 2019 meetings were as follows: March 6, 2019 (SEMWG), May 14, 2019 (site tour, QSEMC), May 15-16 (QSEMC meeting), May 15, 2019 (SEMWG) Socio-Economic Monitoring Plan (2019)
<b>131</b>	The Qikiqtaaluk Socio-Economic Monitoring committee is encouraged to engage in monitoring of demographic changes including the movement of people into	In Compliance	Active In Compliance	Demographic trend changes have been indicated and detailed in Baffinland's 2019 Socio-economic Monitoring Report.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	and out of the North Baffin communities and the territory.			
132	Encouraged to partner with other agencies in the North Baffin region, the Municipal Training Organization and the Government of Nunavut in developing/implementing programs which encourage Inuit to remain living in their home communities while seeking ongoing and progressive training and development.	In Compliance	Active In Compliance	In 2019, Baffinland has worked on and provided several training opportunities in partnership with the Qikiqtani Inuit Association such as: Q-Step, Community Based Work Readiness Training, On-site Work readiness training, Apprenticeships, Heavy Equipment Training, and support for local businesses Socio-Economic Monitoring Plan (2019)
133	Encouraged to work with the Qikiqtaaluk Socio-Economic Monitoring committee and with the Government of Nunavut and other relevant stakeholders to design and implement a voluntary survey to be completed by its employees on an annual basis in order to track housing status and migration intentions. Non-confidential findings are to be reported to the Government of Nunavut and the NIRB.	In Compliance	Active In Compliance	In January/February of 2019, 71 surveys were completed by Inuit employees and contractors pertaining to home ownership, financial literacy and residence change in and out of the LSA within the last 12 months. Socio-Economic Monitoring Plan (2019)



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
134	Provide in the annual report to the NIRB a summary of employee origin information including information outlined in the condition.	In Compliance	Active In Compliance	Baffinland has collected data on the origin, number and ethnicity of employees and contractors who work on the Project in 2019. 2019 Socio-Economic Monitoring Report
<b>Training and Education</b>				
135	Encouraged to consider offering additional options for work/study programs available to Project employees.	In Compliance	Active In Compliance	Baffinland employs an Inuit Employment and Training Specialist to work with the IIBA Joint Management Committee to both work on and create training opportunities on site and in the communities.
136	Encouraged to work with training organizations and/or government departments offering mine-related or other training in order to provide additional training opportunities for employees which are transferable and meaningful.	In Compliance	Active In Compliance	Baffinland works in partnership with the QIA on the Q-step program and in 2019 they certified 36 Heavy Equipment Trainees, 16 apprenticeships, 124 community-based work readiness graduates and 16 on-site work readiness graduates.
137	Prior to construction, develop an easy referenced listing of formal certificates and licenses that may be acquired via on-site training or training during employment at Mary River. Listing to be updated on an annual basis, provided to the	In Compliance	Active In Compliance	The qualifications that employees can obtain are: First-aid and CPR certification, Mine Rescue and Fire Fighting Skills, Forklift Certification, Confined Space Certification, Fall Arrest Certification and WHMIS Certification.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	NIRB upon completion and whenever it is revised.			
138	Encouraged to work with the Qikiqtani Inuit Association to ensure timely development of effective Inuit training and work-ready programs.	In Compliance	Active In Compliance	Baffinland has several Inuit training programs running in 2019 including: Q-Step. Community-based work readiness, on-site work readiness and apprenticeships.
139	Prior to construction, undertake and provide results of a detailed labor market analysis which provides quantitative predictions on the number of employees to be sourced from southern Canada and foreign markets. Within 90 days of receipt of the Project Certificate, submission of an updated labor market analysis must be submitted.	In Compliance	Active In Compliance	Baffinland provided a revised labor market analysis in the 2014 annual report to the NIRB. In 2019 Baffinland engaged Mining Industry Human Resources Council to conduct a Qikiqtani Labour Market Analysis in the region for both Baffinland and the QIA.
