



**EARLY REVENUE PHASE**

**ADDENDUM TO  
FINAL ENVIRONMENTAL IMPACT STATEMENT**

**VOLUME 9  
CUMULATIVE EFFECTS AND OTHER ASSESSMENTS**

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## Preamble

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The Approved Project is for an iron ore mine and associated facilities located on North Baffin Island, in the Qikiqtaaluk Region of Nunavut (Figure 1-1.1 in the FEIS). The Project involves the Construction, Operation, Closure, and Reclamation of an 18 million tonne-per-annum (Mt/a) open-pit mine that will operate for 21 years. The high-grade iron ore to be mined is suitable for international shipment after only crushing and screening with no chemical processing facilities. A railway system will transport 18 Mt/a of the ore from the mine area to an all-season deep-water port and ship loading facility at Steensby Port where the ore will be loaded into ore carriers for overseas shipment through Foxe Basin. A dedicated fleet of cape-sized ice-breaking ore carriers and some non-icebreaking ore carriers and conventional ships will be used during the open water season to ship the iron ore to markets. The Approved Project was issued Project Certificate No. 005 by the Nunavut Impact Review Board on December 28, 2012.

An Early Revenue Phase (ERP) has been proposed as an amendment to the Approved Project. The ERP comprises the production of 3.5 Mt/a of iron ore that is to be transported via the upgraded existing road to Milne Port where it will be stockpiled for shipment during the open water season.

Once the ERP is approved, the total production level of the Mary River Project will be 21.5 Mt/a.

The ERP introduces the following additional activities that were not assessed in the FEIS of the Approved Project:

1. Mine Site
  - a. Loading of ore into trucks; and
  - b. Ore haulage truck fleet and maintenance facilities.
2. Tote Road
  - a. Haulage of ore along the Tote Road.
3. Milne Port
  - a. Ore stockpiling and loading onto ships.
4. Marine Shipping
  - a. Ore carrier loading at Milne Port; and
  - b. Ore carrier shipping volume and timing.

The Project Description and related assessments for approval of the ERP are addressed in this Addendum to Final Environmental Impact Statement.

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## SECTION 1.0 - CUMULATIVE EFFECTS ASSESSMENT (CHANGE)

The cumulative effects assessment (CEA) in this FEIS Addendum closely resembles the CEA presented in the FEIS, and more closely resembles the CEA presented in the DEIS which included the road haulage option as part of the Project.

### 1.1 INTRODUCTION (NO CHANGE)

### 1.2 APPROACH (CHANGE)

#### 1.2.1 Methodology (No Change)

#### **Figure 9-1.1 Cumulative Effect Assessment Framework (No Change)**

#### 1.2.2 Temporal Boundaries (Change)

The temporal boundaries of the assessment have changed with the introduction of the ERP, as described in Volume 2, Section 3.2.2. Therefore, the CEA temporal boundaries of this FEIS Addendum are as follows:

- Pre-development or Definition Phase (nine years - 2004 to 2012);
- Construction Phase (seven years - 2013 to 2019);
- Operations Phase (21 years - 2020 to 2040); and
- Closure (three years - 2040 to 2042) and Post-Closure Phase (minimum five years - 2043 to 2047).

The FEIS included open water shipping via Milne Port to support the construction of the approved Project and infrequent supply of large items during its operations. The primary change in temporal boundaries relates to the shipment of ore from Milne Port during the open-water season; this will begin during construction of the Approved Project and will continue into operations.

#### 1.2.3 Spatial Boundaries (No Change)

#### **Figure 9-1.2 Existing and Future Industrial Projects and Activities in Nunavut (No Change)**

#### 1.2.4 Consideration of Alternative Development Scenarios (Change)

The ERP involves the assessment of one of the alternatives to the approved Project considered within the FEIS. In terms of other project alternatives, the assessment provided in the FEIS remains valid.

#### 1.2.5 Ranking of Cumulative Effects (No Change)

#### 1.2.6 Cumulative Effects of Accidents and Malfunctions and other Projects (No Change)

#### 1.2.7 Adaptive Management (No Change)

### 1.3 SCOPE (CHANGE)

#### 1.3.1 Project Components (No Change)

#### 1.3.2 Other Projects and Activities of Consideration (Change)

For purposes of the ERP CEA, the approved Project represents activity for which cumulative effects must be assessed as part of this FEIS Addendum, as the approved Project represents the only material change in mining projects since the FEIS was submitted and approved. The remainder of this CEA addresses cumulative effects of the ERP with respect to the approved Project.



1.3.2.1 Baffinland's Exploration and Bulk Sampling Programs (No Change)

1.3.2.2 Baffinland's Monitoring Programs Concurrent with the Project (No Change)

1.3.2.3 Designated Areas (No Change)

**Figure 9-1.3 Special Management Areas (No Change)**

1.3.2.4 Mining and Mineral Exploration Activities (No Change)

1.3.2.5 Operating Mines (No Change)

1.3.2.6 Reasonably Foreseeable Future Mines (Change)

The reasonably foreseeable future mines as presented in the FEIS remain unchanged, with the exception of the following projects.

**Bathurst Inlet Port and Road Project (Xtrata Zinc Canada)**

The Bathurst Inlet Port and Road (BIPR) Project consists of a port on Bathurst Inlet in the Kitikmeot Region, a new 211 km all-weather road connecting to the existing Tibbitt to Contwoyto Winter Road (TCWR) at Contwoyto Lake. The project is proposed to resupply local communities in the region and to facilitate mineral exploration and development projects.

A Part 5 environmental review of this project was initiated in 2007, and in 2011 the previous proponents announced that it would no longer be re-engaging the NIRB review of the project. In 2012, however, Xtrata Zinc Canada and Sabina Gold & Silver Inc. resumed the review process. A DEIS for this project is pending. It is expected that shipping to the BIPR port will include shipping through Lancaster Sound and Baffin Bay.

*Included for Consideration in the CEA: Yes*

The BIPR Project qualifies as a reasonably foreseeable project, given that two new co-proponents have announced their intent to re-engage the environmental review process.

**Back River Project (Sabina Silver and Gold Inc.) and Hackett River Project (Xtrata Zinc Canada)**

Project proposals have been filed for these projects. However, both propose to use the BIPR (described above) to access their projects. The projects are otherwise land-locked on the mainland of Nunavut, and no terrestrial overlap exists with the Mary River Project.

*Included for Consideration in the CEA: No*

The potential overlap of these reasonably foreseeable projects with the Mary River Project exists in terms of the potential overlap with shipping, addressed with the inclusion of the BIPR above.

1.3.2.7 Induced Developments (No Change)

1.3.2.8 Decommissioned Mines (No Change)

1.3.2.9 Shipping (Change)

Shipping routes with the Potential to Interact with the Project (Change)

For the proposed ERP, the shipping routes with the potential to interact with the Project include those in Eclipse Sound and Baffin Bay as described in the FEIS for the approved Project.

Canadian Coast Guard Activities (No Change)Nanisivik Naval Facility (No Change)1.3.2.10 DEW Line Decommissioning (No Change)1.3.2.11 Air Transport (No Change)1.3.2.12 Military Exercises (No Change)1.3.2.13 Communities, and Traditional and Recreational Hunting, Fishing and Foraging (No Change)1.3.2.14 Tourism and Commercial Recreation Activities (No Change)1.3.2.15 Potential Separation Lake Hydroelectric Project (No Change)1.3.2.16 Seismic Study (No Change)1.3.2.17 Commercial Fishery (No Change)1.3.2.18 Climate Change (No Change)1.3.3 Summary of Other Projects and Activities (Change)Summary of Forecasted Shipping Activities in Milne Inlet, Lancaster Sound, Baffin Bay (Change)

The baseline shipping levels in Eclipse Sound and Baffin Bay are presented in Table 9-1.1 (unchanged but present for the convenience of the reader). It is assumed that in many instances the reportings may capture the arrival and return voyages of a ship entering the area. For the months of August and September, an average of 29 ship occurrences were recorded in Eclipse Sound and 56 in Baffin Bay. It is assumed that tourism-related ship traffic is included in this number and will remain relatively constant over time, in the absence of any information suggesting otherwise. Construction of the proposed Nanisivik Naval Facility is likely to increase marine shipping in the area, though the level of military shipping in relation to current military exercises undertaken in the past several years is unknown; it is assumed in this assessment that this traffic remains relatively constant.

The Mary River Project (inclusive of the ERP) will require open-water shipping through Baffin Bay, Pond Inlet, and Eclipse Sound to Milne Inlet during the Construction Phase (2013 through 2019), with up to 24 freight and fuel vessels arriving in the first couple of years of construction, followed by an estimated 55 ore carrier vessels. Project-related shipping in Eclipse Sound will nearly double the baseline quantity during construction and for as long as the ERP operates. During this period, it is possible that shipping related to the BIPR and associated projects may add up to ten ships per year to this quantity. However, these ships are unlikely to enter Eclipse Sound and are likely to pass through Lancaster Sound into Baffin Bay.

Table 9-1.1 Current Levels of Shipping in the Eastern Arctic (2002-2010) (No Change)

AREA	SUB AREA	January			February			March		
		Min	Max	Average	Min	Max	Average	Min	Max	Average
Eclipse Sound	Tay Sound	2	2	2	na	na	na	1	1	1
Eclipse Sound	White Bay	2	2	2	na	na	na	1	1	1
Eclipse Sound	Eskimo Inlet	2	2	2	na	na	na	1	1	1
Eclipse Sound	Milne Inlet	2	2	2	na	na	na	1	1	1
Eclipse Sound	Tremblay Sound	2	2	2	na	na	na	1	1	1
Eclipse Sound	Koluktoo Bay	2	2	2	na	na	na	1	1	1
Eclipse Sound	Eclipse Sound	2	2	2	na	na	na	1	1	1
Foxe Basin	Steensby Inlet	2	2	2	na	na	na	1	1	1
Foxe Basin	NW Foxe Basin	2	2	2	na	na	na	1	1	1
Foxe Basin	NE Foxe Basin	2	2	2	na	na	na	1	1	1
Foxe Basin	E Foxe Basin	2	2	2	na	na	na	1	1	1
Foxe Basin	SE Foxe Basin	2	2	2	na	na	na	1	1	1
Foxe Basin	SW Foxe Basin	2	2	2	na	na	na	1	1	1
Frobisher Bay	Frobisher Bay	2	2	2	na	na	na	1	1	1
Hudson Strait	Hudson Strait QC	1	3	2	1	1	1	1	2	1
Hudson Strait	Ungava Bay	2	2	2	na	na	na	1	1	1
Hudson Strait	Hudson Strait NU	1	3	2	1	1	1	1	2	1
Hudson Bay	Hudson Bay	2	2	2	na	na	na	1	1	1
Baffin Bay	Baffin Bay	2	2	2	na	na	na	1	1	1
Lancaster Sound	Lancaster Sound	2	2	2	na	na	na	1	1	1
Eclipse Sound	Navy Board Inlet	2	2	2	na	na	na	1	1	1

Table 9-1.1 Current Levels of Shipping in the Eastern Arctic (2002-2010) (No Change) (Cont'd)

AREA	SUB AREA	April			May			June		
		Min	Max	Average	Min	Max	Average	Min	Max	Average
Eclipse Sound	Tay Sound	1	2	2	3	3	3	2	2	2
Eclipse Sound	White Bay	1	2	2	3	3	3	2	2	2
Eclipse Sound	Eskimo Inlet	1	2	2	3	3	3	2	2	2
Eclipse Sound	Milne Inlet	1	2	2	3	3	3	2	2	2
Eclipse Sound	Tremblay Sound	1	2	2	3	3	3	2	2	2
Eclipse Sound	Koluktoo Bay	1	2	2	3	3	3	2	2	2
Eclipse Sound	Eclipse Sound	1	2	2	3	3	3	2	2	2
Foxe Basin	Steensby Inlet	1	2	2	3	3	3	2	2	2
Foxe Basin	NW Foxe Basin	1	2	2	3	3	3	2	2	2
Foxe Basin	NE Foxe Basin	1	2	2	3	3	3	2	2	2
Foxe Basin	E Foxe Basin	1	2	2	3	3	3	2	2	2
Foxe Basin	SE Foxe Basin	1	2	2	3	3	3	2	2	2
Foxe Basin	SW Foxe Basin	1	2	2	3	3	3	2	2	2
Frobisher Bay	Frobisher Bay	1	2	2	3	3	3	1	3	2
Hudson Strait	Hudson Strait QC	1	3	2	3	3	3	2	6	4
Hudson Strait	Ungava Bay	1	2	2	3	3	3	1	2	1
Hudson Strait	Hudson Strait NU	1	2	2	2	3	3	1	7	3
Hudson Bay	Hudson Bay	2	2	2	3	3	3	1	2	2
Baffin Bay	Baffin Bay	1	2	1	3	3	3	1	2	1
Lancaster Sound	Lancaster Sound	1	2	2	3	3	3	2	2	2
Eclipse Sound	Navy Board Inlet	1	2	2	3	3	3	2	2	2

Table 9-1.1 Current Levels of Shipping in the Eastern Arctic (2002-2010) (No Change) (Cont'd)

AREA	SUB AREA	July			August			September		
		Min	Max	Average	Min	Max	Average	Min	Max	Average
Eclipse Sound	Tay Sound	1	3	2	1	5	3	1	9	3
Eclipse Sound	White Bay	1	3	2	1	5	3	1	9	3
Eclipse Sound	Eskimo Inlet	1	3	2	1	5	3	1	9	3
Eclipse Sound	Milne Inlet	1	3	2	1	11	4	1	11	5
Eclipse Sound	Tremblay Sound	1	3	2	1	11	4	1	9	5
Eclipse Sound	Koluktoo Bay	1	3	2	1	5	3	1	9	4
Eclipse Sound	Eclipse Sound	1	5	3	13	25	18	5	19	11
Foxe Basin	Steensby Inlet	1	3	2	1	5	3	1	9	3
Foxe Basin	NW Foxe Basin	1	4	2	4	11	7	4	20	10
Foxe Basin	NE Foxe Basin	1	3	2	1	6	3	2	14	6
Foxe Basin	E Foxe Basin	1	3	2	1	6	3	2	12	6
Foxe Basin	SE Foxe Basin	1	4	2	1	10	6	2	11	7
Foxe Basin	SW Foxe Basin	1	4	3	3	14	8	7	20	12
Frobisher Bay	Frobisher Bay	15	31	23	10	33	20	13	33	19
Hudson Strait	Hudson Strait QC	39	61	46	29	61	41	29	60	43
Hudson Strait	Ungava Bay	11	25	19	8	16	12	7	19	13
Hudson Strait	Hudson Strait NU	18	29	23	14	38	26	21	38	27
Hudson Bay	Hudson Bay	17	42	25	10	66	37	20	50	35
Baffin Bay	Baffin Bay	8	21	12	24	47	32	16	41	24
Lancaster Sound	Lancaster Sound	4	9	5	16	31	23	8	27	14
Eclipse Sound	Navy Board Inlet	1	4	2	3	8	5	2	10	5

Table 9-1.1 Current Levels of Shipping in the Eastern Arctic (2002-2010) (No Change) (Cont'd)

AREA	SUB AREA	October			November			December		
		Min	Max	Average	Min	Max	Average	Min	Max	Average
Eclipse Sound	Tay Sound	1	3	2	1	4	2	na	na	na
Eclipse Sound	White Bay	1	3	2	1	4	2	na	na	na
Eclipse Sound	Eskimo Inlet	1	4	2	1	4	2	na	na	na
Eclipse Sound	Milne Inlet	1	7	3	1	4	2	na	na	na
Eclipse Sound	Tremblay Sound	1	7	2	1	4	2	na	na	na
Eclipse Sound	Koluktoo Bay	1	3	2	1	4	2	na	na	na
Eclipse Sound	Eclipse Sound	2	7	4	1	4	2	na	na	na
Foxe Basin	Steensby Inlet	1	3	2	1	4	2	na	na	na
Foxe Basin	NW Foxe Basin	2	10	6	1	4	3	na	na	na
Foxe Basin	NE Foxe Basin	1	5	3	1	4	2	na	na	na
Foxe Basin	E Foxe Basin	1	5	2	1	4	2	na	na	na
Foxe Basin	SE Foxe Basin	2	10	4	1	4	2	na	na	na
Foxe Basin	SW Foxe Basin	2	11	6	1	5	2	na	na	na
Frobisher Bay	Frobisher Bay	14	33	19	1	10	5	1	2	2
Hudson Strait	Hudson Strait QC	26	57	43	5	28	14	1	4	2
Hudson Strait	Ungava Bay	6	17	10	1	11	6	na	na	na
Hudson Strait	Hudson Strait NU	17	38	26	1	13	6	1	4	2
Hudson Bay	Hudson Bay	16	58	34	1	15	7	na	na	na
Baffin Bay	Baffin Bay	6	17	10	1	5	2	1	1	1
Lancaster Sound	Lancaster Sound	1	9	3	1	4	2	na	na	na
Eclipse Sound	Navy Board Inlet	1	4	2	1	4	2	na	na	na
<b>NOTE(S):</b> 1. SOURCE DATA FROM THE CANADIAN COAST GUARD MARINE COMMUNICATIONS AND TRAFFIC SERVICES PROGRAM (INNAV), SUMMARIZED BY XPRT SOLUTIONS TECHNOLOGIQUES INC., 2010										

The credible scenario of doubling of production (and shipping) of the Mary River Project is unlikely to change shipping in the area meaningfully; it is possible that a second Construction Phase could occur at some time in the future associated with an expansion.

Summary of Forecasted Shipping Activities in Foxe Basin and Hudson Strait (No Change)

1.3.4 Screening of VEC and VSECs for Potential Cumulative Effects (No Change)

**Table 9-1.2 Screening of VECs/VSECs and Key Indicators for Potential Cumulative Effects (No Change)**

**Table 9-1.3 Screening of VSECs and Key Indicators for Potential Cumulative Effects (No Change)**

1.4 ASSESSMENT (CHANGE)

The following section describes potential cumulative effects identified for each Valued Component and Key Indicator. A summary of identified cumulative effects is presented in Table 9-1.4.

1.4.1 Atmospheric Environment (No Change)

1.4.1.1 Climate Change - Greenhouse Gas Emissions (No Change)

There is no change to this assessment. Volume 5 of the FEIS Addendum addresses the incremental increases in GHGs due to the ERP.

1.4.1.2 Air Quality (No Change)

There is no change to this assessment. Volume 5 of the FEIS Addendum addresses the incremental increases in air emissions due to the ERP. There are no other new projects (other than the ERP) to consider in this CEA.

1.4.1.3 Noise (No Change)

There is no change. The ERP will result in greater noise emissions at Milne Port for a longer period, but these effects do not overlap with effects from other known or reasonably foreseeable projects or activities.

**Table 9-1.4 Cumulative Effects Summary (Change)**

Potential Effects			Evaluation Criteria					Rated Significance of Residual Effects
Effect	Direction	Mitigation Measure (s)	Magnitude	Duration	Frequency	Extent	Reversibility	
GREENHOUSE GASES								
Greenhouse gas emissions	No change	No change	No change	No change	No change	No change	No change	Not Significant
AIR QUALITY								
Air quality emissions of criteria of concern (COC) at the Mine Site from concurrent development of Deposits No. 2 and/or 3	No change	No change	No change	No change	No change	No change	No change	Not Significant
Air quality emissions of criteria of concern (COC) along the Milne Inlet Tote Road or Railway, from concurrent development of Deposits No. 2 and/or 3, or development of other deposits in the region that utilize the tote road or railway	No change	No change	No change	No change	No change	No change	No change	Not Significant
Air quality emissions of criteria of concern (COC) at Milne Port or Steensby Port from larger tonnages of ore handled through the port sites, from concurrent development of Deposits No. 2 and/or 3, or development of other deposits in the region, and construction of the Separation Lake hydroelectric site staged from Steensby Port	No change	No change	No change	No change	No change	No change	No change	Not Significant



Table 9-1.4 Cumulative Effects Summary (Change) (Cont'd)

Potential Effects			Evaluation Criteria					Rated Significance of Residual Effects
Effect	Direction	Mitigation Measure (s)	Magnitude	Duration	Frequency	Extent	Reversibility	
NOISE								
Increased noise within the noise study areas of each of the Project sites, resulting from an increased mining production rate and construction of the Separation Lake hydroelectric project (applicable to Steensby Port)	No change	No change	No change	No change	No change	No change	No change	Not Significant
VEGETATION								
Reduction in vegetation abundance and diversity within the terrestrial RSA	No change	No change	No change	No change	No change	No change	No change	Not Significant
Reduction in vegetation health due to deposition of dust and metals in soil	No change	No change	No change	No change	No change	No change	No change	Not Significant
Reduction in culturally valued vegetation (blueberries)	No change	No change	No change	No change	No change	No change	No change	Not Significant
TERRESTRIAL WILDLIFE AND HABITAT								
Reduction in caribou habitat	No change	No change	No change	No change	No change	No change	No change	Not Significant
Reduction in caribou movement	No change	No change	No change	No change	No change	No change	No change	Not Significant
Caribou mortality	No change	No change	No change	No change	No change	No change	No change	Not Significant
Migratory birds	No change	No change	No change	No change	No change	No change	No change	Not Significant
FRESHWATER FISH								
Effects to Arctic char health and habitat resulting from water quality effects	No change	No change	No change	No change	No change	No change	No change	Not Significant

Table 9-1.4 Cumulative Effects Summary (Change) (Cont'd)

Potential Effects			Evaluation Criteria					Rated Significance of Residual Effects
Effect	Direction	Mitigation Measure (s)	Magnitude	Duration	Frequency	Extent	Reversibility	
SEA ICE								
Disruption of fast ice (ringed seal habitat)	No change	No change	No change	No change	No change	No change	No change	Not Significant
Changes to marine water quality at port sites due to more frequent shipping and discharge of ballast water	No change	No change	No change	No change	No change	No change	No change	Not Significant
Effects to marine biota, including Arctic char, due to potential water and sediment quality changes.	No change	No change	No change	No change	No change	No change	No change	Not Significant
RINGED SEAL								
Increased disruption of fast ice in Steensby Inlet	No change	No change	No change	No change	No change	No change	No change	Not Significant
BEARDED SEAL								
Habitat change, disturbance, and masking	No change	No change	No change	No change	No change	No change	No change	Not Significant
WALRUS								
Habitat change, disturbance, and masking	No change	No change	No change	No change	No change	No change	No change	Not Significant
NARWHAL								
Habitat change, disturbance, and masking	Negative	Apply mitigation in current Project	Level I - low (habitat change); Level II - moderate (disturbance, masking)	Level II - life of the Project	Level III - Frequent	Level I - confined to LSA; possibly Level II - beyond the LSA and within the RSA	Level I - reversible	Not Significant

Table 9-1.4 Cumulative Effects Summary (Change) (Cont'd)

Potential Effects			Evaluation Criteria					Rated Significance of Residual Effects
Effect	Direction	Mitigation Measure (s)	Magnitude	Duration	Frequency	Extent	Reversibility	
BELUGA WHALE								
Habitat change, disturbance, and masking	Negative	Apply mitigation in current Project	Level I - low (habitat change); Level II - moderate (disturbance, masking)	Level II - life of the Project	Level III - Frequent	Level I - confined to LSA; possibly Level II - beyond the LSA and within the RSA	Level I - reversible	Not Significant
BOWHEAD WHALE								
Habitat change, disturbance, and masking	Negative	Apply mitigation in current Project	Level I - low (habitat change); Level II - moderate (disturbance, masking)	Level II - life of the Project	Level III - Frequent	Level I - confined to LSA; possibly Level II - beyond the LSA and within the RSA	Level I - reversible	Not Significant
POLAR BEAR								
Habitat change, disturbance, and possibly mortality	Negative	Apply mitigation in current Project	Level I - low	Level II - life of the Project	Level III - Frequent	Level I - confined to LSA	Level I - reversible	Not Significant
<b>NOTE(S):</b>								
1. CACs = CRITERIA AIR CONTAMINANTS [TSP, PM10, PM2.5, SO2, NO2, CO, Fe, Mn, As, Ca, Co and POI (potential acid input)].								

1.4.2 Terrestrial Environment (No Change)

1.4.2.1 Vegetation (No Change)

Potential for Reduction in Vegetation Abundance and Diversity (No Change)

Potential for Reduced Vegetation Health (No Change)

Culturally Valued Vegetation (No Change)

1.4.2.2 Terrestrial Wildlife and Habitat – Caribou (No Change)

**Habitat (No Change)**

**Movement (No Change)**

**Mortality (No Change)**

1.4.2.3 Migratory Birds and Habitat - Peregrine Falcons, Snow Geese, Common and King Eiders, Red Throated Loons, Lapland Longspur (No Change)

1.4.3 Freshwater Aquatic Environment (No Change)

1.4.3.1 Freshwater Aquatic Environment– Surface Water Quantity (No Change)

**Climate change and Water Quantity (No Change)**

1.4.3.2 Freshwater Aquatic Environment - Water and Sediment Quality (No Change)

**Development of the Separation Lake Hydroelectric Project (No Change)**

**Climate Change (No Change)**

1.4.3.3 Freshwater Fish, Fish Habitat and Other Aquatic Organisms - Arctic Char (No Change)

**Mary River Project Deposits No. 2 to 9 (No Change)**

**Development of Separation Lake Hydroelectric Project (No Change)**

**Climate Change (No Change)**

1.4.4 Marine Environment (Change)

1.4.4.1 Sea Ice (Change)

The ERP includes shipping of ore out of Milne Port during the open-water season. As a result, icebreaking will not be required and there will be no disruption of either landfast ice or pack ice.

