Baffinland

ATTACHMENT 4

EXPLORATION CLOSURE AND RECLAMATION PLAN

(BAF-PH1-830-P16-0038)

Baffinland Iron Mines Corporation

Exploration Closure and Reclamation Plan

BAF-PH1-830-P16-0038

Revision 2

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BACKGROUND AND INTRODUCTION

The Mary River Project (the Project) is an approved Project (Project Certificate No. 005) located on north Baffin Island, in the Qikiqtani Region of Nunavut. The Project is wholly owned by Baffinland Iron Mines Corporation (Baffinland). This Project represents a significant investment and therefore Baffinland will continue exploration work on its mineral leases.

Exploration activities and associated infrastructure are licenced under Type "B" Water Licence No. 2BE-MRY1421 (the Licence). The work conducted under the Licence is termed by Baffinland the "Mary River Exploration Project". The scope of Type "B" Water Licence No. 2BE-MRY1421 "allows for the use of Waters and the deposit of Waste for a Mining undertaking, classified as per Schedule 1 of the *Regulations* at the Mary River Exploration Project" and includes the following activities:

- Land-based and on-ice mineral drilling;
- Mapping;
- Sampling;
- Drill core storage;
- Disposal of drilling mud;
- Geophysical and geochemical surveys;
- Mechanical trenching and stripping of surficial overburden;
- Activities to support of scientific and engineering studies to advance the Mary River Project including geotechnical investigation and geotechnical drilling;
- Progressive reclamation programs of drilling sites;
- Fuel storage;
- Camp operation; and
- Equipment, personnel and supply transport.

These tasks will either be supported from the facilities and infrastructure constructed at the Mary River Mine Site, Milne Port, future Steensby Port facilities (once constructed) or the existing Mid-Rail Camp, Steensby Port Camp, and potential satellite exploration camps on Baffinland's mineral leases. The facilities at Mary River Mine Site and Milne Port are approved under Project Certificate No. 005 and Type 'A' Water Licence 2AM-MRY-1325, and reclamation activities for these permanent facilities are detailed in the Mary River Project Interim Mine Closure and Reclamation Plan (BAF-PH1-830-P16-0012). The remaining facilities are covered under this Plan that includes the operation of up to seven (7) satellite camps that

may be established in support of exploration activities at locations shown in Appendix D. Each satellite camp will be temporary in nature and will be limited to a maximum capacity of 49 persons.

All of the activities conducted as part of the Mary River Exploration Project (Licence 2BE-MRY1421) have been permitted in the past and are common to exploration properties throughout Nunavut. Any required regulatory approvals, including modification or amendment of the Licence would be obtained before such development proceeds as needed. Closure and reclamation of any additional infrastructure required for the Mary River Exploration Project will abide by the Project commitments relating to closure and reclamation stated above and will align where appropriate with the current Mary River Project Interim Closure and Reclamation Plan (BAF-PH1-830-P16-0012). This includes ensuring facilities are designed and constructed to minimize the footprint and where possible and practical, to be temporary in nature.

DOCUMENT ORGANIZATION

This ECRP follows the template provided in the MVLWB/AANDC Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories with some minor exceptions, and includes the following major topics of discussion:

Section 2 Provides the purpose, scope, and goal of the ECRP, outlines the closure and reclamation planning team, details the approach for engagement, and summarizes regulatory instruments (permits, authorizations, and agreements) for closure and reclamation;

Section 3 Provides a description of pre-disturbance (baseline) conditions for the atmospheric, physical (terrestrial), biological and socio-economic environment;

Section 4 Provides a detailed description of the exploration area, including the location and access, project history, site geology, and high-level project summary;

Section 5 Provides a detailed description for the permanent closure of the exploration areas, including the expected final conditions. This Section contains the bulk of available detail for how the exploration areas will be closed, and the reclamation targets Baffinland seeks to achieve (closure objectives and criteria);

Section 6 Provides a description of planned progressive reclamation for exploration areas;

Section 7 Discusses planning for short-term temporary closure and long-term closure and suspension of activities.