140	Encouraged to survey Nunavummiut employees as they are hired and specifically note the level of education obtained and whether the incoming employee resigned or left an educational institute to take up employment with the Project.	In Compliance	Active In Compliance	Baffinland conducted 71 surveys in 2019 through both Inuit employees and contractors. These results are summarized in table 4.42, 4.43 and 4.44 of Baffinland's 2019 Annual Report. Socio-Economic Monitoring Plan (2019)

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
141	Prior to construction, encouraged to work with the Qikiqtani Inuit Association in order to prioritize the provision of training of Inuit to serve as employees in monitoring or other such capacities.	In compliance	Active In Compliance	<p>Baffinland has indicated that it continues to work with the QIA to promote Inuit training, education and employment initiatives which are consistent with the provisions outlines in the IIBA. See 2019 Annual Report for description of Meetings with the QIA as well as the 2019 Socio-economic Monitoring Report.</p> <p>Baffinland recognizes the need to institute training programs at early stages to ensure potential Inuit employees are equipped with the necessary skills to take advantage of employment opportunities at the Mary River Project. Baffinland's IIBA with the QIA and its Inuit Human Resources Strategy outline several initiatives Baffinland is undertaking to advance Inuit training and employment.</p>
<b>Livelihood and Employment</b>				
142	Encouraged to address the potential direct and indirect effects that may result from Project employees on-site use of various Inuktitut dialects as well as other spoken languages.	In Compliance	Active In Compliance	Baffinland has company policies in place to outline the Company's position in support of the use of Inuktitut at all Project sites in Nunavut and ensures that a lack of English does not pose a barrier to Inuit employment by translating signage on-site.
143	Encouraged to consider the use of both existing and innovative technologies to ensure Project employees are able to contact their family and friends.	In Compliance	Active In Compliance	Internet and telephone access are available free of charge to all employees in the accommodation complexes.
144	Encouraged to make requirements for employment clear in its work-readiness and	In Compliance	Active In Compliance	The Baffinland Community Liaison Officers in each community are responsible for communicating the employment requirements for individuals who apply for jobs at Baffinland.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	other programs and documentation.			
145	Encouraged to work with the Government of Nunavut and the Qikiqtaaluk Socio-Economic Monitoring committee to monitor the barriers to employment for women.	In Compliance	Active In Compliance	Baffinland has provided examples of the potential barriers to employment for women in the Socio-Economic Monitoring Report. Socio-Economic Monitoring Plan (2018)
146	The Government of Nunavut and the Qikiqtani Inuit Association are encouraged to investigate the possibility for Project revenue streams to support initiatives or programs which offset or subsidize childcare for Project employees.	Not Applicable	*Not Yet Active Not Yet Applicable	In 2019, Baffinland has engaged with the Government of Nunavut through the Socio-Economic Monitoring Working Group.
147	Encouraged to work with the Government of Nunavut and the Nunavut Housing Corporation to investigate options and incentives which might enable and provide incentive for employees living in social housing to maintain employment as well as to negotiate for an obtain manageable rental rates.	In Compliance	Active In Compliance	In 2019, Baffinland has engaged with the Government of Nunavut through the Socio-Economic Monitoring Working Group.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
<b>Benefits, Royalties and Taxation</b>				
<b>148</b>	Encouraged to undertake collaborative monitoring in conjunction with the Qikiqtaaluk Socio-economic Monitoring committee's monitoring program which addresses Project harvesting interactions and food security and broad indicators of dietary habits.	In Compliance	Active In Compliance	Baffinland has provided information on Project and harvesting interactions and food security in the 2019 Socio-Economic Monitoring Report. However, appropriate community-level indicator data are currently unavailable for this topic. As such, this topic continues to be tracked through the QSEMC process, community engagement conducted for the Project, and related information.
<b>149</b>	Prior to operations, required to undertake an analysis of the risk of temporary mine closure giving consideration to the affects of such to the North Baffin region.	In Compliance	Active In Compliance	In 2014, Baffinland submitted a report titled " Potential Effects of a Mine Closure" to the NIRB. Baffinland is working with the QIA to develop a Mine Closure Working Group that will include members from local communities and will address biophysical and socio-economic issues related to temporary and permanent site closure.