**Table 9-1.5 Approximate Width of Landfast Ice Disruption from Vessel Traffic with Various Transits Under Different Production Levels (No Change)**

1.4.4.2 Marine Water and Sediment Quality (Change)

The ERP will involve minor changes in marine water and sediment quality. The Project footprint at Milne Port will be slightly modified, and the transport, storage and shipment of ore will introduce pathways that could increase effects potential when considered in concert with the approved Project.

The construction of an ore dock at Milne could affect water and sediment quality through the introduction of nutrients, metals and increases in total suspended solids (TSS). Petroleum hydrocarbons and metals could also be introduced during construction.

During operation, the transportation, storage and transfer of ore will result in minor dust deposition to the marine environment. Wastewater from Milne Camp as well as Site surface water drainage will transport minor quantities of potential contaminants (metals, nutrients, suspended solids and petroleum hydrocarbons) to the marine receiving waters of Milne Inlet. Additionally, vessel movements at the port site have the potential to mobilize and redistribute bottom sediments. The discharge of ballast over a three-month period each open-water season will alter the temperature and salinity of receiving waters; however, these effects will be well within (and less than 1% of) the range of natural variation.

During Site closure and dismantling, minor disruption will occur and affect marine water and sediment quality in a manner similar to (but considerably less than) during construction.

When considered on their own, the predicted effects of the ERP on Marine water and sediment quality during construction, operation and closure are all predicted to be negligible. There is limited potential overlap between the ERP and other projects and undertakings, including the Approved Mary River Iron Mine Project. Where that overlap is present, the effect of the ERP in combination with other projects and undertakings will continue to be negligible and *Not Significant*.

### **Marine Habitat and Biota**

The ERP will involve minor changes in marine habitat and biota. During construction of the ore dock, a small area of marine habitat will be altered and lost. Other habitat alterations will occur due to construction activities – propeller-generated currents and underwater noise.

During operation, dust deposition will occur from the transportation, storage and transfer of ore. Propeller-generated currents as well as underwater noise from vessels will also continue, along with the discharge of ballast water, which can alter temperature and salinity of the water column. There is also the possibility of the introduction of invasive species through ballast water discharges and hull biofouling.

Similar but reduced effects will result during site closure activities such as ore dock removal.

When considered on their own, the predicted effects of the ERP on Marine Habitat and Biota water during construction, operation and closure are all predicted to be negligible. There is limited potential overlap between the ERP and other projects and undertakings, including the Approved Mary River Iron Mine Project. Where that overlap is present, the effect of the ERP in combination with other projects and undertakings will continue to be negligible and *Not Significant*.

#### 1.4.4.3 Marine Mammals (No Change)

#### 1.4.5 Communities (No Change)

##### 1.4.5.1 Population Demographics – Demographic Stability (No Change)

##### 1.4.5.2 Population Demographics Assessment (No Change)

##### 1.4.5.3 Human Health and Well-being (No Change)

##### 1.4.5.4 Community Infrastructure and Public Services (No Change)

- 1.4.6 Culture, Resources and Land Use (No Change)
- 1.5 MONITORING CUMULATIVE EFFECTS (NO CHANGE)
- 1.6 SUMMARY AND CONCLUSIONS (NO CHANGE)
- 1.7 AUTHORS (NO CHANGE)

## SECTION 2.0 - EFFECTS OF THE ENVIRONMENT ON THE PROJECT (CHANGE)

### 2.1 ENGINEERING HAZARD ASSESSMENT (NO CHANGE)

Environmental hazards that could potentially affect the Project are assessed in FEIS Tables 9-2.1 to 9-2.5 of Section 2, Volume 9. These tables identify the potential engineering hazards that could occur for each component of the Project, describe the hazard within the context of the specific project component, describe and assess potential consequences of the hazard, assess the risk factor, and describe potential mitigation measures.

Potential hazards associated with the Milne Port and the Tote Road were presented in Tables 9-2.1 and 9-2.2. The engineering hazard assessment in the FEIS does not change as a result of the ERP.

**Table 9-2.1 Engineering Hazard Assessment - Milne Port (No Change)**

**Table 9-2.2 Engineering Hazard Assessment - Milne Inlet Tote Road (No Change)**

**Table 9-2.3 Engineering Hazard Assessment - Mine Site (No Change)**

**Table 9-2.4 Engineering Hazard Assessment – Railway (No Change)**

**Table 9-2.5 Engineering Hazard Assessment - Steensby Port (No Change)**

### 2.2 POTENTIAL EFFECTS OF CLIMATE CHANGE ON THE PROJECT (NO CHANGE)

**Table 9-2.6 Sea-ice extent ( $10^6 \text{ km}^2$ ) in Winter (March) as projected by the five ACIA-designated models (International Arctic Science Committee, 2010) (No Change)**

**Table 9-2.7 Sea-ice extent ( $10^6 \text{ km}^2$ ) in Summer (September) as projected by the five ACIA-designated models (International Arctic Science Committee, 2010) (No Change)**

**Table 9-2.8 Changes in mean annual Northern Hemisphere sea-ice extent between 2000 and 2100 projected by the five ACIA-designated models (International Arctic Science Committee, 2010) (No Change)**

**Table 9-2.9 Design Measures for Project Structures used to Account for Climate Change (No Change)**

### 2.3 ERP COMPONENTS (NEW)

Extreme weather (storms, extreme rainfall or snowfall, extreme low temperatures) and geo-hazards (seismicity, ground and slope instabilities) have the potential to affect Project infrastructure and in turn represent concerns for human safety and the environment. Included in the context of extreme weather is the potential for global climate change to affect the Project.

Environmental hazards that could potentially affect the engineering structures are assessed in FEIS Volume 9, Section 2. Baffinland has identified the potential engineering hazards that could occur for each Project component, described the hazard within the context of the specific Project component, described and assess potential consequences of the hazard, assessed the risk factor, and described potential mitigation measures for each hazard.

At Milne Port there are some low to moderate risks associated with ice-rich permafrost and thaw-sensitive soils that could result in failures of structures, creep settlement, or movement of foundations for heavy structures. Permafrost protection measures will be used to mitigate these risks.

Along the Tote Road there are risks associated with ice-rich permafrost and thaw-sensitive soils that could result in creep settlement in high embankment, thermokarst development along the route or in borrow areas, and some general road embankment instability. While proposed construction is limited to addressing problem areas (realignments and stream crossings) and general road maintenance, these risks will generally be mitigated through proper design and construction in an effort to protect and maintain the thermal conditions along the road. Maintenance is required at some locations due to thermal degradation of the underlying foundations. Another more significant risk is related to the hydrology and the fact that high runoff events can lead to flows beyond the capacity of the hydraulic structures established along the road alignment. This risk is further increased by the spring icing of culverts, further reducing capacity and leading to potential overtopping and wash-outs, causing increased erosion and high sediment loadings to the downstream environment.

The highest risks at the Mine Site are related to ice-rich and thaw-sensitive soils associated with the waste rock stockpile and open-pit overburden cut slopes. The high ice contents anticipated below the waste rock stockpiles are expected to lead to significant creep settlement of the stockpiles once they are fully loaded. The stockpiles could experience instability and other settlement issues associated with changes to the thermal regime in the area resulting from improper permafrost protection measures and stockpile construction scheduling. A thermal barrier will be required at the base of each stockpile as well, to protect the exposed overburden cut slopes above the open pit to preventing thaw and instabilities above the pit. For ice-rich areas near other Mine Site infrastructure, the majority of the structures locations have been either optimized to avoid problem areas or founded on competent bedrock. In areas where this optimization is not possible, adequate permafrost protection measures will be implemented.

Based on accepted climate change models, it is generally believed that global warming will have little impact on the very cold and deep permafrost conditions at the Project Site and associated infrastructure locations over the currently planned life of the Project. Although it is projected that the Mary River Project will remain within the zone of continuous permafrost, it is predicted that the active layer thickness could increase by 50% (Arctic Council and the International Arctic Science Committee, 2005). Other potential impacts include changes to drainage pattern resulting from subsidence and thermokarst formation, increased sediment loadings, and mass wasting on sensitive slopes. Based on investigations, the location of infrastructure has been optimized in an attempt to avoid potential problem areas to the maximum extent possible. Additionally, areas where problems cannot be avoided will be constructed with conservatively designed permafrost protection measures and thermal barriers. Thus, the project is not sensitive to changes in climate-related parameters.

Table 9-2.9 provides design measures that may be implemented to protect project structures from the impacts of construction, operations and potential changes to the climate. In general, conservative assumptions are used as the way to address potential effects of climate change.



**Table 9-2.9 Design Measures for Project Structures used to Account for Climate Change**  
**(Change)**

Project Structure	Design Measures used to Account for Climate Change
Milne Inlet Tote Road	No specific measures were taken into account for climate change beyond those for construction on permafrost
Milne Inlet Tote Road - Water Crossings	Large and X-large is a 25-year storm. All others at small or medium crossings are 10-year storm events
Port Facilities	Docks can account for the fluctuation in sea levels due to climate change
Waste Rock Stockpile	Potentially-acid generating (PAG) rock will be buried sufficiently deep within the pile to account for increase in active layer thickness
Airstrips and Access Roads	Thermal barrier (non-frost/thaw-sensitive fill) thickness increased to account for increases active layer depth
Building foundations	Adfreeze pile calculations to account for slightly warmer permafrost and deeper active layer. Thermal barriers and foundation pads thicker.

## 2.4 AUTHORS (NO CHANGE)

### SECTION 3.0 - ACCIDENTS AND MALFUNCTIONS (CHANGE)

A detailed assessment of major accidents and malfunction scenarios was presented in the Final Environmental Impact Statement, Volume 9, Section 3.

Baffinland has an obligation to identify any foreseeable hazards that may arise from the Mary River Project and to assess the risk of harm arising from the identified hazards. The reasons for this process:

- Out of concern for the health and safety of employees, contractors and visitors;
- Out of concerns for environmental protection;
- It makes good business sense and is cost-effective; and
- So that Baffinland's duty of care for its employees and contractors can be undertaken, and so that health, safety and environmental legal requirements can be met.

Knowledge of hazards and evaluation of associated risks are necessary requirements for establishing health, safety and environmental objectives and targets, and for setting priorities to control the identified risks to employees and others on an ongoing basis. Hazard identification, risk assessment and control constitute an on-going process undertaken periodically throughout the Project life cycle. Baffinland's guideline for hazard and risk assessment is presented in FEIS Volume 10, Appendix 10A-2. This rigorous approach to hazard identification and risk assessment leads to the development and implementation of mitigation actions and procedures and the development of management plans that ensure on-going control of such risks.

Despite this on-going effort, major accidents and malfunctions can occur due to natural events, breakdown of mitigation measures, or human error. Although the likelihood or probability of occurrence of such events is low, accidental events could have severe environmental, health or safety repercussions.

#### 3.1 IDENTIFICATION OF RISKS AND METHODOLOGY (NO CHANGE)

A list of potential malfunctions or accidents was developed from the following primary sources:

- Public concerns: expressed by local communities and other members of the public;
- Project personnel: all Project risks, including environment-related risks were developed and assessed as part of Project risk assessment exercises;
- Comparative projects: review of readily available Environmental Assessments issued recently for other large scale mineral Projects; and
- Experience of personnel with other Projects.

Only credible malfunctions and reasonably probable accidents have been assessed. The severity of consequences is provided in Table 9-3.1 and the likelihood of occurrence is defined in Table 9-3.2. The level of risk is thus defined by consideration of the severity of the consequences and the likelihood of occurrence. The risk matrix used to define the risk associated with the potential accidents and malfunctions is presented in Table 9-3.3.

Despite the fact that all foreseeable precaution measures have been implemented to prevent malfunctions and accidents, the consequences of their occurrences can entail the loss of human life or severe environmental damage. Table 9-3.4 presents a list of credible potential accident and malfunction scenarios for the Mary River Project. Risks were assessed based on operational controls implemented on the basis of

best management practices (BMPs) as outlined in Baffinland's EHS Management System (FEIS Volume 10, and Appendix 10A-2 for Hazard Identification and Risk Assessment Procedure) and the application of the various management plans provided as appendices in FEIS Volume 10. The detailed discussions related to these major accident and malfunction events is presented in FEIS Volume 9, Section 3.0. Tables 9-3.1 to 9-3.4 of the FEIS are reproduced below for information purposes.

**Table 9-3.1 Consequence Severity (No Change)**

Consequence	Definition
Critical	<p><i>Major uncontrolled event or inefficiency with uncertain and perhaps prohibitively costly remediation.</i></p> <p>Health and Safety: Fatality.</p> <p>Production: More than six month production loss or expenditure.</p> <p>Cost: &gt;\$500,000,000 damage or additional costs.</p> <p>Environmental Impact/Compliance: Very serious environmental impacts with impairment on landscape/ marinescape ecology. Long-term, widespread effects on significant environment.</p> <p>Corporate Image or Utility: Corporate image tarnished internationally.</p> <p>Community Affairs: Non-compliance with existing community agreement. Extreme and widespread community concerns with international exposure/influence.</p>
Major	<p>Significant event or inefficiency that can be addressed but with great effort.</p> <p>Health and Safety: Lost-time injury(s) potentially resulting in permanent disability.</p> <p>Production: Three to six months production or expenditure.</p> <p>Cost: \$100,000,000 to \$500,000,000.</p> <p>Environmental Impact/Compliance: Serious environmental impacts with impairment on ecosystems. Relatively widespread long-term effects. Regulatory approval withdrawn for a few months.</p> <p>Corporate Image or Utility: Corporate image tarnished in North America.</p> <p>Community Affairs: High local community concerns with national exposure/influence</p>
Moderate	<p>Moderate event or inefficiency that might need physical attention and certainly engineering review.</p> <p>Health and Safety: Lost-time injury (no permanent disability).</p> <p>Production: One to three production loss or expenditure.</p> <p>Cost: \$1,000,000 to \$100,000,000 damage or additional costs.</p> <p>Environmental Impact/Compliance: Some impairment on ecosystem function. Displacement of species. Moderate short-term widespread effects. Regulatory orders with significant cost implications.</p> <p>Corporate Image or Utility: Corporate image tarnished in region.</p> <p>Community Affairs: Moderate local community concern with potential permanent damage to relations.</p>
Minor	<p>Minor incident or inefficiency that might require engineering review and is easily and predictably remediated.</p> <p>Health and Safety: Injury (no lost time).</p> <p>Production: Less than one month production loss or expenditure.</p> <p>Cost: \$100,000 to \$1,000,000 damage or additional costs.</p> <p>Environmental Impact/Compliance: Minor effects on biological or physical environment. Minor short-term damage to small areas.</p> <p>Corporate Image or Utility: Corporate image not affected, written complaint or concern dealt with internally.</p> <p>Community Affairs: Minimal local community concern with no lasting damage to relations.</p>
Insignificant	<p>Minor incident or inefficiency of little or no consequence.</p> <p>Health and Safety: No injury or lost time.</p> <p>Production: One to two weeks production loss or expenditure.</p> <p>Cost: &lt;\$100,000 damage or additional costs.</p> <p>Environmental Impact/Compliance: No lasting impacts. Low-level effects on biological or physical environment. Limited damage to minimal area of low significance.</p> <p>Corporate Image or Utility: Corporate image not affected or verbal complaint dealt with internally.</p> <p>Community Affairs: No community concern</p>

**Table 9-3.2 Likelihood of Accidents and Malfunctions (No Change)**

Likelihood	Description in Context of Full Operating Life of the Facility	Frequency
Almost Certain	Consequence expected to occur in most circumstances	High frequency of occurrence - occurs more than once per year
Likely	Consequence will probably occur in most circumstances	Event does occur, has a history, occurs once every 1 to 10 years
Possible	Consequence could occur at some time	Occurs once every 10 to 100 years
Unlikely	Consequence may occur at some time	Occurs once every 100 to 1000 years
Rare	Consequence may occur at some time	Occurs once every 1,000 to 10,000 years
<b>NOTE(S):</b>		
1. REFER TO APPENDIX 10A-2 STANDARD FOR HAZARD IDENTIFICATION AND RISK ASSESSMENT.		

**Table 9-3.3 Risk Matrix (No Change)**

Consequence	Likelihood				
	Rare	Unlikely	Possible	Likely	Almost Certain
<b>Critical</b>	Moderate	Moderate	High	Extreme	Extreme
<b>Major</b>	Low	Moderate	Moderate	High	Extreme
<b>Moderate</b>	Low	Moderate	Moderate	Moderate	High
<b>Minor</b>	Very Low	Low	Moderate	Moderate	Moderate
<b>Insignificant</b>	Very Low	Very Low	Low	Low	Moderate

**Table 9-3.4 Major Accidents and Malfunctions Risk Summary (No Change)**

Project Sector	Issue of Concern	Consequence	Likelihood	Risk Rating
Mine Site	Open pit and waste rock stockpile – slope failure causing production delay or human injury	Minor	Unlikely	Low
	Explosive accidents (accidental detonation of explosives) causing human injury or fatality	Major to Critical	Rare	Low - Moderate
	Hazardous material release resulting in contamination of environment	Minor	Unlikely	Low
	Truck accidents resulting in human injuries or fatalities	Major to Critical	Unlikely	Moderate
	Open Pit flooding resulting in a production delay	Minor	Unlikely	Low
	Open Pit flooding resulting in a human injury	Major	Unlikely	Moderate
	Fire at the camp facilities and infrastructure resulting in human injuries or fatalities	Major to Critical	Unlikely	Moderate

**Table 9-3.4 Major Accidents and Malfunctions Risk Summary (No Change) (Cont'd)**

Project Sector	Issue of Concern	Consequence	Likelihood	Risk Rating
Mine Site	Failure of power supply resulting in human injuries or fatalities	Major to Critical	Rare	Low - Moderate
	Failure of WWTP resulting in environmental contamination	Minor	Unlikely	Low
	Contamination or interruption of water supply resulting in effects on human health	Moderate	Rare	Low
Tote Road	Road embankment failure/collapse of water crossing resulting in environmental degradation	Insignificant	Likely	Low
	Hazardous material release resulting in environmental contamination	Minor	Rare	Very Low
	Truck accident resulting in human injuries	Moderate	Likely	Moderate
	Collision with other users resulting in human injuries or fatalities	Major - Critical	Unlikely	Moderate
	Weather related strandings resulting in human injuries	Major	Possible	Moderate
	Collision with wildlife Resulting in injury to wildlife	Minor	Unlikely	Low
Railway	Road embankment failure/collapse of water crossing resulting in environmental degradation	Insignificant	Possible	Low
	Derailment resulting in human injuries or fatality	Major - Critical	Rare	Low - Moderate
	Tunnel collapse resulting in human injuries or fatality	Major - Critical	Rare	Low - Moderate
	Weather related strandings resulting in human injuries or fatality	Major - Critical	Rare	Low - Moderate
	Hazardous material release resulting in contamination of the environment	Minor	Rare	Very Low
	Collision with human resulting in human injury	Major	Rare	Low
	Collision with wildlife Resulting in harm to wildlife	Minor	Unlikely	Low
Milne Port and Steensby Port	Diesel spill – ship to shore transfer resulting in contamination of the marine environment	Minor	Unlikely	Low

**Table 9-3.4 Major Accidents and Malfunctions Risk Summary (No Change) (Cont'd)**

Project Sector	Issue of Concern	Consequence	Likelihood	Risk Rating
Milne Port and Steensby Port	Fire at the camp facilities and infrastructure resulting in human injuries or fatalities	Major - Critical	Unlikely	Moderate
	Failure of power supply resulting in human injuries or fatalities	Major - Critical	Rare	Moderate
	Failure of WWTP resulting in harm to human health or the environment	Minor	Unlikely	Low
	Contamination or interruption of water supply resulting in an effect on human health	Minor	Possible	Low
	Congestion at Port resulting in damage to vessels, possible spills, production delay	Minor	Unlikely	Low
	Hazardous material release resulting in environmental contamination	Minor	Unlikely	Low
	Ice accumulation at Port resulting in damage to port infrastructure and vessels, production delay	Insignificant	Likely	Low
	Introduction of invasive species (marine and terrestrial)	Minor	Likely	Low
Air traffic	Aircraft or helicopter crash resulting in human injuries or fatalities	Major - Critical	Rare	Low - Moderate
Shipping	Collision with marine mammals resulting in harm to marine mammals	Minor	Rare	Very Low
	Engine failure resulting in a delay in shipping	Insignificant	Possible	Moderate
	Ship grounding resulting in damage to ship or possible harm to aquatic life	Minor	Unlikely	Low
	Ice/ship interaction resulting in a delay or possible damage to vessel	Insignificant	Likely	Low
	Collision with other vessels resulting in damage to ship, possible harm to aquatic life	Moderate	Rare	Low
	Major diesel spill along the shipping route resulting in contamination of marine and coastal environment along shipping route	Critical	Possible	High
<b>NOTE(S):</b> ASSESSMENT IS BASED ON OPERATIONAL CONTROLS IMPLEMENTED ON THE BASIS OF BEST MANAGEMENT PRACTICES AS OUTLINED IN BAFFINLAND'S EHS MANAGEMENT SYSTEM (REFER TO VOLUME 10, AND APPENDIX 10A-2 FOR HAZARD IDENTIFICATION AND RISK ASSESSMENT PROCEDURE).				

**Table 9-3.5 Ratings for Evaluating Significance of Residual Effects of Accidents and Malfunctions (No Change)**

3.2	<u>MINE SITE (NO CHANGE)</u>
3.2.1	<u>Open Pit Slope Failure or Waste Rock Stockpile Slope Failure (No Change)</u>
3.2.2	<u>Open Pit Flooding (No Change)</u>
3.2.3	<u>Explosives Accident (No Change)</u>
3.2.4	<u>Accidental Discharge of Hazardous Materials (No Change)</u>
3.2.5	<u>Traffic Accident (No Change)</u>
3.2.6	<u>Fire at the Camp Facilities and Infrastructure (No Change)</u>
3.2.7	<u>Failure of the Camp Power Supply (No Change)</u>
3.2.8	<u>Failure of the Wastewater Treatment Plant (No Change)</u>
3.2.9	<u>Contamination of the Water Supply (No Change)</u>
3.3	<u>TOTE ROAD (NO CHANGE)</u>
3.3.1	<u>Traffic Accidents and Release of Hazardous Materials (No Change)</u>
3.3.2	<u>Collision with Wildlife (No Change)</u>
3.3.3	<u>Road Embankment Failure and/or Collapse of a Water Crossing (No Change)</u>
3.3.4	<u>Weather-related Strandings (No Change)</u>
3.4	<u>RAILWAY OPERATION RELATED ACCIDENTS AND MALFUNCTION (NO CHANGE)</u>
3.4.1	<u>Train Derailment with Ore Cars or General Non-Hazardous Freight (No Change)</u>
3.4.2	<u>Train Derailment with Fuel or Other Hazardous Materials (No Change)</u>
3.4.3	<u>Train Collisions (No Change)</u>
3.4.4	<u>Injury to Passing Hunters at Steensby Inlet (No Change)</u>
3.4.5	<u>Collapse of the Railway Tunnel (No Change)</u>
3.5	<u>MILNE PORT AND STEENSBY PORT (NO CHANGE)</u>
3.5.1	<u>Ship-to-shore Fuel Transfer (No Change)</u>
3.5.2	<u>Fuel Spill from Over Wintering Fuel Barge/Vessel (No Change)</u>
3.5.3	<u>Ice Accumulation at the Port (No Change)</u>
3.5.4	<u>Congestion at the Port (No Change)</u>
3.5.5	<u>Introduction of Invasive Marine Species (No Change)</u>
3.5.6	<u>Introduction of Terrestrial Invasive Species (No Change)</u>
3.6	<u>SHIPPING RELATED ACCIDENTS AND MALFUNCTIONS (NO CHANGE)</u>
3.6.1	<u>Collision with Marine Mammals (No Change)</u>

- 3.6.2 Ship Engine Failure at Sea (No Change)
- 3.6.3 Cargo Ship or Ore Carriers Grounding without Fuel Spill (No Change)
- 3.6.4 Fuel Tanker Grounding or Collision Causing Fuel Spill (No Change)
- 3.6.5 Ice / Ship Interaction (No Change)
- 3.6.6 Collision with Other Vessels (No Change)
- 3.7 AIR TRAFFIC (NO CHANGE)
- 3.8 MAJOR DIESEL SPILL AT PORT OR ALONG THE SHIPPING ROUTE (NO CHANGE)
- 3.8.1 Worst-Case Scenario (No Change)

**Table 9-3.6 Relative Risk Value of a “Worst-case Spill Scenario” per Vessel Type (No Change)**

- 3.8.2 Spill Modelling (No Change)
- 3.8.3 Fate of Diesel Fuel – Natural Weathering Processes (No Change)
- 3.8.4 Mitigation Measures (No Change)
- 3.8.5 Recovery Methods for Spills (No Change)
- 3.8.6 Canadian Coast Guard (CCG) Response in the Arctic Region (No Change)
- 3.8.6.1 CCG Expectations of Oil Handling Facilities (OHF) for Response (No Change)

**Table 9-3.7 Canadian Coast Guard Arctic Community Pack Locations (No Change)**

- 3.8.6.2 Recent Enhancements to the CCG Response Capability in the Arctic Region (No Change)
- 3.8.6.3 Interaction of CCG with Industry and Potential Polluters (No Change)
- 3.8.7 Potential Effects of a “Worst-Case” Spill Scenario (No Change)
- 3.8.7.1 Impact on Seabirds (No Change)
- 3.8.7.2 Impact on Marine Mammals (No Change)
- 3.8.8 Large Spill Modeling - Establishing the Size and Trajectory of the Spill (No Change)
- 3.8.9 Spill Modelling at Milne Port (Appendix 9A) (No Change)
- 3.8.10 Spill Modelling at Steensby Port (Appendix 9B) (No Change)
- 3.8.11 Generic Spill Scenario along the Shipping route (Appendix 9C) (No Change)



### 3.9 DISCUSSION RELATED TO EARLY REVENUE PROJECT (NEW)

Additional accidents and malfunctions scenarios associated with the ERP activities/infrastructure are related to:

1. Increased Tote Road traffic (ore truck fleet).

Accidents and malfunctions have already been identified and assessed as part of the approved Project. The increased frequency of the vehicle traffic along the Tote Road does not change the conclusions of the assessment presented in Table 1-7.4.