Section 8 Provides a schedule for the planned closure activities;

Section 9 Provides a post-closure site assessment that summarizes how the exploration areas will be assessed once the selected closure activities have been completed;

Section 10 Discusses the estimated costs associated with closure and reclamation activities

Section 11 Provides a tabulated summary of the ECRP's concordance with the primary regulatory instruments

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Appendix B Cost Estimate Assumptions for RECLAIM Model

Appendix C Site Photos of Current Site Conditions

Appendix D Locations of Potential Satellite Camps

PROJECT AND CLOSURE SUMMARY

Exploration activities are seasonal and temporary in nature (from June to September). Annually, on a seasonal basis, the exploration camps are shut down for the winter period. This seasonal shut down represents temporary closure. At the completion of the drilling season, only the exploration camp and its associated infrastructure remain as reclamation measures are implemented for each drill site after completion of drilling activity. During seasonal closure all animal attracting waste will be removed, all equipment and infrastructure will be secured and de-energized, all fuel and hazardous waste will be consolidated into engineered secondary containment structures, and periodic visual inspections will be completed during periods of inactivity. It should be noted by definition, exploration is of short duration and temporary in nature. Camps are mobile and focused on areas of high prospectively. Camps may be moved during or after the drilling the season to minimise mobilisation and travel distances for more advanced exploration activities, primarily exploration drilling.

Final closure and reclamation consists of removal of the exploration camp(s) and their associated infrastructure (sewage treatment, fuel cache) and site materials (drums, barrels, buildings and contents, docks, water pumps and lines, and material and other equipment at the specific exploration camp site). All disturbed surfaces will be prepared by ripping, grading, or scarifying the surface to conform to the natural topography. All material will be transported to the Mary River Mine Site or Milne Port for disposal in accordance with the approved Mary River Project Waste Management Plan or will be shipped off-site to an approved facility.

As progressive reclamation is being conducted throughout the life of the Mary River Exploration Project, final closure and reclamation activities are expected to last a period of no more than two (2) years. The financial cost of the Mary River Exploration Project closure and reclamation has been estimated using the Mining RECLAIM spreadsheet provided by Aboriginal Affairs and Northern Development Canada (AANDC) (formerly Department of Indian Affairs and Northern Development). The Mary River Exploration Project closure and reclamation is estimated to cost $1,247,000.

2 INTRODUCTION

2.1 PURPOSE AND SCOPE OF ECRP

Closure and reclamation for the Mary River Exploration Project will be regulated under Baffinland's Type 'B' Water Licence No. 2BE-MRY142. In the cases where Mary River Exploration activities occur on Inuit Owned Lands, Baffinland's IOL Commercial Lease (No. Q13C301) conditions will also apply.

The Exploration Closure and Reclamation Plan (ECRP) contains and describes the plans related to closure and reclamation of Mary River Exploration Project activities and related facilities. In accordance with Part I, Item 1, of Type 'B' Water Licence No. 2BE-MRY1421, the ECRP has been updated from a previous revision following the issuance of the renewal-amendment Type 'B' Water Licence No. 2BE-MRY1421 to better reflect the reduced scope of activities associated with the Mary River Exploration Project.

2.1.1 RELATIONSHIP TO OTHER PLANS

The ECRP has been developed in accordance with the terms and conditions of the Type 'B' Water Licence 2BE-MRY1421. In addition to this plan, the following have also been developed by Baffinland;

- The Interim Closure and Reclamation Plan (BAF-PH1-830-P16-0012) for the Mary River Project provides details on the closure and reclamation of Inuit Owned Land under the Commercial Lease Q13C301, as well as the terms and conditions of the Type 'A' Water Licence 2AM-MRY1325. Components of the Mary River Project are considered as part of this ECRP, and conversely the ECRP relies on the Interim Closure and Reclamation Plan for additional details (e.g. closure and post closure monitoring).
- The Eqe Bay Closure and Reclamation Plan (BAF-PH1-400-P16-0003) for the Eqe Bay Exploration Program outlines closure and reclamation under the terms and conditions of the Type 'B' Water Licence 2BE-EQE-1926. For clarity, exploration activites under the Eqe Bay Exploration Program are not considered as part of this ECRP.

2.2 ECRP GOAL AND PRINCIPLES

Over the life of the Project it is expected that closure and reclamation techniques and methodologies for site reclamation will continue to evolve with changes to the exploration program, stakeholder's views, and technologies for cost effective and practical reclamation in northern conditions. Planning for exploration site reclamation will be based on the protection of human health and the environment, and remain dynamic to take into account the results of ongoing and future studies and identified best practices.

2.2.1 POLICIES AND GUIDELINES FOR FINAL CLOSURE

The ECRP has been developed in accordance with applicable requirements of:

- The Project Certificate No. 005 conditions

- The Qikiqtani Inuit Association (QIA) Abandonment and Reclamation Policy for Inuit Owned Lands (applicable to only activities and potential future satellite camps on Inuit Owned Land)
- Aboriginal Affairs and Northern Development Canada (AANDC) Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (2013).