<b>150</b>	Ensure that specific conditions are met in regard to Sirmilik National Park, as outlined in the condition.	In Compliance	Active In Compliance	Baffinland includes the minimum flying altitudes in the aviation contracts; however, no flights over Sirmilik Park occurred in 2018 Environmental Protection Plan (2016)
<b>151</b>	Encouraged to investigate measures and programs designed to assist Project employees with home ownership or access to affordable housing options.	In Compliance	Active In Compliance	Baffinland indicated their Project provides income to residents and will increase the purchasing power of those individuals in their home communities.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
152	The Qikiqtani Inuit Association is encouraged to provide the Board and the Qikiqtaaluk Socio-Economic Monitoring committee which information regarding the effectiveness of any provisions within the Inuit Impact Benefit Agreement which may require that larger contracts are broken into smaller contracts.	Not Applicable	Active *Deficient – In progress	This condition is directed at the Qikiqtani Inuit Association.
<b>Human Health and Wellbeing</b>				
153	Encouraged to employ a mental health professional to provide counselling to Inuit and non-Inuit employees in order to positively contribute toward employee health and well-being.	In Compliance	Active In Compliance	Baffinland's benefit plan includes an Employee and Family Assistance Program (EFAP) which offers all permanent employees and their dependents professional short-term counselling. Inuit cultural advisors are also available for the Projects Inuit employees. In 2019, the Community Counsellors Program was created in collaboration with Clyde River's Ilisaqsivik Society for help Inuit Employees. In 2019, there were a total of 60 EFAP cases which accounted for 304 % of the employees who resided in Nunavut.
154	Work with the Government of Nunavut and the Qikiqtaaluk Socio-Economic committee to monitor potential indirect effects of the projects.	In Compliance	Active In Compliance	2019 Socio-Economic Monitoring Report
155	Encouraged to provide the NIRB with an updated report on its development of mitigation	In Compliance	Active In Compliance	Baffinland promotes employee cohesion through cultural awareness and social programs.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	measures and plans to deal with potential cultural conflicts which may occur at site.			
156	Encouraged to assist with the provision and/or support of recreation programs and opportunities within the potentially affected communities in order to mitigate potential impacts of employees' absence from home and community life.	In Compliance	Active In Compliance	Through the IIBA, Baffinland has established an Ilagiiktunut Nunalinnullu Pivalliajutsait Kiinaujat Fund to support various community opportunities.
157	Consider providing counselling and access to treatment programs for addictions, domestic parenting, and marital issues that affect employees and/or their families.	In Compliance	Active In Compliance	Baffinland's employee benefit plan includes an Employee and Family Assistance Program (EFAP), which offers all permanent employees and their dependents access to professional short-term counselling on an as-needed basis. 2019 Socio-Economic Monitoring Report
<b>Community Infrastructure</b>				
158	Encouraged to work with the Government of Nunavut and other relevant parties to develop a Human Health Working Group.	In Compliance	Active In Compliance	Baffinland is currently involved with the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) and Socio-Economic Monitoring Working Group (SEMWG) which help to inform its socio-economic monitoring. The Government of Nunavut is an active participant in both groups. Socio-Economic Monitoring Plan (2018)



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
159	Encouraged to work with the Government of Nunavut to develop an effects monitoring program that captures increases to community based and airport infrastructure in the local study area and Iqaluit.	In Compliance	Active In Compliance	Baffinland continues to work with the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) and Socio-Economic Monitoring Working Group (SEMWG) on socio-economic monitoring initiatives. Socio-Economic Monitoring Plan (2019)
160	The Government of Nunavut and the Qikiqtani Inuit Association are encouraged to cooperate to ensure that benefits are in a broad sense distributed across impacted communities and demographic groups that best offsets Project related impacts to infrastructure or services.	Not Applicable	Active In Compliance	Baffinland produces an annual Socio-economic Monitoring Report and regularly engages the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) and Mary River Socio Economic Monitoring Working Group (SEMWG) to discuss socioeconomic impacts and benefits of the Project. These groups are set up as a forum for discussion on this topic.
161	The Government of Nunavut should be prepared for the potential need for increased policing to handle on-going Project related demographic changes in subsequent crime prevention.	Not Applicable	Active In Compliance	While Baffinland cannot influence how the GN and RCMP interact with one another, the Company regularly cooperates with the GN with regards to Project-related socio-economic monitoring.