2. Ore carrier movements in and out of Milne Port and Milne Inlet.

Approximately 55 vessels will sail in and out of Milne Inlet during the open-water season. Types of accidents and malfunctions that could occur are listed in Table 9-3.4 and were discussed in section 3.5, Volume 9 of the FEIS. The added shipping traffic related to the ore carriers does not change the conclusions of the assessment presented in Volume 9, Section 3.9 of the FEIS.

In terms of fuel delivery and fuel tanker traffic in and out of Milne Inlet, the potential accidents and malfunctions, including fuel spills, were discussed at length in FEIS Volume 9, Sections 3.8 and are summarized in Section 7.2 below.

#### 3.9.1 Emergency Response Plan (Change)

The number of hazardous substances transported, stored and used on the sites is limited. Bulk hazardous material consists of:

- Arctic grade diesel fuel and aviation fuel (Jet A)
  - Transported by tankers during open-water season to Milne Port;
  - Stored in tank farms at Milne Port;
  - Transported by truck from Milne Port to the Mine Site during the construction and operations phases;
- Ammonium nitrate for the manufacture of explosives
  - Received in one tonne tote bags placed within Seacan containers at Milne Port;
  - Transported by flatbed truck to the Mine Site storage area or the emulsion facility for the preparation of emulsion; and
  - Ammonium nitrate and diesel fuel are used to prepare an emulsion used for blasting at quarries and the Mine. This emulsion is transported by specialized equipment.

In terms of storage of fuel, all tank farms (Milne, Mine Site and Steensby) will be constructed in accordance with applicable codes and regulatory requirements. All fuel tanks will be installed within impermeable secondary containments. Detailed designs of these containments are presented in FEIS Volume 3, Appendix 3B, Attachment 5, and are approved under Baffinland's Type A Water Licence.

All other hazardous substances are limited in quantities and are stored in barrels/drums or specialty containers transported within the confine of Seacan containers. Such hazardous substances include:

- Lubricating oils and greases for use in the maintenance facilities;
- Minor amounts of paints and solvent used for cleaning in maintenance facilities;
- Acetylene (in bottles) used for cutting/welding;

- Cleaners, soaps and solvents; and
- Reagents for laboratory, water and sewage treatment facilities.

These materials are stored in accordance with MSDS instruction in warehouses or at the maintenance facilities (either at Steensby or the Mine Site). Hazardous waste generated by the use of these chemicals is contained within maintenance facilities (or place of use), collected and packaged in appropriate containers, and stored in a designated Hazardous Waste Storage Area (as outlined in the Waste Management Plan) until they are shipped offsite for treatment at an approved Hazardous Waste Treatment Facility in accordance with Transport Canada regulations and the Basel Convention on the handling/transportation and disposal of hazardous material. For a more detailed description of the hazardous chemical and hazardous waste storage facility, see FEIS Volume 3, Appendix 3B, Attachment 5. Storage facilities and management plans associated with the handling and storage of hazardous substances were included in the Type A Water Licence for approval by the Nunavut Water Board (NWB).

The Emergency Response and Spill Contingency Plan identifies the resources available (human and equipment) for response to spills and uncontrolled releases. Given the context described above, for the Mary River Project, it is evident that the transportation, handling and storage of diesel fuel and Jet A fuel, and the transportation, handling and storage of ammonium nitrate are the likely source of large uncontrolled releases of hazardous substance. Therefore, Baffinland's Emergency Response and Spill Contingency Plan focuses mainly on fuel and ammonium nitrate spills.

It should be noted that ammonium nitrate does not pose a risk of explosion. When ammonium nitrate is mixed with diesel fuel, it produces an emulsion used in explosives. Production occurs in a controlled environment at the emulsion production facility. The emulsion is then transported by specialized vehicles to the end use at the quarry sites or mine site. The use, storage and handling of explosives are strictly regulated, and Baffinland will retain a qualified licensed contractor. A detailed explosives management plan is presented in FEIS Volume 3, Appendix 3B, Attachment 8, which was included in the Type A Water Licence for approval by the NWB.

With respect to fuel, the Emergency Response and Spill Contingency Plan presented in FEIS Volume 3, Appendix 3B, Attachment 5, has been updated to reflect the level of activities for the 2013 work plan and was included in the Type A Licence. The Plan addresses all credible spill scenarios. The 2013 Milne Port OPEP has been reviewed by Transport Canada and must be reviewed annually. The OPEP addresses possible/credible fuel spill scenario for ship to shore transfer of fuel and fuel storage at the Port facilities.

Baffinland's overall Emergency Response and Spill Contingency Plan also addressed fuel spills that could occur during transport by tanker truck.

#### 3.9.1.1 Preparedness and Spill Response (Change)

As explained during the NIRB final hearings for the Project Certificate (July 2012), Baffinland's approach to Preparedness and Emergency Response consist of:

1. Compliance with regulatory requirement,
2. Prevention during planning and design,
3. Implementation of effective management plans, and
4. Maintaining a well trained Emergency Response Team on site at all time.

In terms of ensuring compliance with all regulatory requirements, Baffinland has formed a number of work groups with regulators to ensure that the intent of the shipping regulations are well understood and effectively implemented. For example:

- Work Group for preparedness and Emergency Response – includes representatives of TC, CCG, QIA, GN, EC and DFO, and
- Work Group on Security – includes representatives of TC, GN, Department of Justice, RCMP.

The focus of Baffinland's effort is on prevention of unplanned events and accidents. This begins with the undertaking of comprehensive risk assessment at each critical phase of the project (hazard and operability studies) and ensuring the reliability and safety of the installations and equipment. Another important component is the selection of suppliers and operators with Arctic experience and expertise.

The third aspect of Baffinland's approach preparedness and prevention is the implementation of effective management plans. The Company's Environmental, Health & Safety Management framework, presented in Volume 10 of the FEIS, is based on the concepts of adaptive management and continuous improvement. Management plans evolve over time. The experience acquired over time is used to inform, improve and adapt the management plan.

With respect to accidents and malfunctions related to the ERP, three management plans deal with shipping activities:

- Overall Emergency Response and Spill Contingency Plan;
- The Milne Port Oil Pollution Emergency Plan (OPEP) which is specific to the Oil Handling Facilities (Appendix 10C-2 for Milne Port and Appendix 10C-3 for Steensby Port); and
- Ship Oil Pollution Emergency Plan which is mandatory for every vessel sailing in Canadian waters.

Management plans must be reviewed and approved by the regulators annually. The emergency response plans take into consideration the environmental sensitivities of the areas as identified during risk assessment workshops.

It is important to note that Baffinland has involved and will continue to involve external expertise to assist in the development of the emergency response plans and to assist or provide training of its Emergency Response Team, and the work group on Preparedness and Emergency Response will continue to provide valuable feedback.

The fourth aspect of Baffinland's approach focuses on the effectiveness of the ERT. All team members undergo formal safety and emergency training. Baffinland will maintain a well trained dedicated ERT on site at all times. Training will be specific to accidents and emergencies and will focus on identification of emergencies and acceptable/appropriate response actions and techniques. ERT training includes classroom and practical field exercises. The classroom training covers:

- The reviews of standard operating procedures,
- The use of personal protective equipment,
- Signalling an emergency,
- The identification of evacuation routes and muster locations, and
- Reporting and the notification protocol, and other general safety procedures.

Baffinland will undertake annual spill exercises to test the readiness of management and responders, and to practice and validate the logistics of the deployment of spill gear. These exercises will ensure that spill contingency procedures are effective and up to date. The Company will retain external expert organizations to assist in delivery of training. External organization such as Transport Canada, the Canadian Coast Guard, representatives of the Government of Nunavut and of North Baffin Island communities will be invited to participate in the training and field exercises.

### 3.9.2 Fuel Delivery (Change)

Fuel will be unloaded by the floating hoses, commonly used in the Arctic. The distance between onshore fuel storage and the fuel tanker is about 400m. The shipping contractor will establish appropriate off-loading procedures based on regulatory requirements in order to prevent or quickly contain any spills or releases. These requirements and procedures are detailed in the Shipboard Oil Pollution Emergency Plan (SOPEP), which is a requirement of the Canada Shipping Act.

As well, Baffinland will have standard operating procedures for the unloading process. These are detailed in the Milne Port OPEP. Transfers of fuel will only occur as weather permits.

#### 3.9.2.1 Spill Modelling at Milne Port (Change)

Fuel spill modelling carried out for Milne Port is presented in FEIS Volume 9, Appendix 9A. Modelling was based on spill of Arctic diesel and assumes worst-case scenario (5ML spill) without intervention. The modelling was based on current information and wind data for Milne Inlet and considers the fate and persistence of fuel spill on water during open-water season temperatures. Diesel is volatile; it evaporates and disperses in the water column rapidly. It is expected that up to 90% of the spill will weather within 96 hours (60% evaporation and 30% dispersal in water column).

The purpose of modelling is to identify the trajectory of fuel slick on water and in environmentally sensitive areas of coastline adjacent to the port; that is a credible worst-case scenario. Spill modelling for Milne Port indicates that up to 90% of trajectories are expected to reach shoreline in less than four hours. Hence preparedness and rapid deployment of response equipment are essential elements of the spill response strategy.

### 3.9.3 Large Spill Along Shipping Route (Change)

Large diesel fuel spills along the Milne Inlet – Eclipse Sound shipping route (FEIS Volume 9, Appendix 9F) were modeled to determine the size and direction of a potential diesel slick and to assess potential impacts.

Baffinland commissioned a study by Coastal & Ocean Resources Inc. on the *Coastal Sensitivity of Proposed Port and Shipping Routes* for the ERP (FEIS Addendum Volume 9, Appendix 9F). This study considers the potential for open water diesel spill associated with fuel shipment to Milne Inlet. The assessment examines potential environmental sensitivity associated with the Milne Inlet – Eclipse Sound shipping route.

Arctic diesel fuel and Jet-A fuel will be delivered to Milne Port in 10-20 ML tankers. For reasons explained in the Milne Port spill modeling report (FEIS Volume 9, Section 3.8.8 and FEIS Appendix 9A), a potential worst-case scenario for a spill is approximately 5 ML (10% of the cargo). For the reader's information, the worldwide Oil Tanker Spills Statistics for 2011, prepared by the International Tankers Owners Pollution Federation Limited (ITOPF) is presented in FEIS Addendum Appendix 9D. This report

confirms that the vast majority of spills occurred at dock while loading or unloading fuel and were generally less than 7 tonnes.

The result of the spill modeling for Milne Port can be used to infer outcome of potential spill scenarios along the shipping route. The Milne spill scenario was modeled in OilMap, a widely used spill-modeling program, which assumed spill volumes and release periods, previously measured wind conditions for open-water periods and predicted tidal currents to predict possible fuel spill trajectories. Evaporation of the spill, dispersal of fuel into the water column and stranding of fuel along shorelines are the primary dissipation processes. A diesel slick is tracked as part of the modeling process. Plots of individual model runs provide a spatial picture on the extent of the spill at any one time. The spill is modeled over a wide variety of measured wind conditions to build a stochastic picture of spill probability around the site. The spill probability envelopes indicate the potential of spills to reach a certain point. The modeling results are developed for a specific site and rely on appropriate wind data and tidal current data for that site. Thus the predictions and results are specific to a site.

Diesel is a relatively volatile fuel and weathering is relatively rapid. The overall extent of a spill in open water is limited by nearby shoreline and drift from the spill site. The above assumptions can thus be used to develop a generic worst-case spill description based on site-specific modeling.

#### 3.9.3.1 Diesel Spill Along the Northern Shipping Route (Change)

The northern shipping route enters eastern Eclipse Sound from Baffin Bay and turns southwards into Milne Inlet, at the western end of Eclipse Sound. The proposed unloading port is at the head of southern terminus of Milne Inlet. The shipping route passes within the 15 km of Pond Inlet. Approximately 600 km of Milne Inlet-Eclipse Sound-Pond Inlet shoreline lie within the *area of concern* (i.e., the 15 km swath each side of the proposed shipping route).

Concentrations of narwhal occur in Milne Inlet during open-water season. Although the sensitivity of narwhal to spills is unknown, the large aggregation of animals in a small area could result in a significant exposure to a worst-case, open-water diesel spill.

There are large aggregations of marine birds along the proposed shipping route, particularly near the eastern mouth of Pond Inlet. Some estimates suggest that as much as 1% of some bird populations could be represented within a single aggregation (Mallory and Fontaine, 2004). These aggregations represent a significant concern for a worst-case, open-water spill.

#### 3.9.3.2 Effects Assessment of a Major Diesel Spill Along the Shipping Route (Change)

In the unlikely event that a major diesel fuel spill would occur along the shipping route, it would have a significant environmental effect. However, refuelling of fuel depots is a well mastered routine activity in Arctic communities. Furthermore, Baffinland will receive fuel during the open-water season. A recent study published by the National Energy Board looked at the effectiveness of oil spill recovery techniques for the Beaufort Sea and the Davis Strait under a range of weather conditions. The study looks at the time of the year when three types of response measures are effective for spill recovery on the basis of wind conditions, wave conditions, and visibility. The response measures investigated are *in-situ* burning, containment and recovery, and use of dispersant.

The study concludes that for the central Davis Strait, the months of June, July, August and September, at least one method of response intervention is applicable 100%, 100%, 99% and 95% of the time

respectively (on the basis of wind and wave data). The effectiveness of recovery methods can drop to the low 80% by November. In terms of fuel delivery for the ERP, this study confirms that the known response measures for dealing with spills would be effective.

### 3.9.4 Possible Significant Effects [\(Change\)](#)

Safety is of paramount importance, and human injury (occupational or to bystanders) is a serious occurrence. Human fatality is considered a significant event. Therefore, it is recognized that a human fatality resulting from an accident or malfunction, while considered an unlikely event, is significant and adverse.

A second potential significant effect identified is that of the unlikely potential for a large fuel spill to occur along the shipping route. Depending upon location and other factors such as weather, a diesel spill by a tanker in the open water could result in a moderate magnitude effect to most marine environmental components and a high magnitude effect to seabirds. A large spill, depending upon the location and sensitivity of the area, could have a large extent (Level II or possibly Level III) and effects are potentially permanent (Level III duration) and only partially reversible (Level II reversibility).

#### 3.9.4.1 Response For Fuel Spill along Shipping Route [\(Change\)](#)

Response at sea requires specialized skills and training. Baffinland's emergency response team (ERT) is present at Milne Port and ready to respond to spill. Responders, work boats and other response equipment are on stand-by during fuel transfers. The ERT will implement the spill contingency plan should a spill occur within reasonable reach of Milne Port. It is expected that, for spills occurring during ship-to-shore transfer or at close range to the Port, the ERT will be on scene well within an hour and response equipment located at Milne Port could be rapidly deployed, since all equipment and resources are strategically placed near the beach front. This equipment includes workboats, containment booms, skimmers/pumps, barge, and recovery equipment. In the event of a spill, on-water recovery will be initiated immediately upon containment of free-floating product.

Accidents and malfunctions along the shipping route that could result in a fuel spill were assessed in Volume 9, Sections 3.6 of the FEIS. The worldwide Oil Tanker Spills Statistics for 2011, prepared by the International Tankers Owners Pollution Federation Limited (ITOPF) is presented in FEIS Addendum Appendix 9D. This report confirms that the vast majority of spills occurred while loading or unloading fuel and are generally less than 7 tonnes. Furthermore, Canadian regulations required that fuel tankers navigating in Arctic waters be double-hull vessels. Figure 9-3.1 presents the typical configuration of a double-hull full tanker.

The likely scenarios considered that could lead to a spill event are:

- Ship engine failure at sea (possible; moderate risk) – many ships have dual engines;
- Ship grounding (unlikely, low risk) – bathymetry along shipping corridor is known; and
- Collision with other vessels (rare, low risk) – radar very low incidence of collision.

For a fuel spill to occur, accidents must lead to a breach of the ship's hull. Because of the tanker ship double-hull design, systems redundancy, and the focus on prevention of accidents and malfunctions, the recorded frequency of such accidents and malfunctions is very low. In support of this statement, Baffinland points to the millions of tonnes of fuel cargo transiting in the St. Lawrence River annually, as well as the large tanker traffic off the coast of Norway, where no major fuel spills have occurred.



Despite the all efforts place on prevention, however, the remote possibility of a spill along the shipping route remains a concern. This was assessed in FEIS Volume 9, section 3.8. The FEIS concluded that the risk of a spill event along the shipping route is low.

Subsequent to the FEIS, Baffinland held a risk assessment workshop on June 18, 2012, with the objective of identifying possible shipping related hazards and risks along the shipping route. This workshop was attended by representatives of TC, CCG, QIA, DFO and EC as well as representatives of two shipping companies - Fednav and PetroNav. Their conclusion supported the FEIS conclusion: that "the risk of a spill along the shipping route is unlikely with the prevention measures in place and the strict adherence to the "rules of the road" for shipping. Minutes are presented in FEIS Addendum Volume 9, Appendix 9E.

The key spill prevention measures identified during this workshop are as follows:

- Ship Master's responsibility is to navigate with caution. He is ultimately responsible for the safety of his crew and of the ship;
- Transport Canada requires any tanker built after 1993 to be double-hulled to operate in Canadian waters;
- Vessels have anti-collision devices with alarms and radar to ensure that collisions are avoided;
- Vessels are equipped with several dual/redundant backup systems such as twin engines and radar, and have redundancy for navigational systems and communication systems; and
- Shipping route bathymetry is known.

As stated by the Canadian Coast Guards and Transport Canada, the "Rules of the Road" for shipping are:

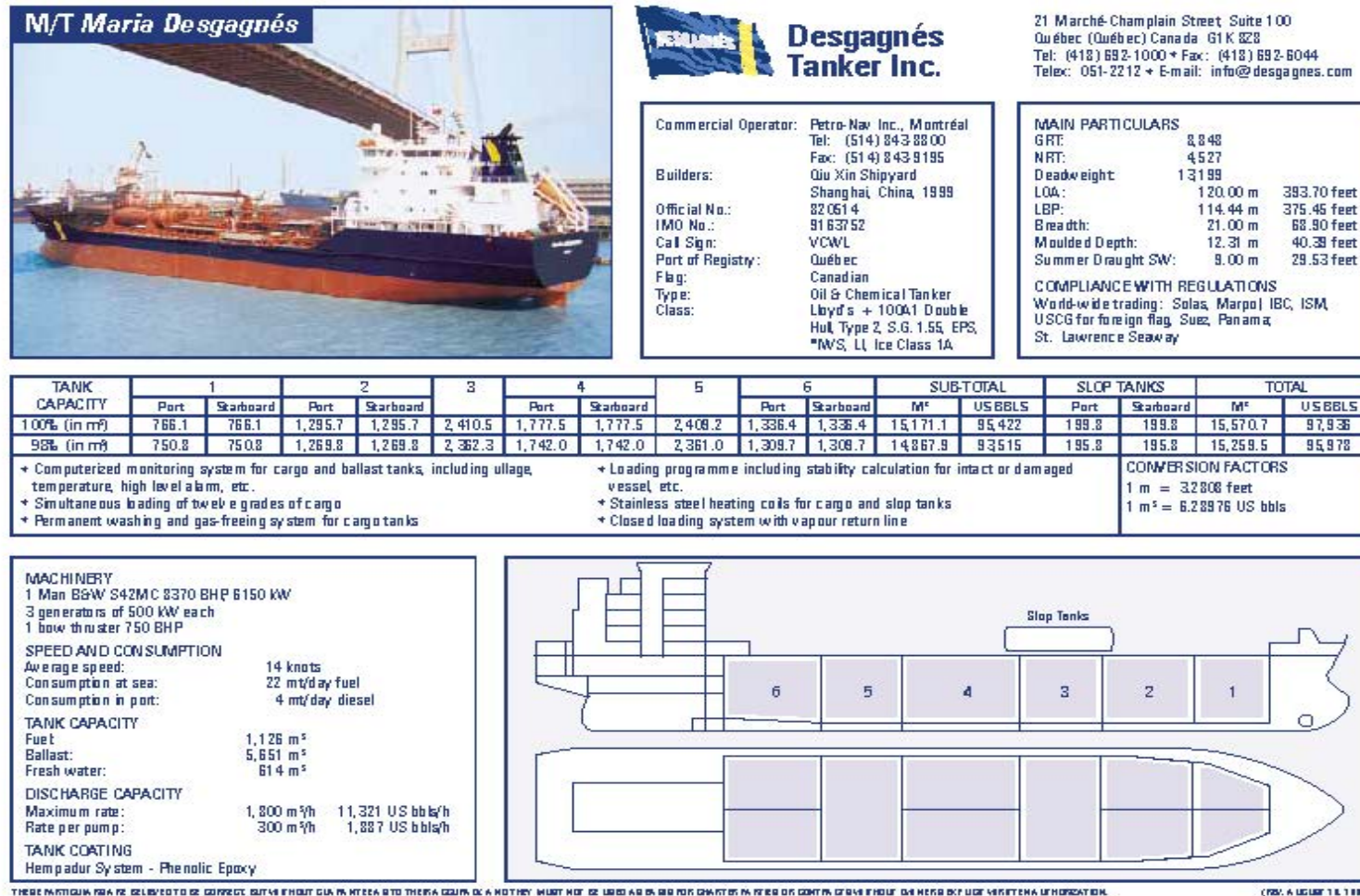
1. Shipping operators must abide by the established regulatory framework;
2. Ships must sail within the established shipping corridor; and
3. Ships must have a Shipboard Oil Emergency Response Plan (SOPEP).

Additional prevention measures adopted by Baffinland include:

- The environmentally sensitive areas along shipping route have been identified. This information is presented in Appendix 9F (Milne Inlet Coastal Sensitivity Report);
- Shipment of bulk fuel during the open-water season; and
- Selection of suppliers with Arctic expertise and experience in delivery of fuel.

For response along the shipping route, as required by regulation, Baffinland must have the capabilities to escalate its response to cope with a 10,000 tonne fuel spill. Discussions are underway with a third party response organization (RO) to develop strategy on how to escalate response capabilities for a spill of up to 10,000 tonnes. This RO will provide expertise for emergency response training and assistance for emergency response along shipping route and will have capabilities to bring in expertise for cleanup of wildlife if required.

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**Figure 9-3.1 Typical Double-hull Fuel Tanker (courtesy of PetroNav) (New)**



### 3.9.4.2 Effects Assessment of a Spill Along Shipping Route (Change)

The assessment is based on what could be considered worst-case scenario for a spill event from a 50,000 capacity fuel tanker sailing in the Canadian Arctic. The spill modelling assumes no containment or response action for this spill.

The assessment considers fate and persistence of diesel fuel. In open water, due to weathering, over 90% of the fuel is likely to weather within 96 hour, that is, approximately 60% of the 5,000 tonnes spill would evaporate and another 30% would disperse in the water column. In a worse case, persistence of the slick would be one to two weeks. It is highly probable that 98% of the trajectories of the slick will be largely confined to a 15 km swath on each side of the spill location. Shoreline outside the swath is unlikely to be impacted.

Shoreline characterisation and sensitivity along the shipping route undertaken by Coastal and Ocean Resources Inc. is presented in FEIS Addendum Appendix 9F. This work will enable Baffinland to adapt emergency response strategies for the appropriate ecological sensitivities of the shoreline potentially affected by the spill.

Although the risk of occurrence is low, Baffinland acknowledges that the environmental consequences of a diesel spill along the shipping route could be severe, and therefore considers the potential effects of such a spill as significant.

In conclusion:

1. The risk of a spill along the shipping route is low or unlikely because of the prevention measures incorporated into the Project.
2. If there is an accident or malfunction associated with vessels along the shipping route, Baffinland will be prepared to intervene effectively and rapidly.
3. The risk of Transboundary effect associated with a fuel spill is considered very unlikely (very low risk) because the shipping route is entirely within Nunavut territory.

### 3.10 RESIDUAL EFFECTS SUMMARY (NO CHANGE)

#### **Table 9-3.9      Significance of Residual Effects from Accidents and Malfunctions (No Change)**

### 3.11 AUTHORS (NO CHANGE)

## SECTION 4.0 - TRANSBOUNDARY EFFECTS ASSESSMENT (CHANGE)

- 4.1 INTRODUCTION (NO CHANGE)
- 4.2 BOUNDARIES (NO CHANGE)
- 4.3 RELEVANT INTERNATIONAL AGREEMENTS (NO CHANGE)
  - 4.3.1 Arctic Environment Protection Strategy – 1991 (No Change)
  - 4.3.2 Polar Bear Conservation (No Change)
  - 4.3.3 Exchange of Information Related to Energy Project - Canada-Greenland Collaboration (No Change)
  - 4.3.4 Collaboration on Oil Spill Preparedness and Spill Response (No Change)
  - 4.3.5 Canada-Greenland Joint Commission on the Conservation and Management of Narwhal and Beluga (No Change)

**Table 9-4.1 Summary of Project Transboundary Effects Assessment – VSECs (No Change)**

**Table 9-4.2 Summary of Project Transboundary Effects Assessment – VECs (No Change)**

### 4.4 DEFINITION AND APPROACH (CHANGE)

A transboundary effect can occur when animals move across jurisdictional boundaries (e.g., caribou and birds migrating) or when project activities themselves, or their zone of influence, cross jurisdictional boundaries (e.g., transportation and air quality). The focus of Baffinland's transboundary effects assessment is on the latter, as impacts to migratory VECs occurring within Nunavut are considered and fully assessed in both the component specific and cumulative effect assessments.