In addition, the ECRP abides by all commitments set forth in previous licensing conditions and commitments made during associated licensing process related to the Project. These include:

- Commitments made by Baffinland during the FEIS[1] and Type 'A' Water Licence review processes.
- Baffinland Type 'B' Water Licence No. 2BE-MRY1421 requirements.

In all cases, reclamation will be consistent with locally valued ecosystem components and regional planning objectives. All closure work will be carried out in accordance with permit requirements as stated in the Territorial Land Use Regulations.

Baffinland is committed to, and will be responsible for, carrying out the closure and rehabilitation measures in a phased, on-going (progressive) manner as reviewed and agreed with the regulatory agencies and implicated communities. Baffinland will conduct its exploration activities in a manner that minimizes disturbance to the natural environment. This will be achieved by:

1. To the extent possible, conducting and supporting exploration activities from existing infrastructure at the Mine Site, Mine Port and Steensby Port (facilities approved under Project Certificate No. 005 and subject to Type A water Licence 2AM-MRY1325).
2. Where exploration activities necessitate the construction of a satellite camp, such camp will rely on the Mary River project facilities for its material and fuel supply and solid waste disposal.
3. Systematic reclamation of drill site will be undertaken after completion of the drilling activity.

In this context, closure and reclamation of an exploration site will consist of:

1. Removal of the exploration camp and its associated infrastructure (mainly power supply and fuel cache and accessory building(s).
2. Removal and disposal of drill core.
3. Rehabilitation if the land (footprint of the camp, laydown areas, and, road(s).

The main goals of this Policy and the above guidelines and regulations are to:

- Apply the principles of pollution prevention and continuous improvement to minimize ecosystem impacts and facilitate biodiversity conservation.

[1] Mary River Project Final Environmental Impact Statement and any relevant addendums, Baffinland Iron Mines, 2012

- Use energy resources, raw materials and natural resources efficiently and effectively.
- Engage with governments, employees, local communities and the public to create a shared understanding of closure and reclamation issues and take their views into consideration in making decisions.
- Return the exploration areas to "wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and human activities" (NRCan, 1994).
- Where practicable, undertake reclamation of affected areas in an ongoing and progressive manner to reduce the environmental risk once the mine ceases operation (INAC, 2002. INAC, 2002a. Northwest Territories Water Board, 1990 and QIA, 2013).
- Provide for the reclamation of affected sites and areas to a stable and safe condition and restore altered water courses to near their original alignment and cross-section. Where practical, affected areas will be returned to a state compatible with the original undisturbed area (Territorial Land Use Regulations).
- Reduce the need for long-term monitoring and maintenance by designing for closure and instituting progressive reclamation, when possible.
- Provide for closure planning using the current available proven technologies in a manner consistent with sustainable development.

2.2.2 Site Abandonment Goal

In accordance with the above Policy, regulations, and guidelines, the site abandonment goal is to return exploration sites and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities[2].

2.2.3 Closure Principles to Achieve Site Abandonment Goal

In order to achieve the Site Abandonment Goal, closure objectives and criteria have been selected for Project components (Section 4.4.2) based on the following Closure Principles:

- Ensure the safety of the exploration areas for wildlife and human users.
- Ensure physical stability of exploration areas and remaining physical features.
- Ensure chemical stability of the exploration project areas.
- Incorporate considerations for future land use of exploration areas in final closure planning.

[2] Based on alignment with Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVWLB/AANDC, 2013)

- Implement reclamation in a progressive, ongoing manner during the life of the Project and restore sites as soon as an area is no longer required for exploration to limit the need for long-term maintenance and monitoring.
- Reclaim disturbed Project areas such that no long-term active care is required.
- The objectives and criteria proposed for implementing Final Closure and achieving the stated goal and principles are discussed in Section 5.1.1 of this ECRP.

2.3 Closure and Reclamation Planning Team

Currently, closure planning related to the Project is the responsibility of the Sustainable Development Department at Baffinland with support consultants. Participation of local communities and other stakeholders in the consideration of alternative reclamation activities to safeguard community values is encouraged as the Project proceeds.

2.4 Engagement

Baffinland's approach to stakeholder and Inuit community engagement emphasizes the importance of informing stakeholders, establishing effective communication strategies, and collecting feedback from them on potential issues and concerns.