162	Make all reasonable efforts to engage Elders and community members of the North Baffin communities for input into	In Compliance	Active In Compliance	Community members and other Project stakeholders continue to provide input that helps guide the development of monitoring programs. A summary of community engagement dates, locations

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	monitoring programs and mitigative measures to ensure that they are informed by traditional activities, cultural resources and land-use.			and topics are covered in Table 4.56 in Baffinland's 2019 <i>Annual Report</i> .
163	Continue to engage and consult with the communities of the North Baffin region to ensure that Nunavummiut are kept informed about Project activities.	In Compliance	Active In Compliance	Community members and other Project stakeholders continue to provide input that helps guide the development of monitoring programs. A summary of community engagement dates, locations and topics are covered in Table 4.56 in Baffinland's 2019 <i>Annual Report</i> .
164	Provide notification to communities regarding scheduled ship transits throughout the Regional Study Area including Eclipse Sound and Milne Inlet. Real-time data should be made available. Changes to proposed shipping routes should be provided to the MEWG, the community of Pond Inlet and communities in the region.	In Compliance	Northern Route Active In Compliance	Baffinland has contracted ExactEarth to actively track vessels real time and made that information publicly available on their website <a href="http://www.baffinland.com">www.baffinland.com</a> as well as in their office in Pond Inlet through their Shipping Monitors.
			Southern Route Not Yet Active	
165	Encouraged to provide buildings along the rail line and Tote Road for emergency shelter purposes to be made	In Compliance	Tote Road Active In Compliance	Baffinland has emergency shelter stations at KM 33, 40, 60 and 69 along the Tote Road. The rail line is not yet constructed Emergency Response Plan (2020) Roads Management Plan (2020)
			Railway Not Yet Active	

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	available for employees and land users of the area.			
166	Ensure through consultation efforts and public awareness campaigns that the public has access to shipping operations personnel for transits into and out of Steensby and Milne ports via telephone or internet contact to ensure information regarding ice conditions and ship movements can be shared.	In Compliance	Milne Inlet Active In Compliance	Ship movement information is available on Baffinland's website ( <a href="http://www.baffinland.com">www.baffinland.com</a> ). Baffinland's Shipping Monitors in pond Inlet are also accessible via telephone or email if issues need to be reported.
			Steensby Inlet Not Yet Active	
167	Encouraged to enter into negotiations for a Development Partnership Agreement with the Government of Nunavut.	Partial Compliance	Active *Deficient – In progress	In 2013, Baffinland reached out to the GN to develop a DPA; however, that is yet to be formalized. The DPA program for new mines is on hold while the GN's Department of Economic Development and Transportation and Department of Finance work to develop a replacement program. Baffinland has indicated that they will re-engage with the GN once a new policy is formalized. The NIRB is looking forward to updated information in the 2020 annual report from both the Proponent and the GN's comments.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
<b>Governance and Leadership</b>				
<b>168</b>	Include the aspects outlined in the condition into the monitoring program adopted by the Qikiqtani Socio-Economic Monitoring committee.	In Compliance	Active In Compliance	Socio-Economic Motoring Plan (2019) 2019 Socio-Economic Monitoring Report
<b>169</b>	Provide an annual monitoring summary to the NIRB on the monitoring data collected related to the regional and cumulative economic effects associated with the Project and any proposed mitigation measures.	In Compliance	Active In Compliance	Socio-Economic Motoring Plan (2019) 2019 Socio-Economic Monitoring Report
<b>Incidents and Malfunctions</b>				
<b>170</b>	Include an updated Terrestrial Wildlife Management and Monitoring Plan plans for increased caribou monitoring efforts including weekly winter track surveys and bi-monthly surveys in the summer and fall.	Deferred	Active Deficient – In progress	The original objective of the Term and Condition was to minimize railway-caribou interactions. However, during the reconsideration process for the ERP, increased traffic along the Tote Road also provided concern for caribou-vehicle interaction along the railway. Baffinland is currently undertaking snowtrack surveys but is not clear on the frequency. <b>The Board looks forward to an update in subsequent annual reports providing information regarding the frequency and results of the snow track surveys along the Project's Tote Road.</b>

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
171	Include within the updated Terrestrial Wildlife Management and Monitoring Plan, a commitment to establish deterrents along the railway and Tote road embankments at any areas where the movement of caribou presents a likelihood of mortality to occur.	Partial Compliance	Tote Road No Longer Active Completed	Baffinland noted that there were only 4 caribou spotted in 2019 and deterrents have not yet been implemented given the low abundance of caribou near the PDA. Terrestrial Environment Mitigation and Monitoring Plan (2016) <i>Draft</i> 2019 Terrestrial Environment Annual Monitoring Report
			Railway Not Yet Active	
172	Encouraged to provide the Government of Nunavut with evidence that the vessel intended for use for the overwintering of fuel has been designed and certified for use under the operational conditions. Proof of vessel owners insurance policies are required.	Not applicable	*Not Yet Active Not Yet Applicable	There is no overwintering of fuel associated with the current phase of the Project.