In accordance with the definition and guidance provided by NIRB, the transboundary effects assessment for the Project identifies if the effects from Project activities occur across provincial, territorial and international boundaries. The Project, including the proposed Canadian shipping route, is located entirely within the NSA and therefore only the resulting zone of influence of Project activities could potentially result in transboundary effects.

There are two jurisdictional boundaries that border the Qikiqtaaluk region of Nunavut. To the south of Baffin Island and across Hudson Strait is the Nunavik Inuit Settlement Area, which forms part of northern Quebec, and to the east of Baffin Island and across Davis Strait is Greenland. The Project does not directly cross into these jurisdictions.

The Project activities that could cause transboundary effects are shipping and air emissions. All other activities and VECs are not transboundary concerns because of the geographical location of the Project and the limited range of any possible or detectable effects. Transboundary socio-economic effects are not identified as a concern as employees from points of hire outside of Nunavut are accustomed to the wage economy.

The transboundary effect assessment is based on proximity to jurisdictional boundaries and possible long-range effects of contaminant deposition and shipping activities.

#### 4.5 ASSESSMENT (Change)

##### 4.5.1 Shipping (Change)

Three types of events could cause transboundary effects resulting from the Approved Project or the ERP shipping activity:

- A fuel spill along the shipping route;
- Marine mammals; and
- The introduction of invasive species.

##### 4.5.1.1 Large Fuel Spill Along the Shipping route (Change)

Large diesel spill scenarios along the shipping routes were modeled to predict the trajectory of a diesel spill and the coastline that could be impacted. This modeling estimated the marine and coastal areas potentially affected by an event and the initial weathering of the diesel. In most cases, the modeling indicates that the worst-case diesel spill of 5 ML is likely to have a relatively short duration, in the order of days to weeks

In terms of the northern shipping route (Milne – Eclipse Sound – Baffin Bay), the shipping route moves into international waters shortly after exiting Eclipse Sound. It is thus unlikely that a diesel spill would reach the coast of Greenland, and therefore the ERP does not result in transboundary effects.

##### 4.5.1.2 Marine Mammals (Change)

The impact assessment (FEIS Volume 8, Section 5) indicates that the Project will have no significant residual effects on the marine mammal population within the Project area or along the shipping routes. For this reason, current marine mammal migration patterns should not be impacted and no transboundary effects are anticipated.

##### 4.5.1.3 Introduction of Invasive Species (Change)

The introduction of an invasive marine species is a more likely outcome of a transboundary effect. In this scenario, an invasive species would be introduced to the Port areas via ballast water or by adherence to the hull.

To minimize the risk of introduction of such species, ballast water will be exchanged in the mid-North Atlantic Ocean, which is part of the same ocean regime as Steensby Port. Upon arrival at the port, the ships will discharge ballast water and take on ore. During winter the full ballast is required to assist in ice breaking, so the entire amount of ballast water (approximately 185,000 m<sup>3</sup>) will be discharged at the ore dock. During summer the ships may discharge ballast water along the shipping route before arriving at the dock, and only a partial load (in the order of 70,000 m<sup>3</sup>) will be discharged at the dock. To date, there is no compelling evidence to suggest that the release of ballast water in port will adversely affect the marine environment.

With respect to antifouling coating for the ships, the dedicated ore carriers (190,000 DWT) will have no antifouling, but if the project is supported by market ships, there may be (regulatory compliant) coatings in use. Smaller ore carriers will be taken from the market and will comply with international regulations prevailing at the time. Under the *Canada Shipping Act*, the Regulations for the Prevention of Pollution from Ships and for Dangerous Chemicals apply to all ships in Canadian waters and to all Canadian ships everywhere.

4.5.2 Climate Change/Air Quality (No Change)

4.5.3 Demographic Change (No Change)

4.5.4 Air Emissions (New)

The assessment of effects on air quality is presented in FEIS Volume 5 of the EIS. The air dispersion modeling carried out as part of the impact assessment shows that residual effects will not extend beyond 3 km from the Project site. As a result, and given the location of the Project, no transboundary air quality effects are possible. The operation of the ERP does not add significantly to dust emissions (refer to FEIS Addendum Volume 5).

In addition to local air quality, the Project will emit greenhouse gases (GHG) into the atmosphere, as diesel generators are the only current viable and available source of energy to operate the mine and support facilities. GHG emissions contribute to global warming, which is an issue of global concern that crosses all borders and affects all jurisdictions, particularly circumpolar countries. Baffinland acknowledges that GHG emissions are a broad-scale transboundary issue for which there is presently no viable alternative in Nunavut. The operation of the ERP does not add significantly to the amount of greenhouse gases generated by the Project (refer to FEIS Addendum Volume 5).

At the Project level Baffinland will report annually on performance indicators, including energy use and GHG emissions management. The report will show Nunavummiut and other Canadians the Company's current performance and how it can be improved. Baffinland will also explore ways of conserving energy as the Project moves through development, and will adapt accordingly.

**SECTION 5.0 - NAVIGATION OF WATERWAYS (CHANGE)****5.1 INTRODUCTION (NO CHANGE)****5.1.1 Purpose (No Change)****5.1.2 Relevant Legislation (No Change)****5.1.3 NWPA Related Consultation (No Change)****5.2 MILNE PORT (CHANGE)****5.2.1 Baseline Conditions (No Change)****5.2.2 Proposed Works (Change)**

The FEIS proposed a freight dock at Milne Port. The ERP introduces an ore dock.

At the onset of the Project, much of the construction material and supplies, fuel and mining equipment will be received at Milne Port during the open-water season. Up to 23 resupply vessels will dock at the peak during construction. This will transition into a similar level of ore carrier traffic for the duration of the ERP.

**5.2.3 Potential Effects and Mitigation (Change)****Collisions at Sea and Increased Navigation Risk (Change)**

Marine shipping required for the Project has the potential to affect other ship activity, use by small watercraft along the proposed shipping corridors, or in association with ship operations in and around Milne Port. The potential effects of marine shipping on navigation include:

- Risk of collision between cargo ships and other commercial marine traffic; and
- Increased navigation risk to small vessels by having to alter their normal course around the cargo ships, or tugs.

Mitigation of these potential effects is best achieved by adopting best industry practices and ensuring compliance with relevant legislation to reduce the risk of collisions.

The infrastructure required for Milne Port will change the existing coastline with the addition of the ore dock and construction/freight dock. The port docks and land-based infrastructure will make a portion of the beach unavailable for beaching small craft in this area, although the two primary use areas (for camping to the east of the port and for safe harbour/storage of small craft to the west within the mouth of Phillips Creek) will remain available for use.

**Interference with Coastline Navigation (No Change)****5.3 MILNE INLET TOTE ROAD (NO CHANGE)****5.3.1 Baseline Conditions (No Change)****5.3.2 Proposed Works (No Change)****5.3.3 Potential Effects and Proposed Mitigation (No Change)****5.4 RAILWAY (NO CHANGE)**

- 5.4.1 Baseline Conditions (No Change)
- 5.4.2 Proposed Works (No Change)
- 5.4.3 Potential Effects and Proposed Mitigation (No Change)
- 5.5 STEENSBY PORT (NO CHANGE)
- 5.5.1 Baseline Conditions (No Change)
- 5.5.2 Proposed Works (No Change)
- 5.5.3 Potential Effects and Proposed Mitigation (No Change)
- 5.6 POTENTIAL RESIDUAL EFFECTS AND SIGNIFICANCE (NO CHANGE)
- 5.7 AUTHORS (NO CHANGE)

## **SECTION 6.0 - REFERENCES (NO CHANGE)**

## **SECTION 7.0 - DEFINITIONS AND ABBREVIATIONS (NO CHANGE)**

- 7.1 GLOSSARY (NO CHANGE)
- 7.2 ABBREVIATIONS (NO CHANGE)



June 12, 2013

Mr. Brian Aglukark  
Nunavut Planning Commission  
P.O. Box 2101  
Cambridge Bay, NU, X0B 0C0

**Re: Mary River Project – Early Revenue Phase**

Dear Mr. Aglukark:

Thank you for your letter of April 13, 2013, which summarized the procedure the Nunavut Planning Commission ("**NPC**") will perform to address the proposed amendment related to Project Certificate No. 0005 (and related amendments to federal permits and licences) as required by Section 11.5.10 of the *Nunavut Land Claims Agreement* ("**NLCA**"). We are writing to provide NPC with the project proposal and other information requested by the NPC in its April 13, 2013 letter required, to enable NPC to make any required conformity determinations relating to the Early Revenue Phase ("**ERP**").

This letter and its attachments have been organized in a fashion to satisfy the NPC requests in their letter dated April 13, 2013 and the requirements of the NLCA. For the reasons set out in this letter, we believe that the ERP is in conformity with the North Baffin Regional Land Use Plan ("**NBRLUP**"), and that such works and activities can be treated as not changing the project proposal(s) that have already been reviewed for conformity under Section 11.5.10 of the NLCA.

***A. Overview of NPC Request and Information Provided in this Correspondence***

As noted in your letter, the NPC will determine on a timely basis whether the works or activities proposed in the application are relevant to the conformity requirements of the North Baffin Regional Land Use Plan.

In order to assist with NPC to complete its review, Baffinland is providing the enclosed "Early Revenue Phase Project Proposal for Nunavut Planning Commission Conformity Review" (Attachment # 1). In this letter, we provide reference to applications submitted to date as part of the Approved Project (see Part C below).

### ***B. Overview of Early Revenue Phase (ERP)***

The essential components of the ERP, those which have not been assessed as part of the Approved Project (Project Certificate No. 005), are as follows:

- Construction and operation of ore handling facilities at Milne Port (stockpile, ship-loading);
- Construction of fixed ore loading dock; and,
- Haulage of ore over the Milne Inlet Tote Road.

### ***C. Authorizations related to the Approved Project (Project Certificate No. 005)***

The following authorizations, licence or permits are associated with the Approved Project:

- Project Certificate No. 005 – Issued by Nunavut Impact Review Board (see link, Attachment #2).
- Type A Water Licence Application – FEIS, Volume 3, Appendix 3B (see link, Attachment #2).
- Determination of Harmful Alteration, Disruption or Destruction (HADD) of Freshwater Fish Habitat – FEIS, Volume 10, Appendix 10D-7A (see link, Attachment #2).
- Determination of Harmful Alteration, Disruption or Destruction (HADD) of Marine Fish Habitat – FEIS, Volume 10, Appendix 10D-7B (see link, Attachment #2).
- Land Use Permit N207F0004 (Section of Crown Land along Tote Road) – FEIS, Volume 2, Figure 2-2.1, and Table 2-2.3 (see link, Attachment #2).

Baffinland has evaluated each of the above documents in relation to the Proposed ERP, and concluded as follows:

- **Project Certificate No. 005:** As per our correspondence with NIRB and NPC during Spring 2013, Baffinland has identified the requirement to amend Project Certificate No. 005 before it may proceed with the Proposed ERP. If NIRB grants the amendment to the Project Certificate allowing Baffinland to proceed with the ERP, Baffinland will apply for amendments (if required) to the various pending permits, licences and authorizations the company expects to receive for the Approved Project.
- **Type A Water Licence Application** – Baffinland anticipates that all activities and facilities proposed for the ERP will be within the scope of the pending Type A Water Licence, as submitted with Appendix 3B of the FEIS. Although it is currently anticipated that amendments to the Type A Water Licence will not be required in order to proceed with the ERP, Baffinland will review the Type A Water Licence once it is issued and apply for amendments, should such amendments be required.



- **HADD Authorization for Proposed Ore Dock** – In addition to the HADD Authorizations already required for the Project, the ERP will require a HADD Authorization for the proposed Milne Port Fixed Ore Dock.
- **AANDC Land Use Permit** –The existing Land Use Permit (N207F0004) will be renewed in July 2013.

***D. Conformity of Early Revenue Plan with North Baffin Regional Land Use Plan***

The scope of the ERP is consistent with two previous conformity determinations for the Mary River Project, which we suggest are relevant in NPCs consideration:

- NIRB File No. 07EN012 – On January 22, 2007, NPC provided Baffinland with a positive conformity determination on for its 2007/08 bulk sampling program. This successfully completed program involved the following:
  - expansion of exploration phase camp facilities at the mine site
  - the establishment of camp facilities at Milne Port
  - upgrade of the Milne Inlet Tote Road to all-season capability
  - the mining of up to 250,000 tonnes of ore
  - haulage of the ore sample by truck to Milne Port
  - Ore stockpiling and ship loading facilities, and ocean shipment of ore to markets
- NIRB File No. 08MN053 – On April 30, 2008, NPC confirmed a positive conformity decision on the Baffinland's Development Proposal for the Mary River Project. The scope of the Project subsequently grew to include a 3 million tonne per year road haulage operation in the Draft Environmental Impact Statement ("**EIS**"), though this component of the Project was later withdrawn and was not included in the Final EIS.

We believe that that the ERP is in conformity with the NBRLUP and that such works and activities can be treated as not changing the project proposal(s) that have already been reviewed for conformity under Section 11.5.10, for the following reasons:

- The ERP works and activities are a modification of the works and activities outlined in Baffinland's previous project activities that received positive conformity determinations from the NPC; and,
- The ERP uses the existing Milne Inlet Tote Road, which is recognized as a public access easement under Article 21, Part 4 (Section 21.4.1) of the Nunavut Land Claim Agreement; and

***E. Request for NPC Determination***

We request your confirmation that the works and activities proposed under the ERP will be treated in accordance with paragraph 2 of your April 13 letter, as not outside of the scope of previous conformity determinations under Section 11.5.10 completed for the Mary River Project.

We look forward to NPC completing its conformity determination. To that end, we would like to request that NPC complete its review and issue its conformity determination to Baffinland and to NIRB on or before June 28, 2013, which will support the Nunavut regulatory process and permit the required NIRB processes to proceed in a timely manner.

We would be pleased to provide you with any additional information which you may require in reviewing conformity for the ERP, and otherwise to answer any general inquiries you may have about the Mary River Project. Please do not hesitate to contact me directly at [erik.madsen@baffinland.com](mailto:erik.madsen@baffinland.com) or (416) 996-5523.

Yours truly,

A handwritten signature in black ink, appearing to read 'Erik Madsen', with a stylized, cursive script.

Erik Madsen, Vice President  
Sustainable Development, Health, Safety & Environment

CC Ms. Sharon Ehloak - NPC

Ms. Navarana Beveridge - QIA

Mr. Ryan Barry - NIRB

Ms. Karen Costello - AANDC

Mr. Dale Nicholson - DFO

**ATTACHMENT #1**

**Project Proposal for Early Revenue Phase**



**MARY RIVER PROJECT**  
**Early Revenue Phase**  
**Project Proposal for**  
**Nunavut Planning Commission Conformity**  
**Review**

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## SECTION 1.0 - OVERVIEW OF PROJECT PROPOSAL

### 1.1 OVERVIEW

This document provides an overview of the Project Proposal for the proposed Early Revenue Phase (ERP), describing Project development phases, time frames, work required and a description of the associated infrastructure and activities. The overview has been prepared for the Nunavut Planning Commission (NPC) in order to facilitate the conformity review of the proposed ERP prior to the submission of the Addendum to the Final Environmental Impact Statement to the Nunavut Impact Review Board (NIRB).

The ERP includes certain changes to the Mary River Project as it was originally reviewed by the NIRB. Construction of additional facilities required for the ERP will commence once Project Certificate No. 005 is amended (expected in Q1 2014) by the NIRB to permit Baffinland to proceed with the project modifications included in the ERP. It is anticipated that construction of the ERP facilities will be completed by the end of Q1 2015.

For the approved Project (Project Certificate No. 005), all material, equipment and supplies required for the construction of the Mine Site and the northern portion of the railway will be delivered to Milne Port and transported to the Mine Site over the upgraded Tote Road. Therefore, the development of Milne Port (freight dock, laydown areas, expanded camp and sewage treatment facilities, maintenance shops and warehouses) and the upgrade of the Tote Road (limited realignment, replacement of culverts, addition of bridges) are an integral part of the Approved Project and were included in the scope of the Final Environmental Impact Assessment (FEIS) submitted for and approved on December 28, 2012 as Project Certificate No. 005.

The Early Revenue Phase (ERP) introduces the following additional activities that were not assessed in the FEIS of the Approved Project:

1. Mine Site
  - a. Loading of ore into trucks; and
  - b. Truck fleet (for haulage of ore).
2. Tote Road
  - a. Haulage of ore along the Tote Road.
3. Milne Port:
  - a. Ore stockpiling at Milne Port.
4. Marine Shipping
  - a. Ore carrier loading at Milne Port;
  - b. Ore carrier shipping volume and timing.

Permanent Project facilities will be located at the Mary River Mine Site, the Milne Port site and Steensby Port. The Mine Site will be connected to Steensby Port by a railway and to Milne Port by the existing Milne Inlet Tote Road (Figure 1-2.1). Marine access and shipping will occur seasonally through Milne Port and Steensby Port during the construction phase and year-round through Steensby Port during operations, but only during open water season to Milne Port.

Based on the iron ore reserves currently defined and under exploration in Deposit No. 1, the Project will operate for about 21 years. The Project Schedule is shown on Figure 1-2.2. Geological conditions suggest

that additional ore may be delineated as exploration continues, potentially extending the life and/or increasing the production rate of the Project. The development of other deposit(s) is conditional on future government approvals.

Site conditions play an important role in the planning and execution of the Project. The Project area experiences cold temperatures in the wintertime and near 24-hour darkness from November to January. Summers bring 24-hour daylight from May to August, with continued cool to cold conditions. Below, for the Nunavut Planning Commission's (NPC) convenience, Key Project Facts are presented in Table 1-2.1, not only for the proposed Early Revenue Phase but also for the Approved Mary River Rail Project. This will allow the NPC to evaluate the additional components that the ERP introduces in the overall context of the approved Project.

**Table 1-2.1 Key Project Facts (Approved Project and Early Revenue Phase)**

Ore Production and Shipment													
Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 +		
Project Phase	Approved Project Construction Phase												
			Early Revenue Phase					18 Mtpa Production Phase					
Ore Movement													
Mine Operation	Ore Mined - Mt		0.5 Mt	2.7 Mt	3.5 Mt	3.5 Mt	3.5 Mt	4.8 Mt	20 Mt	21.5 Mt	21.5 Mt	21.5 Mt	
	Truck Loading Stockpile at Mine		0.2 Mt	0.2 Mt	0.2 Mt	0.2 Mt	0.2 Mt	0.2 Mt					
	Run of Mine	-	-	-	-	-	0.4 Mt	0.4 Mt	0.4 Mt	0.4 Mt	0.4 Mt	0.4 Mt	
	Crushed Ore Stockpile	-	-	-	-	-	-	1.4 Mt	1.4 Mt	1.4 Mt	1.4 Mt	1.4 Mt	
	Waste Rock /Overburden		0.03 Mt	0.5 Mt	0.8 Mt	0.85 Mt	0.85 Mt	3.2 Mt	40Mt	54 Mt	54 Mt	60 Mt	
Tote Road	Ore transported		0.5 Mt	2.0 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	
	Truck fleet and size	140 t haul trucks (20 tractors with two 70 tonne trailers)											
	Number of ore trucks trip per day (average)		11	43	76	76	76	76	76	76	76	76	
	Average ore truck trip per day		22	86	152	152	152	152	152	152	152	152	
	Non ore truck vehicle traffic/day	30	30	30	30	30	30	20	10	10	10	10	
Milne Port	Shipping season	July 1 <sup>st</sup> to October 1 <sup>st</sup> annually; two tug boats will be chartered for a period of 135 days per year											
	Ore carrier type	Panamax, Supramax and Post Panamax at 50,000 DWT to 90,000 DWT											
	Ore shipped - Mtpa	-	0.5 Mt	2.0 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	
	Number of sailings		7	30	53	53	53	53	53	53	53	53	
	Ore stockpile - Mt		0.5 Mt	2 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	3.5 Mt	
Railway	Ore transported	-	-	-	-	-	-	1.3 Mt	16.5 Mt	18 Mt	18 Mt	18 Mt	
	Railway trip/day							1	4	4	4	4	
	Service road traffic vehicle/day	-	-	30	50	50	50	Service road decommissioned					
	Ice Road traffic vehicle/day	-	-	50	Ice road no longer required								
Steensby Port	Shipping	Year around shipping; 4 Ice Management Vessels anchored at Steensby Port to enable winter shipping											
	Ore carries type	Ten dedicated icebreaker ore carriers - 160,000 DWT to 190,000 DWT											
	ore shipped -Mtpa	-	-	-	-	-	-	1.3 Mt	16.5 Mt	18 Mt	18 Mt	18 Mt	
	Number of sailings	-	-	-	-	-	-	9	110	120	120	120	
	Fine ore Stockpile	-	-	-	-	-	-	1.4 Mt	1.4 Mt	1.4 Mt	1.4 Mt	1.4 Mt	
	Coarse ore stockpile	-	-	-	-	-	-	3.2 Mt	3.2 Mt	3.2 Mt	3.2 Mt	3.2 Mt	



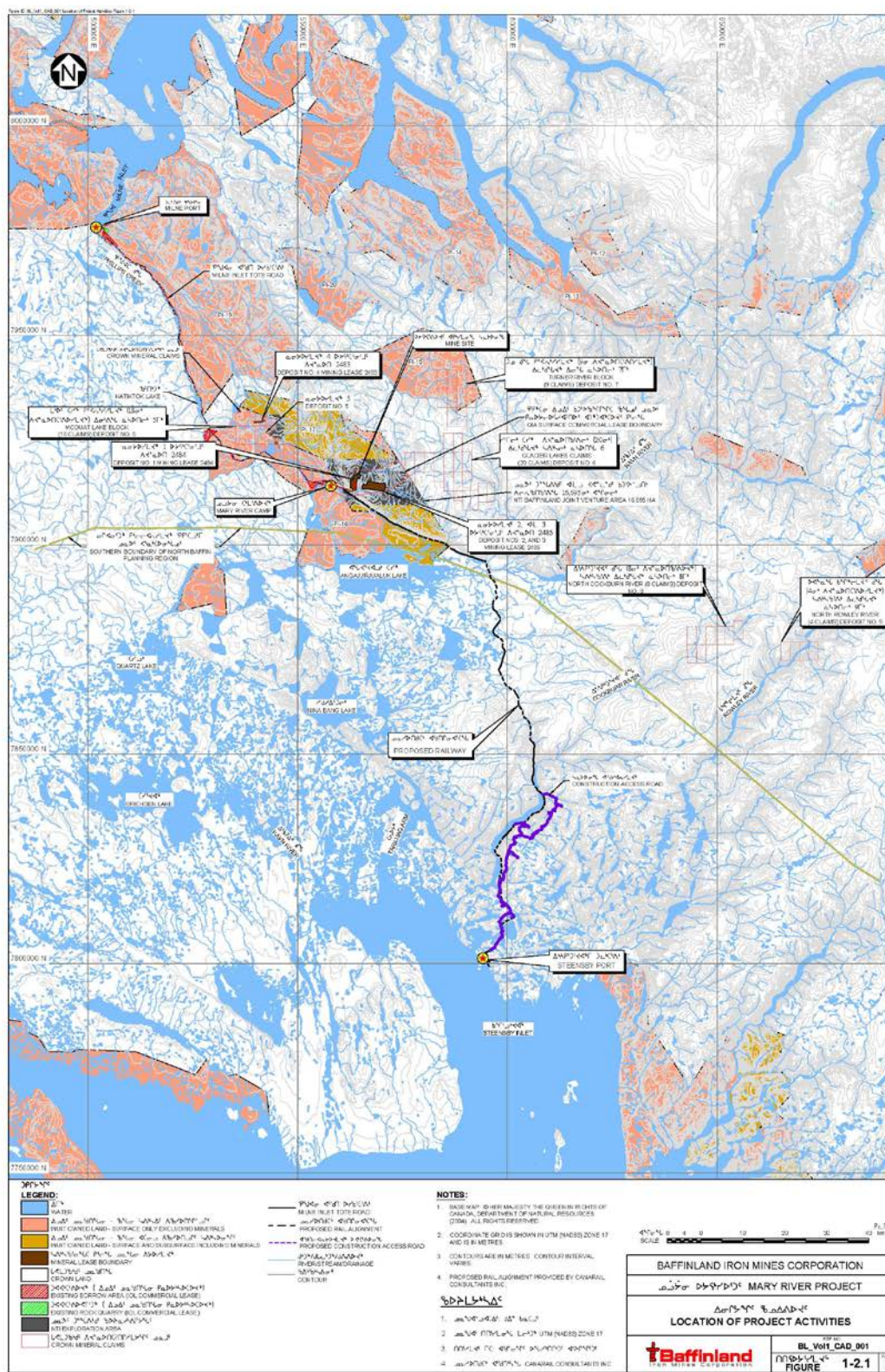
Freight and Fuel Delivery												
Year		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 +
Project Phase		Approved Project Construction Phase										
				Early Revenue Phase			18 Mtpa Production Phase					
Freight Delivery to Site												
Milne Port	Vessels	14	10									
	Cargo tonnage (t)	200,000	150,000	165,000	95,000	43,000	46,000					
Steensby Port	Vessels	-	-	22	20	7	4	approximately 3 per annum				
	Cargo tonnage (t)	-	-	206,000	150,000	107,000	80,000	approximately 60,000 per annum				
Fuel Consumption – Mtonnes												
Milne Port	ERP Construction	12	14.2	2.9								
	ERP Operation		1.9	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3
Mine Site	ERP Construction	3.5	8.7									
	ERP Operation		0.65	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
On Site Fuel Storage Capacity												
Milne Port	Arctic diesel - ML	2 x 5ML 2 x 12 ML	2 steel tanks at 5 ML plus 3 steel tanks at 12 ML storage capacity									
	Jet-A - ML	1 steel tank at 1.5 ML capacity										
	Marine diesel	Two tanks 100,000L each within tank farm secondary containment										
	Isocontainers (other fuel)	One double wall isocontainer for gasoline; two isocontainers for propane or other fuel.										
Mine Site	Arctic diesel - ML	4 x 0.5ML isocontainers		3 steel tanks at 5 ML (total storage capacity of 15 ML)								
	Jet-A - ML	1 x 50,000L isocontainer		2 steel tanks at 1.5 ML (total storage capacity of 3 ML)								
	Isocontainers (other fuel)	2	2	4	4	4	4	4	4	4	4	
Steensby Port	Arctic diesel – ML (steel tank )	-	-	15 x 1ML 20ML barge	15 tanks at 1ML 2 tanks at 40ML	4 steel tanks at 40ML each						
	Jet-A - ML	-	-	5 x 1ML steel tanks								
	Marine diesel	-	-	-	-	-	-	1 tank at 7.5ML plus 2 tanks at 25 ML				
	Isocontainers (other fuel)			4	4	4	4	4	4	4	4	4
Quarries	Isocontainers - diesel	8	8	isocontainers at various quarry sites along railway					No requirements			
Tote Road & Railway Const.	Isocontainers - diesel	as required	as required	one x 100,000L isocontainer at each railway camp and at tunnel construction sites					One isocontainer at each refuge station			
Water Crossings	Isocontainers - diesel	1	1	isocontainers at major bridge construction sites					No requirements			
Fuel Delivery (Open water season – July 1 <sup>st</sup> to October 1 <sup>st</sup> )												
Milne Port	Fuel tankers	2	2	2	2	2	2	2				
	Diesel (ERP) - ML	35	50	36	36	36	36	36				
	Marine diesel (tugs)		0.2	0.2	0.2	0.2	0.2	0.2				
	Diesel (Const) - ML			15	15	15	15					
	Jet-A - ML	3	6	3	3	3	3	3				
Steensby Port	Fuel tankers	-	-	2	4	4	3	3 to 6 tankers per annum				
	Arctic diesel - ML			40	35	35	120	160	160	160	160	160
	Marine diesel - ML	-	-				50	50	50	50	50	50
	Jet-A - ML	-	-	3	3	3	3	3	3	3	3	3