In support of achieving the engagement objectives defined for the Project, Baffinland implements a variety of engagement mechanisms that are intended to ensure that a broad and comprehensive approach to the identification of stakeholders and that the creation of enhanced opportunities for dialogue and input are executed. During engagement with the North Baffin communities, the QIA and other stakeholders related to the ERP and ongoing operations, a few questions were raised about Project closure and reclamation. These were mainly concerned with who would be cleaning potential Project-related spills as proponents of past projects created fuel spills, which may have affected marine mammals. Some community members wondered what would happen to Project infrastructure and equipment post-closure and others asked about the status of the closure plans.

Refer to the Interim Closure and Reclamation Plan for the Mary River Project (BAF-PH1-830-P16-0012) for further details on enagement activities and summary of engagement to date.

2.5 Regulatory Instruments for Closure and Reclamation

Baffinland is committed to, and will be responsible for, carrying out the closure and rehabilitation measures in a phased, ongoing (progressive) manner as reviewed and agreed with the Landlord, regulatory agencies and impacted communities.

This current revision of the ECRP has been developed as per the Type "B" Water License 2BE-MRY1421, in accordance with the *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and*

Mine Sites in the Northwest Territories (MVWLB/AANDC, 2013); and the *Abandonment and Reclamation Policy for Inuit Owned Lands* (the Qikiqtani Inuit Association-Version 3.0).

Relevant policies, guidelines, and associated regulations that Baffinland will adhere to in the development of this and future revisions to the ECRP are outlined in Table 2.1, below.

Table 2.1: Applicable Mine Closure Planning Policies, Guidelines, and Lease Requirements

Title/Year/Agency
Project Certificate No.005 (with associated amendment), 2014, NIRB
Type B Water Licence 2BE-MRY1421
Commercial Lease No.: Q13C301, 2013, QIA
AANDC Land Lease 47H/16-1-2, 2014, CIRNAC
CIRNAC Land Use Permits N2019C0009 & N2019Q0011, 2019, CIRNAC
Guidelines for the Preparation of an Environmental Impact Statement for Baffinland Iron Mines Corporation's Mary River Project (NIRB File No. 08MN053), 2009, NIRB
Abandonment and Reclamation Policy for Inuit Owned Lands, Qikiqtani Inuit Association, Version 3.0. 2013, 2013, QIA
Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories, 2013, MVWLB/AANDC
Mine Site Reclamation Policy for Nunavut, 2002, AANDC
Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories, 1990, Northwest Territories Water Board
NWT/Nunavut Mines Health and Safety Act and Regulations, 2005, Government of Nunavut

A Glossary of Terms, Acronyms and Abbreviations used throughout this document and the applicable guidelines and regulations can be found in Section 12. Refer to Section 11 for a concordance review of applicable requirements.

2.5.1 Project Updates and Reporting

Since 2013, Baffinland has provided annual reports to the Nunavut Water Board (NWB) summarizing the site work completed, and the work planned for the following year. These reports also provide a synopsis of compliance performance with explorations licences, permits, approvals and commitments, and include the results of monitoring activities. An update on the existing environmental conditions and progressive reclamation activities are also contained in these reports. The reports are publicly available through the NWB registry. The results of the monitoring activities have an impact and influence on the goals, objectives, criteria, or strategy of the ECRP. They are also considered in future revisions of the ECRP.

Appendix C provides site photographs of current conditions onsite.

3 PROJECT ENVIRONMENT

A summary description of the atmospheric, bio-physical terrestrial and socio-economic environments at the Project site locations are outlined in detail in the Mary River Interim Closure and Reclamation Plan (BAF-PH1-830-P16-0012). A comprehensive description of the baseline social, physical, biological and chemical conditions at the Project Location and impact area, with supporting documentation, are presented in Volumes 4 to 8 of the Mary River Project Final Environmental Impact statement (FEIS), and the ERP (Baffinland, 2013), available through the NIRB website as follows:

- Volume 4: Human Environment
- Volume 5: Atmospheric Environment
- Volume 6: Terrestrial Environment
- Volume 7: Freshwater Environment
- Volume 8: Marine Environment

3.1 PHYSICAL ENVIRONMENT

The Project is situated in the Northern Arctic Ecozone. The climate is semi-arid and permafrost coverage is continuous to a depth of 500 metres, with an active layer of up to two (2) metres. Extremely cold temperatures, combined with the permafrost, result in a short period of runoff that typically occurs from June to September. All rivers and creeks, except for the very largest systems, freeze during winter. Due to the combination of low temperatures and low infiltration, vegetative cover is minimal and surface water is abundant. The region is dotted with thousands of small lakes and streams.