173	Employ best practices and meet all regulatory requirements during ship to shore and other marine based fuel transfer events.	In Compliance	Active In Compliance	Baffinland maintains an approved Oil Pollution and Emergency Plan for ship to shore fuel transfers at Milne Port. Training for this occurred in 2019 and mock spill exercises are performed annually. Oil Pollution Emergency Plan – Milne Inlet (2020) Oil Pollution Prevention Plan – Milne Inlet (2020) Shipping and Marine Wildlife Management Plan (2016) Spill at Sea Response Plan (2015)

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
174	Provide, as well as the Canadian Coast Guard, spill response equipment and annual training to Nunavut communities along the shipping route.	In Compliance	Active In Compliance	Oil Pollution and Emergency Plan Training took place for Baffinland employees. In a letter to the NIRB in 2015, the Canadian Coast Guard acknowledges that it was the responsibility of the coast guard to provide emergency spill training to the communities along the shipping route. Oil Pollution Emergency Plan – Milne Inlet (2020) Oil Pollution Prevention Plan – Milne Inlet (2020) Shipping and Marine Wildlife Management Plan (2016) Spill at Sea Response Plan (2015)
175	In coordination with the Qikiqtani Inuit Association and the Hunters and Trappers Organizations of the North Baffin communities and Coral Harbour, provide updates to the Shipping and Marine Wildlife Management Plan to include adaptive management measures to take should the placement of route markers along the ships track during ice breaking not prove to feasible for marking the route.	Deferred	*Not Yet Active Not Yet Applicable	There is no winter shipping associated with the current phase of the Project.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
176	Required to revise its spill planning to include additional trajectory modelling for Hudson Strait, where walrus concentrate, as well as Milne Inlet, Eclipse Sound and Pond Inlet during winter conditions.	Partial Compliance	Milne Inlet Active In Compliance	Baffinland conducted spill modelling in 2015 for the Northern Shipping Corridor which helped developed Baffinland's current spill response plan highlighting the importance of spill prevention. This work has not yet been completed for Steensby due to its inactivity. Shipping and Marine Wildlife Management Plan (2016) Oil Pollution Emergency Plan – Milne Inlet (2020) Oil Pollution Prevention Plan – Milne Inlet (2020) Shipping and Marine Wildlife Management Plan (2016) Spill at Sea Response Plan (2015)
			Steensby Inlet Not Yet Active	
177	Enroll any foreign flagged vessels commissioned for Project-related shipping within Canadian waters into the relevant foreign program, equivalent to Transport Canada's Marine Safety Delegated Statutory Inspection Program.	In Compliance	Active In Compliance	It is the responsibility of ship owners to enroll in such programs; however, Baffinland has included this requirement in their shipping contracts.
<b>Alternatives Analysis</b>				
178	Subject to safety requirements, require all Project vessels to maintain a route to the south of Mill Island to prevent disturbances to walrus and walrus habitat.	Deferred	*Not Yet Applicable Not Yet Active	This Term and Condition is related to the southern shipping corridor which is currently inactive.