Workforce and Camps												
Year		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 +
Project Phase		Approved Project Construction Phase										
				ERP Production				18 Mtpa Production Phase				
Estimated Workforce (all Project sites)												
Construction ERP	On-site (Upper range)	600	600									
	Payroll	825	750									
Operation ERP	On-site		210	210	210	210	210	210	210	210	210	210
	Payroll		420	420	420	420	420	420	420	420	420	420
Construction 18 MT Phase	On-site			570	1800	1600	1600	900				
	Payroll			800	2700	2400	2400	1350				
Operation 18 MT Phase	On-site						450	950	950	950	950	950
	Payroll											
Air Traffic (estimated flights per year)												
Milne Port	Dash 8/ATR	210		210	210	105	105					
Mine Site	B737 / C130	300	300	550	550	550	550	365	365	365	365	365
Steensby Port	B737 / C130			185	185	185	185	185	185	185	185	185
Camp Capacity (persons per camp)												
Milne	Construction	225	225	110	110	110	110	110	Camp is Downsized			
	Operation			60	60	60	60	60	60	60	60	60
Mine Site	Exploration camp	150	150	150	150	150	150	150	150	150	150	150
	Construction	400	400	900	900	900	900	900				
	ERP Operation			150	150	150	150	60	60	60	60	60
	Approved project Operation							250	500	500	500	500
	Mine Site total beds	550	550	1200	1200	1200	1200	1220	710	710	710	710
Steensby	Tent Camp	40	40	40	Tent camp decommissioned							
	Floating camp	-	-	600	600	600	600	Removed				
	Hardwall camp	-	-	600	600	600	600	300	300	300	300	300
Railway	Mid-rail	-	-	-	200	200	200	Decommissioned				
	Ravn River	-	-	-	400	400	400	Decommissioned				
	S. Cockburn	-	-	-	300	300	300	Decommissioned				
	N. Cockburn	-	-	-	200	200	200	Decommissioned				

Water Consumption and Sewage Discharge												
Year		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 +
Project Phase		Approved Project Construction Phase										
				ERP Production				18 Mtpa Production Phase				
Expected Water Consumption – Type A Water Licence – annual volumes: Camp lake = 240,000 m <sup>3</sup> /year; Philips Creek/32 km Lake =25,000 m <sup>3</sup> /year												
Milne Port	Phillips Creek (summer) km 32 Lake (winter)	30,200	30,200	24,000	24,000	24,000	24,000	24,000	12,000	12,000	12,000	12,000
Mine Site	Camp Lake	58,000	73,000	240,000	240,000	240,000	240,000	240,000	135,000	135,000	135,000	135,000
Steensby Port	ST 347 Lake (3 km Lake	1,500	1,500	155,000	155,000	155,000	155,000	155,000	155,000	155,000	155,000	155,000
Railway Construction	Ravn Camp Lake			53,000	53,000	53,000	53,000	53,000	53,000	53,000	53,000	53,000
	Nivek Lake			29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
	Cockburn Lake			37,000	37,000	37,000	37,000	37,000	37,000	37,000	37,000	37,000
	Cockburn Lake			41,000	41,000	41,000	41,000	41,000	41,000	41,000	41,000	41,000
Sewage Discharge Volumes – m <sup>3</sup> /day (Authorized under Type A Water Licence)												
Milne Port	Generated, m <sup>3</sup> /d	55	55	55	55	55	55	55	55	55	55	55
	Holding pond size	PWSP #1= 575 m <sup>3</sup>										
Mine Site Exploration Camp	Generated, m <sup>3</sup> /d	36	36	36	36	36	36	36	36	36	36	36
	Holding pond size	Three PWSP – total capacity of 9,400 m <sup>3</sup>										
	Sheardown Lake Discharge (90 days)	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day	60 m <sup>3</sup> /day
Mine Site Main Camp	Generated, m <sup>3</sup> /d			315	315	315	315	315	168	168	168	168
	Holding pond size	110,000 m <sup>3</sup> - PWSP sized to hold 10 months of sewage effluent										
	Mary River Discharge (90 day period)	365 m <sup>3</sup> /day	365 m <sup>3</sup> /day	1,740 m <sup>3</sup> /d	1,740 m <sup>3</sup> /d	1,740 m <sup>3</sup> /d	1,740 m <sup>3</sup> /d	1,740 m <sup>3</sup> /d	672 m <sup>3</sup> /d	672 m <sup>3</sup> /d	672 m <sup>3</sup> /d	672 m <sup>3</sup> /d
Steensby Port	Land Based Camp			310	310	310	310	102	102	102	102	102
	Floatel			310	310	310	310	Removed				
	Discharge			Ocean discharge of treated sewage effluent via outfall								
Ravn Camp	Trucked to Mine			120	120	120	120	Camp and sewage plant decommissioned				
	Holding pond size			48,000 m <sup>3</sup> - 1 year of sewage effluent				Decommissioned & site reclamation				
Mid-Rail Camp	Trucked to Mine			60	60	60	60	Camp and sewage plant decommissioned				
	Holding pond size			24,000 m <sup>3</sup> - 1 year of sewage effluent				Decommissioned & site reclamation				
N. Cockburn	Trucked to Mine			60	60	60	60	Camp and sewage plant decommissioned				
	Holding pond size			24,000 m <sup>3</sup> - 1 year of sewage effluent				Decommissioned & site reclamation				
S. Cockburn	Trucked to Mine			90	90	90	90	Camp and sewage plant decommissioned				
	Holding pond size			36,000 m <sup>3</sup> - 1 year of sewage effluent				Decommissioned & site reclamation				

Quantities of Wastes and Explosives													
Year		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 +	
Project Phase		Approved Project Construction Phase											
				ERP Production				18 Mtpa Production Phase					
Quantities of Waste													
Milne	To Landfill – t/year	596	596										
	To incinerator – t/y	135	135	135	135	135	135						
	Shipped off-site – t/y	150	150	200	300	300	200						
	Hazardous waste – t/y	150	150	255	255	255	255						
Mine Site	To Landfill – t/year	100	100	4,335	4,335	4,335	4,335	1,765	1,765	1,765	1,765	1,765	
	To incinerator – t/y	400	400	980	980	980	980	980	980	980	980	980	
Steensby	To Landfill – m <sup>3</sup> /year			2,166	2,166	2,166	2,166	650	550	550	550	550	
	To incinerator – t/y			490	490	490	490	490	200	200	200	200	
	Shipped off-site – t/y							135	135	135	135	135	
	Hazardous waste – t/y							150	150	150	150	150	
Quantities of Explosives													
Mine Site	AN Stored on site												
	Emulsion used												
	Explosive Manufacture	Mobile / portable Emulsion Plant plus magazines						Permanent Emulsion Plant					
Steensby Port	AN Stored on site												
	Emulsion Used	Mobile / portable Emulsion Plant											
	Explosive Manufacture												
Power													
Milne	Demand	5300 kW											
	Installed Power	five diesel generating sets – four for normal operation and one for emergency purposes											
Mine	Demand - ERP	5250 kW											
	Installed Power - ERP	five diesel generating sets – four for normal operation and one for emergency purposes											
	Railway Proj. - Demand			Annual consumption = 114,000 MWh									
	Generators			Installed power = 15.8 MW; 5 units at 5.6 MW each (2 emergency standby units)									
Steensby	Demand			Annual consumption = 114,000 MWh									
	Installed Power			Running Load/Installed power = 11 MW/22MW; 3 units at 5.6 MW each (2 emergency standby units)									
Other Sites (Quarries, etc.)		Mobile genset as required used during construction period											

**Figure 1-2.1 Location of Project Activities**





## 1.2 SCOPE OF THE EARLY REVENUE PHASE (ERP)

While the Approved Project scope includes all works and/or undertakings required for the construction, operation, modification, maintenance, decommissioning, and abandonment phases of Milne Port, the Tote Road, the Mine Site, the Railway, Steensby Port and marine shipping, the ERP focuses solely on Milne Port, the Tote Road and the Mine Site. Air Traffic and on-going geotechnical exploration at the other Approved Project activities at the sites will occur during the ERP.

### 1.2.1 Scope of the ERP

All material, equipment and supplies required for the construction of the Mine Site and the northern portion of the railway will be delivered at Milne Port and transported to the Mine Site over the Tote Road. Therefore, the development of Milne Port (freight dock, laydown areas, expanded camp and sewage treatment facilities, maintenance shops and warehouses) and the upgrade of the Tote Road (limited realignment, replacement of culverts, addition of bridges) are an integral part of the Approved Project as well as the ERP and were included in the scope of the Final Environmental Impact Assessment (FEIS) submitted for and approved December 28, 2012 in Project Certificate No. 005.

The ERP introduces the following additional activities or infrastructure that were not assessed in the FEIS of the Approved Project:

1. Mine Site
  - a. Loading of ore into trucks;
  - b. Truck fleet and maintenance facilities.
2. Tote Road
  - a. Haulage of ore by trucks along the Tote Road.

Note: Upgrades to the Tote Road were assessed as part of the Approved Project. Design details and description of these upgrades will be included in the addendum to the FEIS submission for information purposes as per condition #29 of the Project Certificate.

3. Milne Port:
  - a. Ore stockpiling at Milne Port
4. Marine Shipping
  - a. Ore carrier loading at Milne Port;
  - b. Ore carrier shipping volume and timing.

## 1.3 CONSTRUCTION PHASE – ERP AND APPROVED PROJECT

The revised timing for the three main Project phases is summarized as follows:

- Construction Phase (Year 1 through Year 7):
  - ERP construction: Q2 2014 to Q2 2015
  - Approved ERP Project: Q3 2015 to Q2 2019
- An approximate 21-year Operations Phase:
  - ERP operation: Shipping of ore begins in Q3 2015
  - Approved Project: Railway operation and shipping to commence in Q1 2019
- An approximate 3-year Closure Phase and 5 year Post-Closure Monitoring Phase. If closure objectives are not met, post closure would extend beyond five years.

While construction of the ERP infrastructure will require approximately two years, the construction of the remaining portion of the Approved Project infrastructure is expected to take up to five years (longer construction phase to allow for availability of financing), with the Railway being on the critical path. The Railway is necessary for shipment of iron ore to Steensby Port.

The Project workforce on rotation will peak in the second year of construction of the larger Project. For the ERP, peak construction workforce will occur in 2014. Workers hired from Nunavut communities will typically work for two weeks, followed by two weeks off. Other construction workers will likely work four weeks on and two weeks off.

#### 1.3.1 Transition to the Approved Project Execution Phase

As Baffinland noted in early of January 2013, in a correspondence with the NIRB, a decision was made to move the project forward in a phased approach due to the current economic climate. It is Baffinland's intention to obtain any additional permits required to continue construction of the Approved Project as required.

Baffinland is moving forward with the application to amend the Project Certificate to allow for an Early Revenue Phase and recognizes that the ERP scope of work needs to undergo an Environmental Impact Statement (EIS) review process. At this time, Baffinland cannot predict with certainty the length of time that the ERP will continue; however, it remains the goal of the Company to pursue the full scope of the Approved Project, once the global economy has improved.

For the purpose of the EIS, it is assumed that financing for the Approved Project Execution Phase will become available to begin engineering in 2014 and full scale mobilization at all Project sites in 2015. Construction of the Approved Project, which began with site capture activities at Milne Port in 2013, will be completed in 5 years to enable first ore shipment in Q4 2019.

#### 1.3.2 Milne Port – Construction 2013 to 2014

Construction of the Approved Project began with the 2013 Work Plan and is currently underway. The 2013 Work Plan focuses on site capture at Milne Port, along with the development and construction of infrastructure required for site capture at Milne Port and the Mine Site for the launching of the 18 MT Mary River Project.

The site plan for Milne Port is presented on Figure 1-2.3. Milne Port and the Milne Inlet Tote Road will be a key transportation hub supporting construction of the Mine Site and the north portion of the Railway. Equipment and supplies will be delivered to Milne Port by conventional sealift during the open-water season and then transported overland by trucks to the Mine Site via the Milne Inlet Tote Road.

The existing facilities at Milne Port will play a key logistical support role for receiving sealift materials at Milne Port for both the ERP and the construction of the Approved Project. These facilities include: a personnel camp for 60 people, water supply and treatment facilities, mobile diesel generators, a sewage treatment plant, an incinerator, a 5 ML permanent steel fuel tank, borrow areas, rock quarries, laydown area, airstrip, and temporary bulk sampling ore stockpile area.

Once the Project Certificate is amended (expected in 2014) by the NIRB, in support of ERP construction and operation, Baffinland will proceed with the fixed ore dock construction and the development of the ore stockpile and reclaim area, which are the essential infrastructure required for ore shipment. An ore stockpile

will be constructed at Milne Port to receive ore on a year round basis. Mobile stacking and reclaim equipment will be used except for a fixed reclaim conveyor will be installed from the stockpile to the ship loader. An ore dock will be constructed from sheet piling and a ship loader will be installed to load ore carriers during the open water season.

It is expected that by the Q2 2015, Milne Port will be fully developed and operational for the loading and shipment of ore. It is expected that commissioning activities will constrain iron ore shipments to 2Mt iron ore during the 2015 open water shipping season with 3.5Mtpa shipped during the following seasons.

The infrastructure constructed will satisfy the requirements of the larger Approved Project (staging of construction material for the Mine and Railway development).

### 1.3.3 Milne Inlet Tote Road – ERP

The Milne Inlet Tote Road was upgraded in 2008 from a winter road to an all-season road adequate for transporting equipment and ore using 45-t trucks. Figure 1-2.4 presents the alignment of the Milne Inlet Tote Road. The approved road upgrade work (Project Certificate No.005) will begin in Q4 2013 and carry through during 2014. The upgrade consists of improvements to the road base and reductions of steep grades at certain locations, and, the replacement of culverts and construction of four bridges.

The upgrade to the Tote Road will enable trucking of iron ore from the Mine Site to Milne Port and support transport of materials for construction for the Approved Project. The road haulage will use conventional trucks with 2 trailers as currently operated in other northern mining operations such as the Red Dog Mine in Alaska.

A Roads Management Plan (to be included in Addendum to FEIS in Volume 10) stipulates the rules of the road, including for example: the safe access and use by the public including hunters, limiting travel speed, yielding the right-of-way to wildlife, reporting wildlife observations, travelling in convoys for safety, emergency and spill response procedures, a safety policy addressing discharge of firearms near the road, truck traffic communications, and a community notification and update process.

### 1.3.4 Mine Site - ERP

For the ERP, the mining area will be developed in an area with a low stripping ratio. An upgraded haul road with appropriate widths, curves and safety features such as runaway lanes will be built connecting the pit to the crusher. Mining equipment will be sized to suit the lower production rate. It should be noted that all activities associated with mining at Deposit 1 are approved under Project Certificate No. 005.

Mobile crushing, screening, stacking and reclaim equipment will be installed at the Mine Site. The facilities can easily be relocated/removed as required. The mining and materials handling system will operate year round.

Additional infrastructure such as a 400 person camp will be constructed to house construction and operation personnel. Maintenance facilities, warehouses, administration buildings as well as waste management facilities that will ultimately be required for the larger project will also be constructed.

As stated above, the ERP operation will be designed, planned, executed and operated in a manner that does not interfere with the Approved Project construction or operation. ERP facilities that interfere with the execution of the larger Approved Project will be replaced, moved or removed.



The airstrip at the Mine Site will be a primary air access point throughout the Project life. The airstrip will be extended from 1,600 m in length to 2,000 m with a graded area consistent with the dimensions. As a key link to the Project and the requirement for year-round accessibility by air, a gravel runway will be constructed to accommodate jet aircraft (Boeing 737 - 200) and L-382 Super Hercules turboprop aircraft.

#### 1.3.4.1 ERP Integration with the Approved Project

Construction at the Mine Site will focus on establishment of infrastructure needed to support mining activities at an increase rate of 21.5 Mtpa (18 Mtpa for the railway and 3.5 Mtpa for road haulage via Milne Port) and the construction of the northern section of the Railway. Existing infrastructure established during the ERP development will be used to the extent possible to minimize land disturbance. Figure 1-2.5 presents the layout of the Mine Site. New facilities will include a permanent accommodation complex and offices, permanent fuel storage, ore handling and stockpiling facilities, temporary explosives magazines and a permanent explosives plant.

[illegible]

[illegible]



**LEGEND:**

- WATER
- EXISTING BORROW AREA
- LAYDOWN AREA
- INDUSTRIAL WASTE MANAGEMENT
- POTENTIAL DEVELOPMENT AREA
- COMMUNICATION TOWER

**NOTES:**

1. EAGLE MAPPING (2003)
2. UTM ZONE 17
3. TO: 10 FC
4. MATERIAL HANDLING AND PROCESSING LAYOUT WAS REVISED BASED ON AERIAL PHOTOGRAPHY DATED 2003-2004. REV. C.
5. MINE SITE AS-CONSTRUCTED INFORMATION PROVIDED BY GORAN IN 2003.

**SCALE:** 0 100 200 300 400 500 600 700 800 900 1000 FT

**BAFFINLAND IRON MINES CORPORATION**

**MARY RIVER PROJECT**

**MINE SITE LAYOUT**

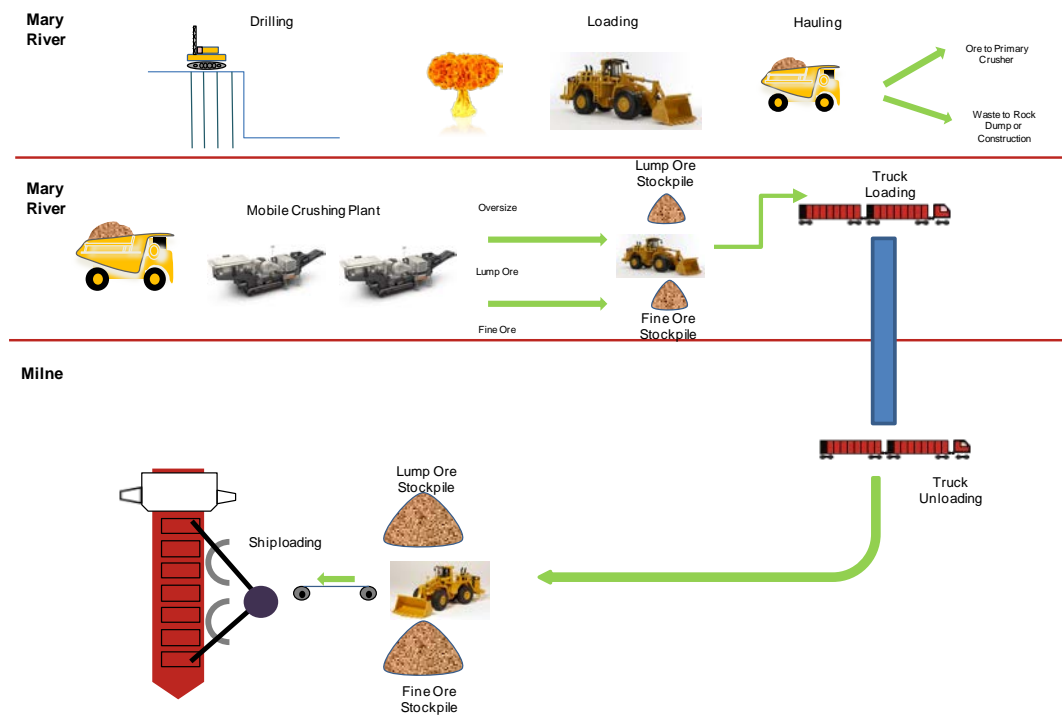
**FIGURE 1-25**

## 1.4 OPERATION PHASE OF THE ERP

Table 1-2.1 presents key facts summary for the Early Revenue Phaset and the transition period to the larger Approved Project.

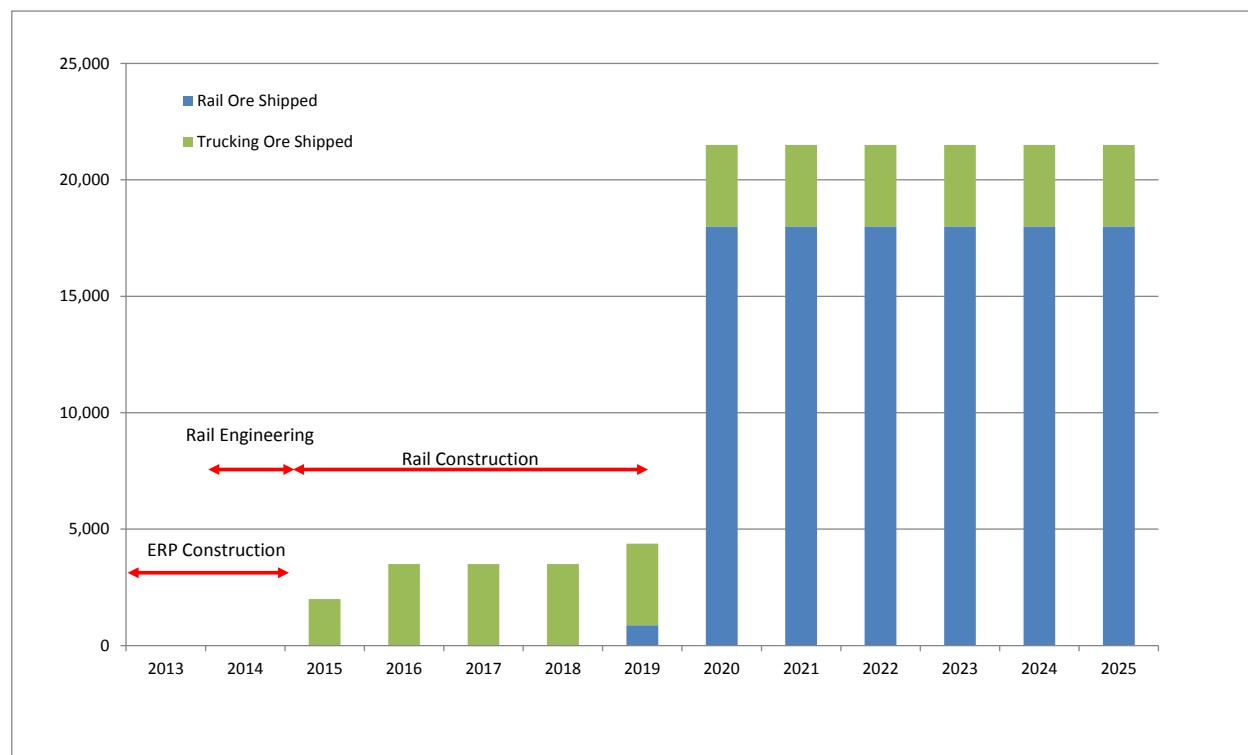
During the ERP, 3.5Mtpa of ore will be mined, crushed and screened, using mobile crushing equipment at the Mine Site, and then transported north to Milne Port via side-dump tractor trailer combinations. At Milne Port the material will be stacked and then during the open-water season, the material will be loaded onto ships that will transport the ore to market. Figure 2-1 presents a simplified flow diagram for the ERP. It is important to note that the activites up to “truck loading” in Figure 2-1 are approved activities under Project Certificate No. 005. Therefore, activities introduced as part of the ERP include loading of trucks at the Mine Site, transporting the ore along the Tote Road, stockpiling ore at Milne Port, and shipping ore from Milne Port via Milne Inlet.

**Figure 2-1 ERP Simplified Flow Diagram**



It is expected that the ERP will produce for 5 years on its own, after which time it is expected that production from the Approved Project (18 Mtpa) will start and augment ERP production. The ERP shipping profile is shown in Figure 2-2 in relation to the Approved project.

**Figure 2-2 Annual Product Shipped (Mtpa)**



#### 1.4.1 Shipping from Milne Port

The current shipping window in Milne Inlet is 90 days during the period July 15 to October 15 although a conservative 70 days is assumed to allow for ship scheduling delays. Depending on vessel availability, Handymax and Panamax vessels (approximately 55,000 to 90,000 DWT) will be used. In order to schedule the vessels in the time period, it will be necessary to contract with one or possibly two ship-owners of sufficient size to allow all ships to be chartered and scheduled. Vessel docking will be assisted by harbour tugs and lines personnel on the temporary floating dock during the construction phase. The shipping route to Milne Port from the North Atlantic Ocean is well established through very deep waters. It extends from Baffin Bay and passes through Eclipse Sound to the head of Milne Port. It is the same shipping route assessed and Approved in Project Certificate No. 005. Figure 1-2.1 presents the shipping route from both Milne Port.

#### 1.5 PRELIMINARY CLOSURE AND POST CLOSURE

Throughout all phases of the Project, Baffinland will plan and conduct operations in a manner designed to return Project sites to a safe and environmentally stable condition. Baffinland will undertake progressive reclamation throughout the mine life. Temporary facilities will be decommissioned and removed as their use ceases. Borrow areas, quarries, temporary roads and other disturbed sites will be stabilized to limit erosion of ground surfaces and rehabilitated once they are no longer required. Environmental and safety monitoring will continue as long as necessary to ensure that closure objectives have been met. The Preliminary Closure Plan was developed in accordance with Aboriginal Affairs and Northern Development Canada

(AANDC) Guidelines for Mine Closure (2007 Guidelines) as well as QIA Closure Guidelines. An interim Abandonment and Closure plan will be submitted with the Addendum to the FEIS prior to the end of June 2013.

**ATTACHMENT #2**

**Electronic Links to Documents Referenced in Part C**



## Electronic Links to Documents Referenced in Part C

The following authorizations, licence or permits are associated with the Approved Project:

- Project Certificate No. 005 – Issued by Nunavut Impact Review Board:

<ftp://ftp.nirb.ca/02-REVIEWS/COMPLETED%20REVIEWS/08MN053-BAFFINLAND%20MARY%20RIVER/2-REVIEW/11-PROJECT%20CERTIFICATE/02-CORRESPONDENCE/>

- Type A Water Licence Application – FEIS, Volume 3, Appendix 3B:

<ftp://ftp.nirb.ca/02-REVIEWS/COMPLETED%20REVIEWS/08MN053-BAFFINLAND%20MARY%20RIVER/2-REVIEW/08-FINAL%20EIS/FEIS/Vol%2003/Appendices/>

- Determination of Harmful Alteration, Disruption or Destruction (HADD) of Freshwater Fish Habitat – FEIS, Volume 10, Appendix 10D-7A:

<ftp://ftp.nirb.ca/02-REVIEWS/COMPLETED%20REVIEWS/08MN053-BAFFINLAND%20MARY%20RIVER/2-REVIEW/08-FINAL%20EIS/FEIS/Vol%2007/Appendices/>

- Determination of Harmful Alteration, Disruption or Destruction (HADD) of Marine Fish Habitat – FEIS, Volume 10, Appendix 10D-7B:

<ftp://ftp.nirb.ca/02-REVIEWS/COMPLETED%20REVIEWS/08MN053-BAFFINLAND%20MARY%20RIVER/2-REVIEW/08-FINAL%20EIS/FEIS/Vol%2007/Appendices/>

- Land Use Permit N207F0004 (Section of Crown Land along Tote Road) – FEIS, Volume 2, Figure 2-2.1, and Table 2-2.3:

<ftp://ftp.nirb.ca/02-REVIEWS/COMPLETED%20REVIEWS/08MN053-BAFFINLAND%20MARY%20RIVER/2-REVIEW/08-FINAL%20EIS/FEIS/Vol%2002/>



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Nunavunmi Parnaiyiit  
Nunavut Planning Commission  
Commission d'Aménagement du Nunavut

July 5, 2013

Oliver Curran  
Baffinland Iron Mines Corporation  
2275 Upper Middle Road East, Ste 300  
Oakville, Ontario  
L6H 0C3

**BY EMAIL** [oliver.curran@baffinland.com](mailto:oliver.curran@baffinland.com)

Dear Oliver Curran,

**Re: DFO File NU-07-0050 NIRB File 08MN053 Baffinland Iron Mine Early Revenue Phase (ERP) Curran Jun 13 CR**

The above-noted proposal has been forwarded to the Nunavut Planning Commission (NPC) for determination of its conformity with the North Baffin Regional Land Use Plan (NBRLUP) under the Nunavut Land Claims Agreement and Nunavut Land Claims Agreement Act, S.C. 1993, c. 29. NPC is currently reviewing the proposal and in order to complete its review NPC requires that you undertake to comply with certain terms of the NBRLUP.

All project proposals within the region in question are required to comply with the terms of the NBRLUP. I am attaching the conformity requirements relevant to your project and with which it must comply. Also attached, is a copy of the Code of Good Conduct, as well as specific sections of the NBRLUP related to transportation and/or communication corridors. These documents form part of the Plan.

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**NUNAVUT PLANNING COMMISSION**  
**APPLICATION TO DETERMINE CONFORMITY**  
**WITH THE NORTH BAFFIN REGIONAL LAND USE PLAN**

***All applicants for a project proposal shall comply with the requirements listed below.***  
***The relevant sections of the plan are noted in each requirement.***

- 2. Environmental Protection:** s3.13.8: The applicant undertakes to prevent any new occurrences of pollution, garbage and contamination at the site of the development.

Yes

No

- 3. Removal of Fuel Drums:** s3.13.8: The applicant undertakes to remove all drums safely from the site and dispose of the drums in a safe manner.

Yes

No

- 4. New Site Restoration and Clean Up:** *Appendix H, s1:* The applicant undertakes to clean up the site and restore the site to its natural condition to the greatest extent possible.

Yes

No

- 5. Old Site Restoration and Clean Up:** *s3.13.2 and Appendix H, S1:* The applicant undertakes to clean up the site and restore the site to its original condition to the greatest extent possible, including any work required due to the applicant's action prior to this application.

Yes

No

- 6. Low-Level Air Flights:** *Appendix H, s3:* Will the applicant avoid all low-level flights?

Yes

No

- i. If not, explain why such flights are or may be absolutely necessary.

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- ii. If such flights are or may be absolutely necessary, will they avoid disturbance to people and wildlife?

Yes

No

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- iii. If not, explain why it is not possible to avoid such disturbance.

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- 7. Caribou Protection Measures.** s3.3.7 and Appendix I: Will the applicant comply with the Caribou Protection Measures outlined in section 3.3.7 and in Appendix I?

Yes

No

- 9. Polar Bear Denning Areas and Walrus Haul-outs:** s3.3.8: Will the applicant keep its activities away from any polar bear denning area or walrus haul-out?

Yes

No

## HERITAGE RESOURCES

- 10. Reporting of Archaeological Sites:** s3.11.3 and Appendix H, s2 and s8: Will the applicant immediately report the discovery of all suspected archaeological sites to the Department of Culture and Heritage (GN)?

Yes

No

## MINING

- 11. Mining Development:** s3.6.5: Is the proposal for mining development?

Yes

No

If yes, include with the application a mine closure and restoration plan and the proof of complete financial guarantees for the abandonment and restoration of the site.

**12. Negative Effects:** s3.6.6: Has the applicant planned to minimize the negative effects of its activity on the environment?

Yes

No

Include with the application the mitigative measures developed.

**13. Hunting Restrictions:** s3.6.9: The applicant is informed of any special hunting restrictions that may apply to the area and will strictly enforce them at its mine sites and along transportation routes.

Yes

No

**14. Carving Stone Deposits:** *Appendix H, s9.* Will the applicant report any discoveries of carving stone deposits to the Qikiqtani Inuit Association?

Yes

No

## MARINE AND TERRESTRIAL TRANSPORTATION

**21. Corridor:** s3.5.11, s3.3.5.12: Does the proposal consider the development of a transportation and/or communications corridor?

Yes

No

If yes, include with the application an assessment of alternate routes, the cumulative effects of the preferred route and options for other identifiable transportation and utility facilities.

**22. Code of Good Conduct for Land Users:** *Appendix H:* The applicant undertakes to adhere to the code of Good Conduct at all times.

Yes

No

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I, \_\_\_\_\_ (name of applicant), certify that the information I have given in this application is true and correct and hereby make the above undertakings which form part of my application for a project proposal within the meaning of the Nunavut Land Claims Agreement.

Date: \_\_\_\_\_ Signature of Applicant: \_\_\_\_\_

**North Baffin Regional Land Use Plan**  
**Appendix H**  
**Code of Good Conduct for Land Users**

1. The landscape of each camp and other land use sites will be restored to its original condition to the greatest degree possible. Water quality will be preserved and no substances that will impair water quality will be dumped in water bodies. When possible and feasible, old sites will be restored to the natural state.
2. All land users shall assist communities and government(s) in identifying and protecting archaeological sites and carving-stone sites, as required by law.
3. Generally, low-level flights by aircraft at less than 300 metres should not occur where they will disturb wildlife or people. If such flights are necessary, they should only take place after consultation with the appropriate communities. All land users are responsible for reporting to the land managers any illegal or questionable low-level flight.
4. All activities on the land will be conducted in such a fashion that the renewable resources of the area in question are conserved.
5. Whenever practicable, and consistent with sound procurement management, land users will follow the practice of local purchase of supplies and services.
6. Land users will establish working relationships with local communities and respect the traditional users of the land.
7. During the caribou calving, post-calving and migrating seasons, land use activities should be restricted to avoid disturbing caribou, in general, and activities will be governed more specifically by caribou protection measures such as those contained in Appendix I.
8. Artifacts must be left where they are found. All land users are responsible for reporting the location of, or any removal or disturbance of artifacts, to Department of Culture and Heritage.
9. The mining industry is encouraged to assist in identifying local carving-stone deposits and report any discoveries to the QIA. Industry is also encouraged to identify and report old waste sites that need to be cleaned up.
10. All land users shall obey the laws of general application applying to land use.



July 9, 2013

Mr. Brian Aglukark  
Nunavut Planning Commission  
P.O. Box 2101  
Cambridge Bay, NU, X0B 0C0

**Re: DFO File NU-07 NIRB File 08MN053 Baffinland Iron Mines Early Revenue Phase**

Dear Mr. Aglukark:

On June 12 2013, Baffinland Iron Mines Corporation (Baffinland) provided correspondence to the Nunavut Planning Commission (NPC) that provided the following:

1. A description of the Project Proposal for the Early Revenue Phase (ERP) to satisfy NPC requests as outlined in their letter of April 13, 2013;
2. Authorizations related to the Approved Mary River Project (Nunavut Impact Review Board Project Certificate No. 005);
3. Positive conformity determinations of the Mary River Project to the North Baffin Regional Land Use Plan (NBRLUP); and,
4. Request for NPC conformity determination of the proposed Early Revenue Phase.

Subsequently, on June 20<sup>th</sup> 2013, Baffinland provided a hard and electronic copy of the Addendum to the Final Environmental Impact Statement (FEIS) to the NPC. This document assesses the social, economic and environmental aspects of additional activities not already assessed and approved under NIRB Project Certificate No. 005. As such, the Addendum to the FEIS includes a detailed description of the proposed construction and operational activity associated with the Early Revenue Phase and provides concordance to Appendix J and Appendix K of the NBRLUP.

On July 5<sup>th</sup> 2013, the NPC provided Baffinland with the questionnaire "Nunavut Planning Commission Application to Determine Conformity with the North Baffin Regional Land Use Plan" to further assist the NPC with conformity of the ERP to the NBRLUP. Baffinland's completed questionnaire is included as Attachment 1 under this cover. Additionally, by way of this covering letter, Baffinland would like to provide the additional information below as context to the attached questionnaire.

The scope of the ERP is consistent with two previous conformity determinations for the Mary River Project, which Baffinland suggest are relevant in NPC's consideration:



- NIRB File No. 07EN012 – On January 22, 2007, NPC provided Baffinland with a positive conformity determination on for its 2007/08 bulk sampling program. This successfully completed program involved the following:
  - expansion of exploration phase camp facilities at the Mine Site
  - the establishment of camp facilities at Milne Port
  - upgrade of the Milne Inlet Tote Road to all-season capability
  - haulage of ore by truck to Milne Port
  - ore stockpiling and ship loading facilities, and ocean shipment of ore to markets through Milne Inlet and Eclipse Sound
- NIRB File No. 08MN053 – On April 30, 2008, NPC confirmed a positive conformity decision on the Baffinland's Development Proposal for the Mary River Project.

Baffinland believes that the ERP is in conformity with the NBRLUP and that such works and activities can be treated as not changing the project proposal(s) that have already been reviewed for conformity under Section 11.5.10, for the following reasons:

- The ERP works and activities are a modification of the works and activities outlined in Baffinland's previous project activities that received positive conformity determinations from the NPC; and,
- The ERP uses the existing Milne Inlet Tote Road, which is recognized as a public access easement under Article 21, Part 4 (Section 21.4.1) of the Nunavut Land Claim Agreement and includes shipping of ore from Milne Port during the open water season only, and along the currently established shipping route through Milne Inlet and Eclipse Sound.

With respect to Question # 21 specifically, Baffinland provides the following information. The shipping corridor for the Early Revenue Phase is the same route that will be utilized for the approved Mary River Project. The shipping route is shown on Figure 1-1.1 in the Final Environmental Impact Statement (FEIS), and Figure 1-1.1 in the Addendum to the FEIS (provided in this correspondence as Attachment 2). As such, the ERP is not considering the development of a new transportation corridor. As noted in the NBRLUP, the Government of Canada's policy is to encourage commercial shipping in the waters of the Arctic subject to environmental and safety standards enforced by Transport Canada. Further, the NIRB process will ensure a comprehensive review by all interested parties regarding shipping activities introduced by the ERP within this approved shipping corridor.

Finally, with respect to existing water crossings along the Tote Road, Fisheries and Oceans Canada File No. HCAA-CA7-00084 provides the authorization for existing water crossings pursuant to subsection 35(2) of the Fisheries Act. The authorization includes conditions for

upgrades to existing crossings as planned by Baffinland under the approved Project in 2013 and 2014.

Please do not hesitate to contact the undersigned with any questions you might have regarding this correspondence.

Sincerely,

A handwritten signature in dark ink, appearing to read 'O. Curran', with a stylized flourish at the end.

Oliver Curran,  
Director Sustainable Development

Cc: Christopher Tickner (NPC)  
Erik Madsen (Baffinland)  
Ryan Barry (NIRB)

**Attachment 1**

**Nunavut Planning Commission Application to**

**Determine Conformity with the**

**North Baffin Regional Land Use Plan**

**NUNAVUT PLANNING COMMISSION**  
**APPLICATION TO DETERMINE CONFORMITY**  
**WITH THE NORTH BAFFIN REGIONAL LAND USE PLAN**

***All applicants for a project proposal shall comply with the requirements listed below.***  
***The relevant sections of the plan are noted in each requirement.***

- 2. Environmental Protection: s3.13.8:** The applicant undertakes to prevent any new occurrences of pollution, garbage and contamination at the site of the development.

☒ Yes

No

- 3. Removal of Fuel Drums: s3.13.8:** The applicant undertakes to remove all drums safely from the site and dispose of the drums in a safe manner.

☒ Yes

No

- 4. New Site Restoration and Clean Up: Appendix H, s1:** The applicant undertakes to clean up the site and restore the site to its natural condition to the greatest extent possible.

☒ Yes

No

- 5. Old Site Restoration and Clean Up: s3.13.2 and Appendix H, S1:** The applicant undertakes to clean up the site and restore the site to its original condition to the greatest extent possible, including any work required due to the applicant's action prior to this application.

☒ Yes

No

- 6. Low-Level Air Flights: Appendix H, s3:** Will the applicant avoid all low-level flights?

☒ Yes

No

- i. If not, explain why such flights are or may be absolutely necessary.

Low level flights will be avoided to the extent possible and subject to safety considerations during poor weather and or visibility.

- ii. If such flights are or may be absolutely necessary, will they avoid disturbance to people and wildlife?

☒ Yes

No

Mitigation measures for aircraft flights have been assessed and approved under Project Certificate No. 005. All mitigations are subject to safety considerations.

- iii. If not, explain why it is not possible to avoid such disturbance.

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7. **Caribou Protection Measures.** s3.3.7 and Appendix I: Will the applicant comply with the Caribou Protection Measures outlined in section 3.3.7 and in Appendix I?

☒ Yes

No

9. **Polar Bear Denning Areas and Walrus Haul-outs:** s3.3.8: Will the applicant keep its activities away from any polar bear denning area or walrus haul-out?

☒ Yes

No

## HERITAGE RESOURCES

10. **Reporting of Archaeological Sites:** s3.11.3 and Appendix H, s2 and s8: Will the applicant immediately report the discovery of all suspected archaeological sites to the Department of Culture and Heritage (GN)?

☒ Yes

No

## MINING

11. **Mining Development:** s3.6.5: Is the proposal for mining development?

☒ Yes

No

If yes, include with the application a mine closure and restoration plan and the proof of complete financial guarantees for the abandonment and restoration of the site.

The Preliminary Mine Closure and Reclamation Plan which was Appendix 10G of the Final Environmental Impact Statement, has been approved by the Nunavut Water Board under Part B, Section 14 of the Water Licence issued June 12, 2013 (the Water Licence is still pending approval by the Minister). Subsequently, the Interim Abandonment and Reclamation Plan is provided in the Addendum to FEIS as Appendix 10G. The Plan

includes a closure and reclamation plan for all aspects of the Mary River Project including the mine site, and Milne Inlet.

The Water Licence also includes, as Part C, conditions applying to security under which the initial total security amount of approximately \$36 million to cover closure and reclamation of the current works and undertakings. The Water Licence provides for an Annual Security Review as set out in Schedule C of the Water Licence and will require Baffinland to provide an updated Abandonment and Reclamation Plan on an annual basis along with a calculation of security for the highest level of reclamation liability for land and water for the upcoming year. Additional security will be posted annually as necessary. Currently, as shown in Attachment 3, a Letter of Credit (LOC) has been issued in favour of the Qikiqtani Inuit Association in the amount of \$26,200,000.00 and an second LOC has been issued in favour of Aboriginal Affairs and Northern Development Canada in the amount of \$6,738,216.00. As per Part C, Item A of the Type A Water licence issued by the Nunavut Water Board to the Minister, Baffinland will be required to post additional credit of \$4,311,784 once the Type A Water Licence is issued. The total of all LOC's would cover all security costs associated with planned activities in 2013.

The ERP, if approved by the Nunavut Impact Review Board, will be a modification of the Mary River Project and the above requirements for the Abandonment and Reclamation Plan and for security will continue to apply to the Project as amended.

**12. Negative Effects:** s3.6.6: Has the applicant planned to minimize the negative effects of its activity on the environment?

☒ Yes

☐ No

Include with the application the mitigative measures developed.

The Project Certificate issued for the Mary River Project by the Nunavut Impact Review Board on December 28, 2012 includes extensive requirements for minimizing the negative effects of the Project on the environment. The Project certificate contains 182 terms and conditions and requires the implementation of management plans for all aspects of the environment including water, vegetation, the aquatic environment, terrestrial wildlife and habitat, birds, the marine environment and marine wildlife and marine habitat.

**13. Hunting Restrictions:** s3.6.9: The applicant is informed of any special hunting restrictions that may apply to the area and will strictly enforce them at its mine sites and along transportation routes.

☒ Yes

☐ No

Term and Conditions No. 62 of the Nunavut Impact Review Board Project Certificate for the Mary River Project specifies that the proponent shall prohibit project employees from transportation of firearms to site and from operating firearms in project areas for

the purpose of wildlife harvesting. These requirements are incorporated into the Environmental Management Plans for the Project and will continue to apply to the modifications proposed for the ERP. The IIBA will include provisions for beneficiaries pursuant to the NLCA.

- 14. Carving Stone Deposits:** *Appendix H, s9.* Will the applicant report any discoveries of carving stone deposits to the Qikiqtani Inuit Association?

☒ Yes

☐ No

A soap stone deposit at Mary River is a resource harvested by residents of North Baffin for carving purposes. Like all soapstone deposits, it is protected under the Nunavut Land Claims Agreement (NLCA), giving Inuit inherent harvesting rights. Figure 3-2.3 in Volume 3 of the FEIS indicates the location of the deposit.

## **MARINE AND TERRESTRIAL TRANSPORTATION**

- 21. Corridor:** *s3.5.11, s3.3.5.12:* Does the proposal consider the development of a transportation and/or communications corridor?

☐ Yes

☒ No

If yes, include with the application an assessment of alternate routes, the cumulative effects of the preferred route and options for other identifiable transportation and utility facilities.

### **Terrestrial Transportation**

Terrestrial Transportation will take place along the existing Tote Road between the Mary River Mine Site and Milne Inlet. The Tote Road has been in existence as a transportation corridor for many years (back to the 1960s) and is recognised as a public access easement under Article 21, Part 4 (Section 21.4.1) of the Nunavut Land Claim Agreement. Accordingly, the Early Revenue Phase (ERP) does not include the development of a new transportation corridor. The Tote Road has previously been included as part of the bulk sampling program which received a positive conformity determination from the NPC on January 22, 2007, and continues to form part of the Mary River Project, which received a positive conformity determination from the NPC, on April 30, 2008.

As indicated in the Project Proposal for Early Revenue Phase, which is Attachment 1 to our letter of June 12, 2013, the ERP will result in increases in the volume of traffic along the tote road. Under the Mary River Project, the tote road traffic included vehicles for equipment and supplies between Milne Inlet and the Mary River mine site. Under the ERP, additional traffic will include ore trucks transporting ore from the mine site to Milne Inlet. The addendum to the FEIS for the ERP includes an assessment of the potential effects of the increase in traffic along the existing tote road transportation corridor, for review by the Nunavut Impact Review Board.

**Code of Good Conduct for Land Users:** *Appendix H: The applicant*

No

10-728-3500 FAX: 10-728-3501 10-728-3502 10-728-3503 10-728-3504 10-728-3505

**Signature of Applicant:**



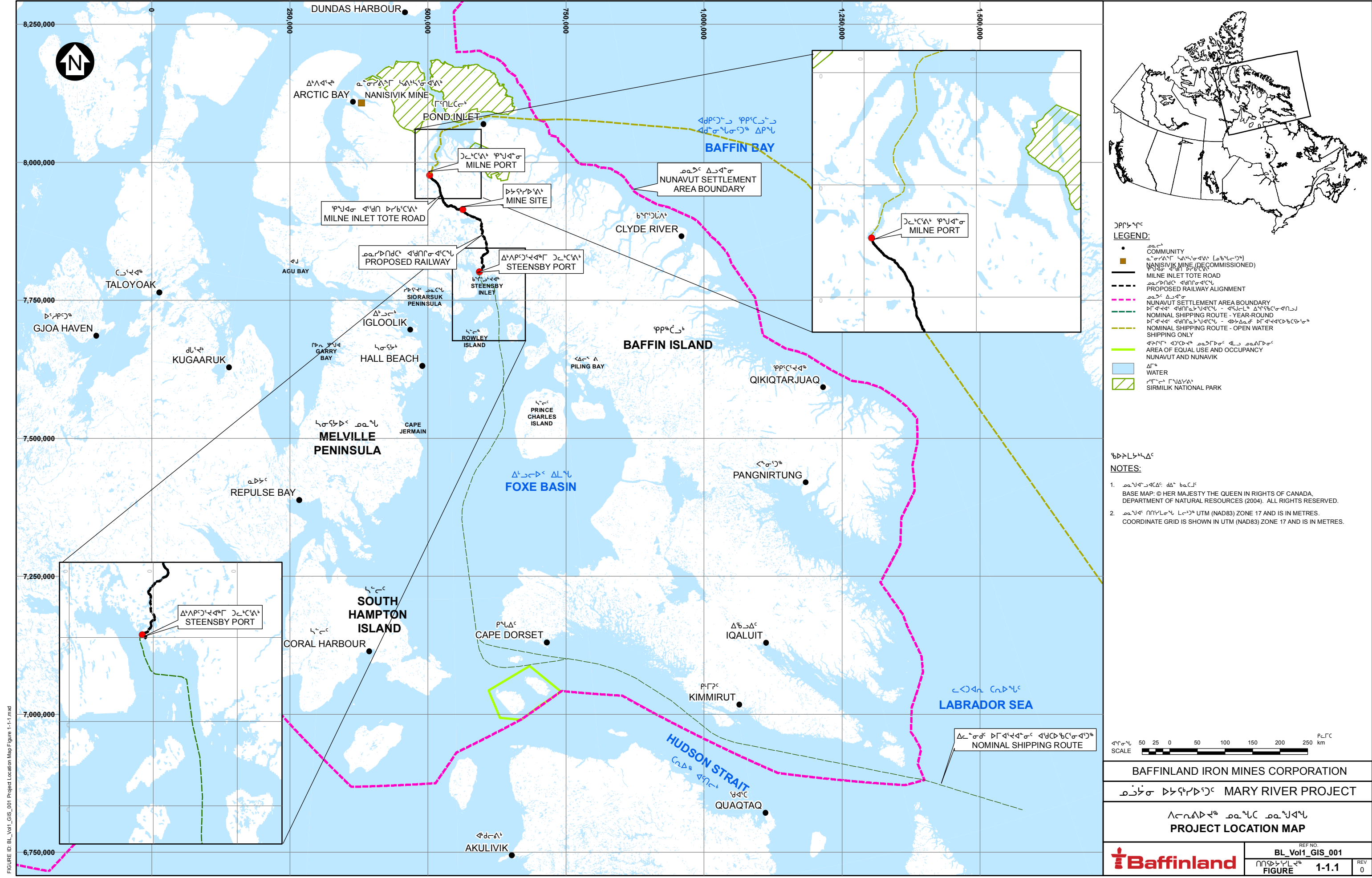


**North Baffin Regional Land Use Plan**  
**Appendix H**  
**Code of Good Conduct for Land Users**

1. The landscape of each camp and other land use sites will be restored to its original condition to the greatest degree possible. Water quality will be preserved and no substances that will impair water quality will be dumped in water bodies. When possible and feasible, old sites will be restored to the natural state.
2. All land users shall assist communities and government(s) in identifying and protecting archaeological sites and carving-stone sites, as required by law.
3. Generally, low-level flights by aircraft at less than 300 metres should not occur where they will disturb wildlife or people. If such flights are necessary, they should only take place after consultation with the appropriate communities. All land users are responsible for reporting to the land managers any illegal or questionable low-level flight.
4. All activities on the land will be conducted in such a fashion that the renewable resources of the area in question are conserved.
5. Whenever practicable, and consistent with sound procurement management, land users will follow the practice of local purchase of supplies and services.
6. Land users will establish working relationships with local communities and respect the traditional users of the land.
7. During the caribou calving, post-calving and migrating seasons, land use activities should be restricted to avoid disturbing caribou, in general, and activities will be governed more specifically by caribou protection measures such as those contained in Appendix I.
8. Artifacts must be left where they are found. All land users are responsible for reporting the location of, or any removal or disturbance of artifacts, to Department of Culture and Heritage.
9. The mining industry is encouraged to assist in identifying local carving-stone deposits and report any discoveries to the QIA. Industry is also encouraged to identify and report old waste sites that need to be cleaned up.
10. All land users shall obey the laws of general application applying to land use.