<b>Operational Flexibility</b>				
179	Not to exceed 20 ore carrier transits to Steensby Port per	Deferred	*Not Yet Applicable Not Yet Active	This Term and Condition is related to the southern shipping corridor which is currently inactive.



Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
	month during the open water season (242 transits per year).			
<b>179a</b>	Until December 31, 2021 the total volume of ore must not exceed 6.0 million tonnes per annum (Mt/a).	Deferred	Active In Compliance	In 2019, Baffinland shipped 5.96 Mt/a of ore.
<b>179b</b>	Until December 31, 2021 the total volume of ore transported along the Tote Road must not exceed 6.0 million tonnes per annum (Mt/a).	In Compliance	Active In Compliance	In 2019, Baffinland transported 5.7 Mt/a of ore along the Tote Road.
<b>179c</b>	Bi-annual Third Party Performance Audit on Project Certificate N.005 Terms and Conditions and the Inuit Impact Benefit Agreement.	Non-Compliant	Active In Compliance	Baffinland submitted 2 (two) third-party audits to the NIRB regarding their compliance with the NIRB Project Certificate No. 005 and the IIBA Established with the QIA in 2019. In 2020, through the approval of Baffinland's Extension Request Proposal and through consultation with the QIA, the Minister has directed the NIRB to host a workshop where parties can discuss and ensure that the audits are meeting their intended purpose. This workshop is addressed in section 2.2.4 of the NIRB 2019-2020 Monitoring Report and is expected to take place in the 2020-2021 monitoring period.
<b>Transboundary Effects</b>				
<b>180</b>	The Marine Environment Working Group shall invite a representative from Makivik Corporation to be a member of the group.	In Compliance	Active In Compliance	Makivik has been a member of the Marine Environment Working Group (MEWG) since 2013 and receives MEWG related correspondences. If a member is unable to attend in person, they receive finalized minutes and technical information. Members of the Makivik corporation rarely show up to the MEWG meetings or provide input.

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
181	Regardless of whether Makivik Corporation participates as a member of the Marine Environment Working Group, the group will provide Makivik with regular updates throughout the life cycle of the project.	In Compliance	Active In Compliance	Makivik is a member of the MEWG and receives regular meeting materials.
182	Make available any ship route deviation routes provided to the NIRB to Makivik Corporation.	In Compliance	Active In Compliance	Vessel traffic information is currently publicly available through Baffinland's website. <a href="http://www.baffinland.com">www.baffinland.com</a> .

Term & Condition No.	Summary of Term & Condition Requirements	NIRB 2018-2019 Evaluation	NIRB 2019-2020 Evaluation	NIRB Comments
183	Collaborate with the MEWG to improve monitoring and mitigation of the marine environment. The Proponent shall implement any direction from the Department of Fisheries and Oceans Canada (DFO) for any avoidance or mitigation measures including the cessation of any activity of the protection of the marine environment.	Partial Compliance	Active *Deficient – In progress	Baffinland has continued to consult the MEWG on project monitoring programs specifically related to marine mammals. There is often discussion of mitigation strategies at the meetings; however, Baffinland remains that they have final discretion over implementation of measures discussed apart from those from DFO. The following draft reports were provided to the MEWG for comment. <i>Draft 2019 Ship-based Observer (SBO) Monitoring Report (2020)</i> <i>Draft 2019 MEEMP and AIS Monitoring Report (2020)</i> <i>Draft 2019 Marine Mammal Aerial Survey Report (2020)</i> <i>Draft 2017–2018 Integrated Narwhal Tagging Study Report (2020)</i>
184	The Proponent shall collaborate with the Marine Environment Working Group to review the status of compliance with, and implementation of, all of the Terms and Conditions in Project Certificate No. 005 related to marine environmental protection.	Non-Compliant	Active Deficient-In Progress	Baffinland lists their 2019 MEWG engagements and states that compliance is discussed at meetings. They also provide a list of mitigations that were applied to the Project as a result of recommendations made by the MEWG, DFO, and Inuit Stakeholders; however, there is no explicit evidence provided where the MEWG members have used consensus based decision making to determinations regarding Baffinland's compliance with Terms and Conditions related to the protection of the Marine Environment.