**Attachment 2**

**Shipping Route Figure 1-1.1**



**Attachment 3**  
**Letters of Credit**

# APPLICATION FOR IRREVOCABLE STANDBY LETTER OF CREDIT/LETTER OF GUARANTEE

BRANCH:		DATE:	
CONTACT NAME:	TELEPHONE NO.:	FAX NO.:	BANK REFERENCE NUMBER <b>S18572/269319</b>

1. Please <input type="checkbox"/> issue <input checked="" type="checkbox"/> amend <input type="checkbox"/> By airmail/Courier Original to: <input type="checkbox"/> Branch <input type="checkbox"/> Applicant <input type="checkbox"/> Beneficiary (Place "X" in one box only) <input type="checkbox"/> By Teletransmission For my/our account the following: <input checked="" type="checkbox"/> Irrevocable Standby Letter of Credit Subject to: <input checked="" type="checkbox"/> UCP <input type="checkbox"/> ISP (Place "X" in one box only) <input type="checkbox"/> Irrevocable Letter of Guarantee	2. Applicant (For Account Of) <b>Baffinland Iron Mines Corporation</b> <b>120 Adelaide ST. W., Suite 1016</b> <b>Toronto, ON</b> <b>Canada M5H 1T1</b>
3. Beneficiary (In Favour Of) <b>Qikiqtani Inuit Association</b> <b>P.O. Box 219</b> <b>Iqaluit, Nunavut</b> <b>Canada X0A 0H0</b> <b>Attention: Lands Department</b>	4. Amount in words (specify currency) <b>Twenty six million two hundred thousand dollars</b> <b>Canadian</b> <b>CAD26,200,000.00</b> Amount in figures

5. Expiry date of guarantee/LC <u>Oct 31, 2012 with auto renewal of 60 days notice</u>	Expiry date of counter guarantee _____ (IF APPLICABLE)
--	---

6. Details including purpose, documentation required and special conditions, if any.

We hereby send the Application and Agreement For Irrevocable Standby Letter of Credit / Letter of Guarantee ("L/C Agreements") for our existing L/C reference No. S18572/269319 to document the following changes made to our L/C facility resulting from the Applicant's decision to change the underlying cash security supporting the L/C facility:

- i) Commission rate to 0.85% per annum payable quarterly in arrears; and
- ii) Interest charges to be paid at the Bank's prime rate on amounts not paid by the applicant on the date of demand as per the L/C Agreements.

All terms and conditions in the above mentioned existing L/C remain unchanged.

☒ Suggested Proforma attached duly signed bearing reference to this application.

<b>FOR BANK USE ONLY</b> Debit drawings to DDA Account # _____ Commission Rate <b>0.85% per annum</b> Customer Data Maintenance Form Customer SLC/LG ID # _____ <b>OLL INFORMATION</b> OLL Account # _____ BLT Transit # _____ Booked as _____ <b>OTHER LIABILITY LOAN NUMBERS</b> Customer Liability under SLC _____ Curr _____ Customer Liability under LG _____ Curr _____		The Undersigned hereby requests The Bank of Nova Scotia (the "Bank") to issue or amend its Irrevocable Standby Letter of Credit or Irrevocable Letter of Guarantee substantially in compliance with specifications noted above. If the Bank authorizes the issuance or amendment of its Irrevocable Standby Letter of Credit or Irrevocable Letter of Guarantee, its counter guarantee or supporting letter of credit, the Undersigned agrees to be bound by the terms and conditions set out in the Agreement for Irrevocable Standby letter of Credit/Letter of Guarantee previously signed by the Undersigned and delivered to the Bank. Company Name (where applicable) <u>Baffinland Iron Mines Corporation</u> Company Contact to clarify instructions <u>Stephanie Anderson</u> Telephone Number: <u>416-814-3171</u> <u>[Signature]</u> Customer signature Customer signature (IN CASE OF INCORPORATED COMPANIES AND OTHER ORGANIZATIONS THIS FORM MUST BE SIGNED BY PROPERLY AUTHORIZED OFFICIALS)
AUTHORIZED SIGNATURE NUMBER	AUTHORIZED SIGNATURE NUMBER	



## Agreement for Irrevocable Standby Letter of Credit/Letter of Guarantee

IN CONSIDERATION of The Bank of Nova Scotia (the "Bank") issuing or amending, from time to time, its Irrevocable Standby Letter of Credit or Irrevocable Letter of Guarantee (individually a "Credit" and collectively "Credits", meaning any Irrevocable Standby Letter of Credit or Irrevocable Letter of Guarantee which the Applicant has requested the Bank to issue pursuant to the written application of the Applicant or a counter guarantee or supporting letter of credit which the Bank is authorized to issue hereunder, where "Applicant" means each party signing below and the Application, where "Application" means an Application for Irrevocable Standby Letter of Credit/Letter of Guarantee), or requesting another institution to issue its Irrevocable standby letter of credit or Irrevocable letter of guarantee against the Bank's counter guarantee or supporting letter of credit, pursuant to an Application, the Applicant and if more than one, each of them jointly and severally, hereby agree(s) with the Bank as follows:

1. The Applicant shall reimburse the Bank on demand at the branch/agency, shown on the applicable Application, the amount of each Drawing, (where "Drawing" means any demand or other request for payment or any draft, bill of exchange or other instrument presented for payment under the Credit, in compliance with requirements of the Credit and includes any payment of the proceeds of the Credit into court or otherwise to the credit of the outcome of any action or proceeding), paid or to be paid, by the Bank under the Credit, and where requested by the Bank to prepay all amounts which the Bank may become liable for under the Credit. Each reimbursement or prepayment by the Applicant under this paragraph shall be made, either in the Local Currency equivalent of each Drawing, (where "Local Currency" means the currency of the country in which the branch/agency of the Bank, set out on the written Application of the Applicant, is located), paid or to be paid by the Bank, or in the currency in which the Bank is to make, has made, or may be called upon to make payment under the Credit. If a time draft is presented in respect of a Drawing under a Credit, the Bank may notify the Applicant of the amount and maturity date of such time draft and the Applicant will make such payment without demand sufficiently in advance of its maturity to enable the Bank to arrange for cover in same day funds to reach the place where the time draft is payable no later than the date of maturity of such time draft.
2. The obligation of the Applicant to reimburse the Bank in accordance with paragraph 1 shall be absolute, unconditional and irrevocable and shall not be reduced by any Drawing paid or acted upon being invalid, insufficient, inaccurate, false, fraudulent or forged or being subject to any defense or being affected by any right of set-off, counterclaim or recoupment which the Applicant may now or hereafter have against the Beneficiary, (where "Beneficiary" means the party in favour of whom or which the Applicant has requested the Bank to issue the Credit and in the case of a transferable Credit, each transferee, and where the Bank has issued a counter guarantee or supporting letter of credit, "Beneficiary" means the party in favour of whom or which the counter guarantee or supporting letter of credit has been issued), the Bank or any other person for any reason whatsoever including the fact that a Drawing is held by the Bank or any of its correspondents in its or their own right, or the fact that the Bank or its correspondents paid any Drawing or Drawings aggregating up to the amount of the Credit drawn upon notwithstanding:
  - (a) any contrary instructions from the Applicant;
  - (b) the occurrence of any event including, without limitation, the commencement of legal proceedings to prohibit payment of such Drawing; or
  - (c) the issuance of any order of any government, agency, governing body or court whether or not having jurisdiction in the premises.

Any payment, action, inaction, or omission, made, taken or suffered by the Bank or any of the Bank's correspondents under or in connection with such Credit or any Drawing made thereunder, if in good faith and in conformity with all laws, regulations or customs applicable thereto shall be binding upon the Applicant and shall not place the Bank or any of its correspondents under any resulting liability to the Applicant. Without limiting the generality of the foregoing, the Bank and its correspondents may receive, accept or pay as complying with the terms of such Credit, any Drawing thereunder, otherwise in order which may be signed by, or issued to, the administrator or any executor or liquidator for succession purposes of, or the trustee in bankruptcy of, or the receiver for any property of, or other person or entity acting as the representative or in the place of, such Beneficiary or its successors and assigns. The Applicant further agrees that the Bank shall not be liable for issuing a Letter of Guarantee in lieu of a Standby Letter of Credit, for any choice of another institution to issue a standby letter of credit or letter of guarantee against the Bank's counter guarantee or supporting letter of credit, or for any act or omission of such institution whether in issuing a standby letter of credit or letter of guarantee on instructions of the Bank or otherwise.
3. The Applicant authorizes and directs the Bank to pay any Drawing on demand and in such currency as the Bank may determine to be appropriate, all commissions in respect of each Credit (so long as the Bank shall be contingently obligated under such Credit) and fees and charges for issuing or amending such a Credit computed and payable at such time and at such rates as and in accordance with the Bank's prevailing practice and all other expenses which the Bank may incur in connection with each Credit including, without limitation, charges and expenses of other banks or other parties paid or to be paid by the Bank on behalf of the Applicant. Such payment by the Bank shall be made without reference to or confirmation of the Applicant. Moreover, the Applicant will pay to the Bank interest on all amounts not paid by the Applicant on the date of demand or when otherwise due at the reference rate of interest then in effect in the relevant currency and location, being \* prime % per annum, or, \* prime calculated daily and payable monthly not in advance on the basis of a calendar year for the actual number of days elapsed, with interest on overdue interest at the same rate as on the principal. \*Insert applicable rate or rate and phrase for interest basis.
4. Upon the happening and continuation of any one or more of the following events, (each an "Event of Default"):
  - (a) the non-payment of any of the obligations of the Applicant under this Agreement or any other agreement between the Applicant and the Bank when due;
  - (b) the failure of the Applicant to perform or observe any term or covenant hereof;
  - (c) the failure of the Applicant to pay its debts as they become due or the admission in writing by the Applicant of its inability to pay its debts generally, the institution by or against the Applicant of proceedings respecting bankruptcy, insolvency, liquidation, winding up, reorganization arrangement, adjustment, protection, relief, composition of it or its debts

under any laws relating to bankruptcy, insolvency or reorganization or relief of debtor or the seeking of entry of an order for relief or the appointment of a receiver, trustee or other similar official for the Applicant or for any substantial part of its property or the taking of any corporate action by the Applicant to authorize any of such actions;

- (d) the occurrence of any of the events noted in this paragraph with respect to any person or entity which has guaranteed any obligations of the Applicant to the Bank or if a guarantor's guarantee of the Applicant's obligations to the Bank lapses or becomes unenforceable;
- then the amount of the Bank's contingent liability (as determined by the Bank) under the Credit as well as any and all other obligations of the Applicant under this Agreement shall, at the option of the Bank, become due and payable immediately upon demand to the Applicant and the obligation (if any) of the Bank to issue further Credits under the Application(s) shall terminate.
5. All security now or hereafter held by the Bank for the payment or discharge of any and all present or future indebtedness and liability of the Applicant to the Bank and all property of the Applicant now or hereafter in the possession or control of the Bank for any purpose including monies on deposit and property held for safekeeping, shall be held by the Bank as security for the payment of all amounts which may become payable by the Applicant to the Bank under or in connection with this Agreement, and the Applicant hereby grants a security interest in the Bank in respect of all such aforementioned property to the extent necessary to achieve the foregoing. If at any time the Bank requires collateral (or additional collateral), the Applicant will, on demand, assign/hypothecate and deliver to the Bank as security for any and all obligations of the Applicant now or hereafter existing under this Agreement collateral of a type and value satisfactory to the Bank or make such cash payment as the Bank may require.
  6. Upon default by the Applicant in payment of any amount due and payable hereunder the Bank may, except to the extent not permitted by law, in accordance with applicable law, sell by public or private sale or realize in such other manner all or any security held by the Bank and any moneys received by the Bank as proceeds of any such sale or realization, after deduction of all costs and expenses incurred by the Bank in connection therewith, shall be applied against any amount payable by the Applicant to the Bank under this Agreement and on any other indebtedness or liability of the Applicant to the Bank.
  7. Upon payment by the Bank of any Drawing or the occurrence and during the continuance of any Event of Default, the Bank is hereby authorized to set-off and apply any and all deposits (at any time held) and other indebtedness at any time owing by the Bank to or for the credit of the account of the Applicant against any and all obligations of the Applicant now or hereafter existing under this Agreement irrespective of whether or not the Bank shall have made demand under this Agreement and despite such deposit, indebtedness or obligation being unmatured or contingent. The rights of the Bank under this paragraph 7 are in addition to other rights and remedies which the Bank may have.
  8. The Applicant will indemnify the Bank from and against:
    - (a) all loss or damage to the Bank arising out of its issuance of, amendment to, or any other action taken by the Bank in connection with a Credit, other than loss or damage resulting from its negligence or wilful misconduct; and
    - (b) all costs and expenses (including attorney's fees and expenses) of all claims or legal proceedings arising out of the Bank's issuance or amendment to a Credit or incidental to the collection of amounts owed by the Applicant hereunder or the enforcement of the Bank's rights hereunder, including, without limitation, legal proceedings related to any court order, injunction or other process or decree restraining or seeking to restrain the Bank from paying any amount under a Drawing.
  9. If, for the purpose of obtaining judgment in a court or tribunal in any jurisdiction, it is necessary to convert amounts due hereunder in any currency into a second currency such conversion shall be made at the rate of exchange quoted by the branch/agency of the Bank set out on the Application at 10:00 a.m. on the business day immediately prior to the date of judgment. Further, as a separate obligation, the Applicant will pay to the Bank any additional amount over and above that determined using the rate of exchange cited above if the rate of exchange used at the date of payment to the Bank is less favourable to the Bank than it was at the date of judgment in instances which the Bank is required to convert the amount of any judgment into the amount of any obligation it may owe at any time.
  10. In the event the Applicant applies from time to time hereafter for any extension of the expiry date or for any renewal or increase in the amount of the Credit or any other modification of its terms, this Agreement shall continue in force and apply to the Credit so extended, renewed, increased or otherwise modified and to any action taken by the Bank or its agents or correspondents in accordance with such extension, renewal, increase or other modification.
  11. This Agreement shall be binding upon the Applicant and upon its heirs, executors, administrators, successors and assigns and each of them and shall ensure to the benefit of the Bank, and its successors and assigns. Any provision of this Agreement which is void or unenforceable shall be ineffective to the extent void or unenforceable and shall be severable from the other provisions hereof and this Agreement shall be interpreted as if such provision were not included herein. None of the terms of this Agreement shall be amended except in writing signed by the Bank and any waiver by the Bank shall not constitute any further waiver.
  12. Except as otherwise expressly provided, the Credit, if a Standby Letter of Credit, shall be subject to the Uniform Customs and Practice for Documentary Credits as most recently published by the International Chamber of Commerce, (the "UCP"), or the International Standby Practices as most recently published by the same organization, (the "ISP"). The Credit, if a Letter of Guarantee, shall be governed by and construed in accordance with the laws, customs and regulations which may be in force in any place of payment thereof, or, with the laws of any jurisdiction to be jointly agreed to by the Applicant in writing and the Bank. This Agreement shall be governed by and construed in accordance with the laws of the jurisdiction in which the branch/agency of the Bank, as noted on the Application, is situated, except, if a Standby Letter of Credit, to the extent that such laws are inconsistent with the UCP, or ISP and except if a Letter of Guarantee, to the extent that such laws are inconsistent with the laws under which a Drawing may be made under the Letter of Guarantee.
  13. The parties have requested that this Agreement and all related documents be drafted in English. Les parties ont exigé que cette convention et tous les documents y afférents soient rédigés en anglais.

APPLICANT'S NAME (WHERE APPLICABLE) <i>Stephanie Anderson</i>	CUSTOMER SIGNATURE(S) <i>[Signature]</i>
APPLICANT'S NAME (WHERE APPLICABLE) <i>Tom Radon</i>	CUSTOMER SIGNATURE(S) <i>[Signature]</i>
DATE <i>Nov 25, 2011</i>	



# APPLICATION FOR IRREVOCABLE STANDBY LETTER OF CREDIT/LETTER OF GUARANTEE

BRANCH:		DATE:	
CONTACT NAME:	TELEPHONE NO.:	FAX NO.:	BANK REFERENCE NUMBER <b>S18572/318034</b>

<p>1. Please <input type="checkbox"/> issue <input checked="" type="checkbox"/> amend</p> <p><input type="checkbox"/> By airmail/Courier</p> <p>Original to: <input type="checkbox"/> Branch <input type="checkbox"/> Applicant <input type="checkbox"/> Beneficiary (Place "X" in one box only)</p> <p><input type="checkbox"/> By Teletransmission</p> <p>For my/our account the following:</p> <p><input checked="" type="checkbox"/> Irrevocable Standby Letter of Credit</p> <p>Subject to: <input checked="" type="checkbox"/> UCP <input type="checkbox"/> ISP (Place "X" in one box only)</p> <p><input type="checkbox"/> Irrevocable Letter of Guarantee</p>	<p>2. Applicant (For Account Of)</p> <p>Baffinland Iron Mines Corporation 120 Adelaide ST. W., Suite1016 Toronto, ON Canada M5H 1T1</p>
	2a. Applicant Reference No.
<p>3. Beneficiary (In Favour Of)</p> <p>Her Majesty The Queen in Right of Canada as Presented by The Minister of Indian Affairs and Northern Development</p>	<p>4. Amount in words (specify currency)</p> <p>Six million seven hundred thirty eight thousand two hundred sixteen dollars Canadian <b>CAD6,738,216.00</b></p> <p>Amount in figures</p>

5. Expiry date of guarantee/LC May 4, 2012 with auto renewal of 90 days notice Expiry date of counter guarantee \_\_\_\_\_  
(IF APPLICABLE)

6. Details including purpose, documentation required and special conditions, if any.

We hereby send the Application and Agreement For Irrevocable Standby Letter of Credit / Letter of Guarantee ("L/C Agreements") for our existing L/C reference No. S18572/318034 to document the following changes made to our L/C facility resulting from the Applicant's decision to change the underlying cash security supporting the L/C facility:

i) Commission rate to 0.85% per annum payable quarterly in arrears; and

ii) Interest charges to be paid at the Bank's prime rate on amounts not paid by the Applicant on the date of demand as per the L/C Agreements.

All terms and conditions in the above mentioned existing L/C remain unchanged.

☒ Suggested Proforma attached duly signed bearing reference to this application.

<p align="center"><b>FOR BANK USE ONLY</b></p> <p>Debit drawings to DDA Account # _____</p> <p>Commission Rate <u>0.85% per annum</u></p> <p>Customer Data Maintenance Form</p> <p>Customer SLC/LG ID # _____</p> <p><b>OLL INFORMATION</b></p> <p>OLL Account # _____</p> <p>BLT Transit # _____</p> <p>Booked as _____</p> <p><b>OTHER LIABILITY LOAN NUMBERS</b></p> <p>Customer Liability under SLC _____ Curr _____</p> <p>Customer Liability under LG _____ Curr _____</p>		<p>The Undersigned hereby requests The Bank of Nova Scotia (the "Bank") to issue or amend its Irrevocable Standby Letter of Credit or Irrevocable Letter of Guarantee substantially in compliance with specifications noted above. If the Bank authorizes the issuance or amendment of its Irrevocable Standby Letter of Credit or Irrevocable Letter of Guarantee, its counter guarantee or supporting letter of credit, the Undersigned agrees to be bound by the terms and conditions set out in the Agreement for Irrevocable Standby Letter of Credit/Letter of Guarantee previously signed by the Undersigned and delivered to the Bank.</p> <p>Company Name (where applicable)</p> <p><u>Baffinland Iron Mines Corporation</u></p> <p>Company Contact to clarify instructions</p> <p><u>Stephanie Anderson</u></p> <p>Telephone Number: <u>416-814-3171</u></p> <p><u>[Signature]</u></p> <p>Customer signature</p> <p><u>[Signature]</u></p> <p>Customer signature</p> <p>(IN CASE OF INCORPORATED COMPANIES AND OTHER ORGANIZATIONS THIS FORM MUST BE SIGNED BY PROPERLY AUTHORIZED OFFICIALS)</p>
<p>AUTHORIZED SIGNATURE</p> <p>NUMBER</p>	<p>AUTHORIZED SIGNATURE</p> <p>NUMBER</p>	

COPY 1 - FORWARD TO INTERNATIONAL TRADE SERVICE UNIT

COPY 2 - BRANCH COPY

COPY 3 - CUSTOMER COPY

## Agreement for Irrevocable Standby Letter of Credit/Letter of Guarantee

IN CONSIDERATION of The Bank of Nova Scotia (the "Bank") issuing or amending, from time to time, its Irrevocable Standby Letter of Credit or Irrevocable Letter of Guarantee (Individually a "Credit" and collectively "Credits", meaning any Irrevocable Standby Letter of Credit or Irrevocable Letter of Guarantee which the Applicant has requested the Bank to issue pursuant to the written application of the Applicant or a counter guarantee or supporting letter of credit which the Bank is authorized to issue hereunder, where "Applicant" means each party signing below and the Application, where "Application" means an Application for Irrevocable Standby Letter of Credit/Letter of Guarantee), or requesting another institution to issue its irrevocable standby letter of credit or irrevocable letter of guarantee against the Bank's counter guarantee or supporting letter of credit, pursuant to an Application, the Applicant and if more than one, each of them jointly and severally, hereby agree(s) with the Bank as follows:

1. The Applicant shall reimburse the Bank on demand at the branch/agency, shown on the applicable Application, the amount of each Drawing, (where "Drawing" means any demand or other request for payment or any draft, bill of exchange or other instrument presented for payment under the Credit, in compliance with requirements of the Credit and includes any payment of the proceeds of the Credit into court or otherwise to the credit of the outcome of any action or proceeding), paid or to be paid, by the Bank under the Credit, and where requested by the Bank to prepay all amounts which the Bank may become liable for under the Credit. Each reimbursement or prepayment by the Applicant under this paragraph shall be made, either in the Local Currency equivalent of each Drawing, (where "Local Currency" means the currency of the country in which the branch/agency of the Bank, set out on the written Application of the Applicant, is located), paid or to be paid by the Bank, or in the currency in which the Bank is to make, has made, or may be called upon to make payment under the Credit. If a time draft is presented in respect of a Drawing under a Credit, the Bank may notify the Applicant of the amount and maturity date of such time draft and the Applicant will make such payment without demand sufficiently in advance of its maturity to enable the Bank to arrange for cover in same day funds to reach the place where the time draft is payable no later than the date of maturity of such time draft.

2. The obligation of the Applicant to reimburse the Bank in accordance with paragraph 1 shall be absolute, unconditional and irrevocable and shall not be reduced by any Drawing paid or acted upon being invalid, insufficient, inaccurate, false, fraudulent or forged or being subject to any defense or being affected by any right of set-off, counterclaim or recoupment which the Applicant may now or hereafter have against the Beneficiary, (where "Beneficiary" means the party in favour of whom or which the Applicant has requested the Bank to issue the Credit and in the case of a transferable Credit, each transferee, and where the Bank has issued a counter guarantee or supporting letter of credit, "Beneficiary" means the party in favour of whom or which the counter guarantee or supporting letter of credit has been issued), the Bank or any other person for any reason whatsoever including the fact that a Drawing is held by the Bank or any of its correspondents in its or their own right, or the fact that the Bank or its correspondents paid any Drawing or Drawings aggregating up to the amount of the Credit drawn upon notwithstanding:

- (a) any contrary instructions from the Applicant;
- (b) the occurrence of any event including, without limitation, the commencement of legal proceedings to prohibit payment of such Drawing; or
- (c) the issuance of any order of any government, agency, governing body or court whether or not having jurisdiction in the premises.

Any payment, action, inaction, or omission, made, taken or suffered by the Bank or any of the Bank's correspondents under or in connection with such Credit or any Drawing made thereunder, in good faith and in conformity with all laws, regulations or customs applicable thereto shall be binding upon the Applicant and shall not place the Bank or any of its correspondents under any resulting liability to the Applicant. Without limiting the generality of the foregoing, the Bank and its correspondents may receive, accept or pay as complying with the terms of such Credit, any Drawing thereunder, otherwise in order which may be signed by, or issued to, the administrator or any executor or liquidator for succession purposes of, or the trustee in bankruptcy of, or the receiver for any property of, or other person or entity acting as the representative of or in the place of, such Beneficiary or its successors and assigns. The Applicant further agrees that the Bank shall not be liable for issuing a Letter of Guarantee in lieu of a Standby Letter of Credit, for any choice of another institution to issue a standby letter of credit or letter of guarantee against the Bank's counter guarantee or supporting letter of credit, or for any act or omission of such institution whether in issuing a standby letter of credit or letter of guarantee on instructions of the Bank or otherwise.

3. The Applicant authorizes and directs the Bank to pay any Drawing on demand and in such currency as the Bank may determine to be appropriate, all commissions in respect of each Credit (so long as the Bank shall be contingently obligated under such Credit) and fees and charges for issuing or amending such a Credit computed and payable at such time and at such rates as and in accordance with the Bank's prevailing practice and all other expenses which the Bank may incur in connection with each Credit including, without limitation, charges and expenses of other banks or other parties paid or to be paid by the Bank on behalf of the Applicant. Such payment by the Bank shall be made without reference to or confirmation of the Applicant. Moreover, the Applicant will pay to the Bank interest on all amounts not paid by the Applicant on the date of demand or when otherwise due at the reference rate of interest then in effect in the relevant currency and location, being prime % per annum, or, prime, calculated daily and payable monthly not in advance on the basis of a calendar year for the actual number of days elapsed, with interest on overdue interest at the same rate as on the principal. "insert applicable rate or rate and phrase for interest basis."

4. Upon the happening and continuation of any one or more of the following events, (each an "Event of Default"):

- (a) the non-payment of any of the obligations of the Applicant under this Agreement or any other agreement between the Applicant and the Bank when due;
- (b) the failure of the Applicant to perform or observe any term or covenant hereof;
- (c) the failure of the Applicant to pay its debts as they become due or the admission in writing by the Applicant of its inability to pay its debts generally, the institution by or against the Applicant of proceedings respecting bankruptcy, insolvency, liquidation, winding up, reorganization arrangement, adjustment, protection, relief, composition of it or its debts

under any laws relating to bankruptcy, insolvency or reorganization or relief of debtor or the seeking of entry of an order for relief or the appointment of a receiver, trustee or other similar official for the Applicant or for any substantial part of its property or the taking of any corporate action by the Applicant to authorize any of such actions;

(d) the occurrence of any of the events noted in this paragraph with respect to any person or entity which has guaranteed any obligations of the Applicant to the Bank or if a guarantor's guarantee of the Applicant's obligations to the Bank lapses or becomes unenforceable; then the amount of the Bank's contingent liability (as determined by the Bank) under the Credit as well as any and all other obligations of the Applicant under this Agreement shall, at the option of the Bank, become due and payable immediately upon demand to the Applicant and the obligation (if any) of the Bank to issue further Credits under the Application(s) shall terminate.

5. All security now or hereafter held by the Bank for the payment or discharge of any and all present or future indebtedness and liability of the Applicant to the Bank and all property of the Applicant now or hereafter in the possession or control of the Bank for any purpose including monies on deposit and property held for safekeeping, shall be held by the Bank as security for the payment of all amounts which may become payable by the Applicant to the Bank under or in connection with this Agreement, and the Applicant hereby grants a security interest to the Bank in respect of all such aforementioned property to the extent necessary to achieve the foregoing. If at any time the Bank requires collateral (or additional collateral), the Applicant will, on demand, assign/hypothecate and deliver to the Bank as security for any and all obligations of the Applicant now or hereafter existing under this Agreement collateral of a type and value satisfactory to the Bank or make such cash payment as the Bank may require.
6. Upon default by the Applicant in payment of any amount due and payable hereunder the Bank may, except to the extent not permitted by law, in accordance with applicable law, sell by public or private sale or realize in such other manner all or any security held by the Bank and any moneys received by the Bank as proceeds of any such sale or realization, after deduction of all costs and expenses incurred by the Bank in connection therewith, shall be applied against any amount payable by the Applicant to the Bank under this Agreement and on any other indebtedness or liability of the Applicant to the Bank.
7. Upon payment by the Bank of any Drawing or the occurrence and during the continuance of any Event of Default, the Bank is hereby authorized to set-off and apply any and all deposits (at any time held) and other indebtedness at any time owing by the Bank to or for the credit of the account of the Applicant against any and all obligations of the Applicant now or hereafter existing under this Agreement irrespective of whether or not the Bank shall have made demand under this Agreement and despite such deposit, indebtedness or obligation being unmatured or contingent. The rights of the Bank under this paragraph 7 are in addition to other rights and remedies which the Bank may have.
8. The Applicant will indemnify the Bank from and against:
  - (a) all loss or damage to the Bank arising out of its issuance of, amendment to, or any other action taken by the Bank in connection with a Credit, other than loss or damage resulting from its negligence or wilful misconduct; and
  - (b) all costs and expenses (including attorney's fees and expenses) of all claims or legal proceedings arising out of the Bank's issuance or amendment to a Credit or incidental to the collection of amounts owed by the Applicant hereunder or the enforcement of the Bank's rights hereunder, including, without limitation, legal proceedings related to any court order, injunction or other process or decree restraining or seeking to restrain the Bank from paying any amount under a Drawing.
9. If, for the purpose of obtaining judgment in a court or tribunal in any jurisdiction, it is necessary to convert amounts due hereunder in any currency into a second currency such conversion shall be made at the rate of exchange quoted by the branch/agency of the Bank set out on the Application at 10:00 a.m. on the business day immediately prior to the date of judgment. Further, as a separate obligation, the Applicant will pay to the Bank any additional amount over and above that determined using the rate of exchange cited above if the rate of exchange used at the date of payment to the Bank is less favourable to the Bank than it was at the date of judgment in instances which the Bank is required to convert the amount of any judgment into the amount of any obligation it may owe at any time.
10. In the event the Applicant applies from time to time hereafter for any extension of the expiry date or for any renewal or increase in the amount of the Credit or any other modification of its terms, this Agreement shall continue in force and apply to the Credit so extended, renewed, increased or otherwise modified and to any action taken by the Bank or its agents or correspondents in accordance with such extension, renewal, increase or other modification.
11. This Agreement shall be binding upon the Applicant and upon its heirs, executors, administrators, successors and assigns and each of them and shall enure to the benefit of the Bank, and its successors and assigns. Any provision of this Agreement which is void or unenforceable shall be ineffective to the extent void or unenforceable and shall be severable from the other provisions hereof and this Agreement shall be interpreted as if such provision were not included herein. None of the terms of this Agreement shall be amended except in writing signed by the Bank and any waiver by the Bank shall not constitute any further waiver.
12. Except as otherwise expressly provided, the Credit, if a Standby Letter of Credit, shall be subject to the Uniform Customs and Practice for Documentary Credits as most recently published by the International Chamber of Commerce, (the "UCP"), or the International Standby Practices as most recently published by the same organization, (the "ISP"). The Credit, if a Letter of Guarantee, shall be governed by and construed in accordance with the laws, customs and regulations which may be in force in any place of payment thereof, or, with the laws of any jurisdiction to be jointly agreed to by the Applicant in writing and the Bank. This Agreement shall be governed by and construed in accordance with the laws of the jurisdiction in which the branch/agency of the Bank, as noted on the Application, is situated, except, if a Standby Letter of Credit, to the extent that such laws are inconsistent with the UCP, or ISP and except if a Letter of Guarantee, to the extent that such laws are inconsistent with the laws under which a Drawing may be made under the Letter of Guarantee.
13. The parties have requested that this Agreement and all related documents be drafted in English. Les parties ont exigé que cette convention et tous les documents y afférents soient rédigés en anglais.

APPLICANT'S NAME (WHERE APPLICABLE) <i>Stephanie Anderson</i>	CUSTOMER'S SIGNATURE <i>[Signature]</i>
APPLICANT'S NAME (WHERE APPLICABLE) <i>TOM ANDERSON</i>	CUSTOMER'S SIGNATURE(S) <i>[Signature]</i>
	DATE <i>Nov 25, 2011</i>



July 18, 2013

Mr. Brian Aglukark  
Nunavut Planning Commission  
P.O. Box 2101  
Cambridge Bay, NU, X0B 0C0

**Re: Mary River Project – Early Revenue Phase**

Dear Mr. Aglukark:

We would like to take this opportunity to summarize our request for a conformity determination, as reflected in the letters and materials provided to you on June 12, 2013 and July 9, 2013 in connection with the Early Revenue Phase (ERP) of the Mary River Project. As indicated in our letter of June 12, 2013, and with reference to your letter of April 13, 2013, we believe that the ERP is in conformity with the North Baffin Regional Land Use Plan (NBRLUP) and that the work and activities proposed under the ERP should be given a positive conformity determination which would be consistent (in reference to paragraph 2 of your April 13, 2013 letter) with the positive conformity determination issued for the Mary River Project Proposal on April 30, 2008. We would like, in particular, to re-confirm our understanding of the transportation corridors which are part of both the approved Mary River Project and the ERP. These include the existing terrestrial corridor along the Tote Road from the Mary River Project to Milne Port, and the marine corridor or shipping route for shipping traffic to and from Milne Port.

Both the Tote Road as a terrestrial corridor, and the shipping route as a marine corridor, received positive conformity determination from the NPC as part of the Mary River Project on April 30, 2008. As well, both of these corridors are approved for the Mary River Project under the Project Certificate approved by the Minister on December 28, 2012.

The ERP will use these existing corridors. The ERP does not propose to develop any new transportation corridors. There will be increased trucking traffic along the Tote Road, and increased shipping traffic along the shipping route. However, these are existing transportation corridors which have been in use for many years, and in particular the shipping route has been utilized for several purposes including fuel and re-supply to Pond Inlet, military, government and tourism. Environmental, social and economic effects as they relate to the frequency and duration of traffic on these existing and approved corridors will be reviewed and assessed by the Nunavut Impact Review Board (NIRB) and all interested parties during the review process of the Addendum to the Final Environmental Impact Statement (FEIS). The ERP does not propose to develop any new transportation corridors.

Terrestrial Transportation

We provided the following summary of the terrestrial transportation in the Application to Determine Conformity Questionnaire which you provided to us on July 5, 2013:

Terrestrial Transportation will take place along the existing Tote Road between the Mary River Mine Site and Milne Inlet. The Tote Road has been in existence as a transportation corridor for many years (back to the 1960s) and is recognised as a public

access easement under Article 21, Part 4 (Section 21.4.1) of the Nunavut Land Claim Agreement. Accordingly, the Early Revenue Phase (ERP) does not include the development of a new transportation corridor. The Tote Road has previously been included as part of the bulk sampling program which received a positive conformity determination from the NPC on January 22, 2007, and continues to form part of the Mary River Project, which received a positive conformity determination from the NPC, on April 30, 2008.

As indicated in the Project Proposal for Early Revenue Phase, which is Attachment 1 to our letter of June 12, 2013, the ERP will result in increases in the volume of traffic along the Tote Road. Under the Mary River Project, the Tote Road traffic included vehicles for equipment and supplies between Milne Inlet and the Mary River mine site. Under the ERP, additional traffic will include ore trucks transporting ore from the mine site to Milne Inlet. The addendum to the FEIS for the ERP includes an assessment of the potential effects of the increase in traffic along the existing Tote Road transportation corridor, for review by the Nunavut Impact Review Board.

As indicated above, the Tote Road is a transportation corridor that has been in existence since the 1960s and is designated as a public access easement under Article 21, Part 4 (Section 21.4.1) of the Nunavut Land Claim Agreement. Use of this Tote Road would not constitute development of a new transportation corridor under the NBRLUP and should not require an application for amendment to the NBRLUP as a new transportation corridor under Article 3.5.11 of the NBRLUP.

#### Marine Transportation

We provided the following summary of the Marine Transportation Corridor in the Application to Determine Conformity Questionnaire which you provided to us on July 5, 2013:

The Marine Transportation Corridor to Milne Port has been used since the establishment of the port at Milne Inlet and the Tote Road. The Marine Transportation Corridor is shown on Figure 1-1.1 in both the FEIS and the Addendum to the FEIS for the ERP (Attachment 2 to this correspondence). This Marine Transportation Corridor has been established for many years and will not be changed under the ERP. As indicated in the Project Proposal for the Early Revenue Phase which is Attachment 1 to our letter of June 12, 2013, the number of ship transits to and from Milne Port will increase. The Mary River Project included transits to and from Milne Port for ships bringing supplies and equipment. Under the ERP, shipping will also include ore carriers. This shipping will take place during the open water season, which Baffinland understands is in conformity with the North Baffin Regional Land Use Plan.

The shipping route into Milne Port was a component of the bulk sampling program which received a positive conformity determination from the NPC on January 22, 2007, and was also included as part of the Mary River Project, which received a positive conformity determination from the NPC on April 30, 2008.

The Addendum to the FEIS for the ERP includes an assessment of the potential effects of the shipping to Milne Port for review by the Nunavut Impact Review Board.

The Tote Road, the port at Milne Inlet, and the Marine Transportation Corridor are integrally connected and have been used and operated together, as a terrestrial corridor and a shipping corridor since the 1960s.

The existence of the Tote Road, Milne Port, and the shipping corridor have been recognized as existing corridors and in conformity with the NBRLUP, in both the positive conformity determination issued on January 22, 2007 by the NPC in connection with the bulk sampling program which involved hauling ore by truck to Milne Inlet, stockpiling the ore at Milne Inlet, ship loading facilities at Milne Inlet and ocean shipment of ore along the shipping route, and in the positive conformity determination issued by the NPC on April 30, 2008 for the Mary River Project which involves extensive use of the Tote Road, Milne Inlet Port, and the shipping corridor, both during construction of the Mary River Project, and during continuing operations, as a supply route.

We wish to emphasize that shipping from Milne Inlet under the ERP will only be done during the open water season, and we note that shipping during the open water season is specifically supported by the NBRLUP in Section 3.5. As noted above, the Mary River Project Certificate approves use of these corridors under the Project Certificate.

We would be very pleased if the NPC would give consideration to these factors in issuing its conformity determination with respect to the ERP.

As noted above, a positive conformity determination on the ERP would be consistent with the previous positive conformity decisions on the bulk sampling program and on the Mary River Project.

With respect to the increased volumes of traffic on the Tote Road and along the shipping corridor, we emphasize that the potential environmental, social and economic impacts of these activities have been carefully considered in the Addendum to the FEIS which we provided to the NIRB and to the NPC on June 20, 2013. We recognize that the potential impacts of the increased traffic volumes along the existing terrestrial and marine transportation corridors will be carefully reviewed and considered by the Nunavut Impact Review Board and all interested parties in determining whether the Project Certificate should be amended, and, if so, in determining the terms and conditions under which these activities can proceed while mitigating any potential environmental or socio-economic impacts.

Issuance of your conformity determination will enable the Nunavut Impact Review Board to proceed with this review. We must emphasize that the review process for the ERP must proceed within timelines necessary for us to be in a position to move forward.

Once again, we thank you for your timely consideration of our request for a conformity determination in connection with the ERP of the Mary River Project.

Sincerely,

A handwritten signature in black ink, appearing to read 'Erik Madsen', with a stylized, cursive script.

Erik Madsen, Vice President  
Sustainable Development, Health, Safety & Environment

Cc: Ms. Sharon Ehaloak (NPC)  
Mr. Ryan Barry (NIRB)  
Mr. Damian Cote (NWB)  
Ms. Navarana Beveridge (QIA)  
Mr. Alain Grenier (AANDC)  
Ms. Karen Costello (AANDC)  
Mr. Dale Nicholson (DFO)



Mr. Oliver Curran  
Baffinland Iron Mines Corporation  
2275 Upper Middle Road East, Suite 300  
Oakville, ON, Canada L6H 0C3

Dear Mr. Curran

**Re: REQUEST FOR SUBMISSIONS ON POSSIBLE DEVELOPMENT  
OF TRANSPORTATION CORRIDOR AND THE GENERAL  
APPLICATION OF THE NORTH BAFFIN REGIONAL LAND USE PLAN  
TO THE MARY RIVER PROJECT EARLY REVENUE PHASE  
DFO File NU-07 NIRB File # 08MN053 Baffinland Mines Early Revenue  
Phase**

The above-noted proposal has been forwarded to the Nunavut Planning Commission (NPC) for determination of its conformity with the North Baffin Regional Land Use Plan (NBRLUP) under the Nunavut Land Claims Agreement (NLCA) and Nunavut Land Claims Agreement Act, S.C. 1993, c. 29. NPC is currently reviewing the proposal and wants to provide Baffinland Iron Mines (Baffinland) the opportunity to review the matters which NPC may consider in making its determination. NPC invites you to make submissions on what is set out below and to provide any further information that you feel would assist the NPC in making its decision. As discussed below, NPC may determine that the project proposal for the Early Revenue Phase (ERP) of the Mary River Project constitutes the **development** of a transportation corridor, whether new or existing, for which NPC has not received an application to amend the NBRLUP. Further, NPC is considering the effect and meaning of defined terms within the NLCA and the NBRLUP both specifically, within the context of a transportation corridor, and generally within the context of the NBRLUP.

P.O. Box 2101  
Ikaluktutiak, NU X0B 0C0  
1 867-983-4625  
☎ 867-983-4626





approved land use plan is not required if a proponent of an existing project proposes to “develop” a transportation or communications corridor? Does Baffinland say that a previous positive conformity determination also precludes the need for NPC’s conformity determinations for applications to extend projects when the original authorizations expire?

## APPLICATIONS TO DEVELOP A TRANSPORTATION CORRIDOR

### 2. Defining the word “develop” in section 3.5.11 of the NBRLUP.

Where any party wishes to develop a transportation and/or communications corridor in the North Baffin region, section 3.5.11 of the NBRLUP reads in its entirety:

3.5.11 All parties **wishing to develop** a transportation and/or communications corridor **shall submit** to the NPC a detailed application for an amendment. This application must include an assessment of alternative routes, plus the cumulative effects of the preferred route. It shall provide reasonable options for other identifiable transportation and utility facilities. [A][CR]<sup>1</sup>

[emphasis added]

The NPC notes that the words “develop” and “corridor” in section 3.5.11 of the NBRLUP are not defined in the plan. Note that section 3.5.11 of the NBRLUP is also not limited to “new” corridors.

It appears the meaning of the word “develop” can be interpreted very broadly. While NPC is not bound by the definition in section 6.1.1 of the NLCA, NPC notes that the NLCA defines “development”, within Article 6 only, as follows:

"development" means any commercial or industrial undertaking, any municipal, territorial, provincial or federal government undertaking or extension thereof, on land or water in the Nunavut Settlement Area and in Zones I and II but does not include:

(a) marine transportation; or

(b) any wildlife measure or use approved in accordance with Article 5;

"wildlife" does not include flora.

Sections 6.2.2 and 6.2.3 of the NLCA set out the conditions where “marine transportation directly associated with any commercial or industrial ... undertaking, or

<sup>1</sup> The annotation [CR] is defined in the North Baffin Regional Land Use Plan chapter 3.2, fn. 7 as follows: “[CR] refers to “conformity requirements” that, on approval of the plan, will be applied by the NPC in determining the conformity of project proposals with the plan under s. 11.5.10 of the NLCA.”







In interpreting the meaning of “corridor” in section 3.5.11, the NPC is guided by section 3.5.10 of the NBRLUP which reads:

While ensuring the respect of applicable Canadian international obligations in the region, the NPC shall implement the concept of a transportation and/or communications “corridor” as a land use policy having general application, and applying to land and water routes throughout the region, based on the processes outlined in Appendices J and K.

Baffinland's letter of July 18, 2013 refers to the "Tote Road as a terrestrial corridor, and the shipping route as a marine corridor", which it says received positive conformity determination from the NPC as part of the Mary River Project on April 30, 2008. Please advise why Baffinland does not consider the ERP as a **project proposal for development** of a transportation "corridor".

**3. Is the definition of “project proposal” in the NLCA relevant to whether a transportation corridor, whether new or existing, is being developed.**

NPC's mandate to carry out conformity determinations of project proposals is not limited to the proposed construction of **physical works**, such as the construction of a permanent new marine shipping port, but also relates to **physical activities**, such as increased truck traffic, on the scale mentioned above, and increased shipping and associated operations. In determining whether a project proposal is in conformity with a land use plan, NPC acts pursuant to section 11.5.10 of the NLCA which reads:

11.5.10 The NPC shall review all applications for project proposals. Upon receipt and review of a project proposal, the NPC or members thereof or officers reporting to the NPC shall:

- (a) determine whether the project proposals are in conformity with plans; and
- (b) forward the project proposals with its determination and any recommendations to the appropriate federal and territorial agencies.

The land use plan may make provision for the NPC to approve minor variances.

The term “project proposal” is defined in Article 1 of the NLCA as follows:

“project proposal” means a **physical work** that a proponent proposes to construct, operate, modify, decommission, abandon or otherwise carry out, **or a physical activity** that a proponent proposes to undertake or otherwise carry out, such work or activity being within the Nunavut Settlement Area, except as provided in Section 12.11.1;





**5. Whether increased intensity of use of Milne Inlet Tote Road and shipping from Milne Inlet conforms with NBRUP**

Baffinland's letter, dated June 12, 2013, said that these were a "modification of the works and activities" previously approved as conforming with the NBRLUP. A review of the NPC file indicates that the commercial shipment of ore for the life of the mine and associated dock construction, for example, were never referred to NPC for previous consideration. NPC must, under section 6.2 of the NBRLUP, first consider whether the relevant conformity requirements in Chapter 3 have been satisfied before considering whether the type of land use has been engaged in or previously contemplated. As noted above, these are new activities relating to the Mary River Project, not previously considered by the NPC in its prior conformity determinations. NPC welcomes submissions on whether a change in the intensity of a physical activity in a project proposal triggers a review by NPC with the conformity requirements in chapter 3 of the NBRLUP.

(a) people are a functional part of a dynamic biophysical environment, and land use cannot be planned and managed without reference to the human community; accordingly, social, cultural and economic endeavours of the human community must be central to land use planning and implementation;

### Milne Port, Eclipse Sound and Pond Inlet (Change)

Project-related shipping through Pond Inlet to Milne Inlet is not expected to meaningfully affect use of the open water by hunters in boats, although sighting vessels associated with the Project will occur. Project ore carriers and other vessels will generally stay within the middle of the waters of Pond Inlet and Eclipse Sound, staying away from the coastline. It is expected that hunters in

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boats will remain closer to the coast in most instances. Although the ships will not have an effect on people's ability to travel through Milne Inlet and Eclipse Sound, public safety interactions will exist. Public safety will be mitigated by community public safety awareness, informing the community of vessel movements, potentially tracking the route and timing of ship's passage, and by periodic public meetings and information sessions.

#### Milne Inlet Tote Road (Change)

The Milne Inlet Tote Road between the Mine Site and Milne Port will be used throughout the Construction, Operations and Closure Phases. The road will be used as a transportation link providing supplies to the Mine Site and transporting ore to Milne Port. During the Construction Phase, approximately 120 trucks will travel along the Milne Inlet Tote Road each day, year-round. Once the mine is in operation approximately 110 trucks will travel along the road per day.

The NPC does not see a reference to public safety interactions that might result from increased ore truck size and intensity of vehicle traffic on the Milne Inlet Tote Road. Any clarification that Baffinland wishes to provide on this point would be appreciated. Does Baffinland submit that the physical activities proposed by the ERP should not trigger a conformity determination process by NPC?

#### Request for submissions

Accordingly, before the NPC reaches a decision on whether the project proposal for the ERP conforms with the NBRLUP, the NPC is requesting your submissions, and any further information you can provide, on the following:

1. If a new project proposal or an application to extend a project is made for an existing project, whether a previous positive conformity determination precludes the need for additional conformity determinations or an amendment of an approved land use plan where a party wishes to develop a transportation or communications corridor.
2. NPC welcomes any submissions Baffinland may wish to make on the definition of "develop" as it appears in section 3.5.11 of the NBRLUP and whether the ERP project proposal should be considered a "development".
3. Is the definition of "project proposal" in the NLCA as including a "physical work" or "physical activity" relevant to determining whether a transportation corridor, whether new or existing, is being developed; in the alternative does an existing transportation corridor wholly exempt all project proposals relating to that corridor from land use planning.
4. Whether the Milne Inlet Tote Road easement or existing transportation corridors mean the changes proposed by the ERP do not constitute the "development" of a transportation corridor.
5. Whether increased intensity of use of Milne Inlet Tote Road and shipping from Milne Inlet conforms with NBRLUP.



Please advise within 3 business days, by 4 p.m. on Friday August 2, 2013, whether Baffinland intends to make any submissions or to provide further information. If NPC does not receive a reply, it will proceed with its conformity determination. If Baffinland does intend to make submissions on these issues, NPC asks that Baffinland make those submissions within 15 days of receipt of this letter.

Please note that should Baffinland wish to reconsider its decision not to submit an application to amend the NBRLUP under section 3.5.11 of the NBRLUP, NPC would activate the joint review panel process under section 3.5.12 of the NBRLUP without delay. NPC does see that Appendix 1B – 4, “Concordance with EIS Guidelines (Appendices J and K of the North Baffin Regional Land Use Plan)” in the Addendum to the Final Environmental Impact Statement expressly refers to the Appendices J and K of the NBRLUP. These are the guidelines applied by NPC and either NIRB or a review panel appointed under section 3.5.12 of the NBRLUP uses to publicly review proposed transportation corridors. NPC expressly does not make any finding of whether Appendices J and K have been satisfied by the Addendum to the Final Environmental Impact Statement in the absence of an application for an amendment by the proponent under section 3.5.11 of the NBRLUP.

Thank you,



Brian Aglukark,  
Director, Implementation

Cc: Mr. Ryan Barry, NIRB  
Ms. Georgina Williston, DFO  
Mr. Bernie MacIsaac, QIA  
Ms. Phyllis Beaulieu, NWB  
Ms. Tracey McCaie, AANDC