The region experiences near 24-hour darkness with less than two hours of twilight from November to January. During the winter months, the treeless topography and fine powdery snow produce blowing snow conditions, resulting in restricted visibility. Frost-free conditions occur from late June to late August. There is continuous daylight from May to August. The months of July and August usually experience the greatest precipitation. From September to November, temperature and the number of daylight hours decrease, and by mid-October the mean daily temperature is generally well below 0°C. The highest snowfall typically occurs during this period.

Topography varies considerably across the Project area. The shoreline of Milne Inlet in the northern part of the Project area is situated on a relatively broad, deep and flat sand beach. Milne Inlet itself is enclosed by steep fiord walls measuring 60–600 m above sea level (asl). Moving inland, the Milne Inlet Tote Road follows the Phillip's Creek valley that starts near sea level at Milne Inlet and rises to 188 m asl at the Mine Site. Hills or mountains on both sides confine the Phillip's Creek valley. West of the Phillip's Creek Valley is mountainous terrain with some occurrence of glaciers.

The Project is located in a zone of continuous permafrost which can extend to depths of several hundred metres. Cryosolic soils (i.e., those affected by permafrost-related processes) predominate. The active layer through the Project area typically ranges from approximately 1 to 2 m but may be greater in areas where there is loose, sandy soil at the edges of lakes or ponds and less in areas with a substantial surface layer of wet organics. Unfrozen taliks can exist within areas of continuous permafrost below lakes, under large rivers or near the coast.

The surficial geology of the area generally consists of locally abundant Holocene glacio-lacustrine sediments, alluvial sediments (alluvial deposits), marine and glacio-marine deltaic sediments and end moraine till, with occasional outcrops of pre-Quaternary bedrock and sedimentary rock formations. Figure 6-2-2 - Surficial Geology in the Regional Study Area (RSA) in Volume 6 of the Mary River FEIS shows the surficial geology of the Project area.

The North Baffin Island region and Mary River area lie within the Committee Belt, a granite-greenstone terrane mixed with rift basin sediments and volcanic rocks. The belt lies within the Churchill Province, extending from Baker Lake to Greenland, and is divided into five main assemblages: the Archean, the Mary River Group, the Piling Group, the Bylot Supergroup, and the Turner Cliffs-Ship Formation.

Groundwater flow in the Local Study Area (LSA) consists of seepage through unconsolidated materials within the active layer, which typically ranges from 1 to 2 m (up to 3 m) below surface. This groundwater reports to local surface drainages and lakes. The long period of sub-zero temperatures results in a very short runoff season, typically occurring from June through September. Runoff may extend to late October in systems with large lake components. A Baseline Hydrology Report for the Project is found in Appendix 7A, Volume 7 of the Mary River FEIS. The key findings within the Baseline Hydrology Report pertain to four main hydrometric parameters: timing of runoff, magnitude of runoff, spatial variability of timing and magnitude of runoff, and long-term runoff estimates. Runoff in the vicinity of the Mary River Project are characterised as follows:

- Streamflow typically commences in early to mid-June as temperatures climb above 0°C, and ends in late September to late October, depending upon watershed characteristics.
- The annual hydrograph is dominated by a nival (snowmelt) freshet, which occurs between late June and the end of July, followed by a period of low baseflows driven by permafrost melt and shallow subsurface flow. Baseflows are punctuated by precipitation events through July to early September.
- Precipitation runoff events are usually quite large and flows increase rapidly as interception, infiltration, and evapotranspiration are minimal due to shallow permafrost, cool temperatures and lack of vegetative cover.

3.2 Freshwater Environment

There are two key fish species in the freshwater environment: Arctic char (*Salvelinus alpinus*) and a minnow species named nine-spine stickleback (*Pungitius pungitius*). While both are generally abundant

and widespread in distribution, ninespine stickleback are absent from the freshwater lakes and streams that were surveyed near the Milne Inlet coast. As all streams with the possible exception of large rivers freeze solid in winter, lakes provide the only overwintering habitat for both species and spawning habitat for Arctic char across the study areas. Many streams provide rearing and foraging habitat and potential protection from predators for juvenile Arctic char. Most of the drainage basins that support Arctic char either contain barriers preventing anadromous migrations and/or are distant from the coast and most populations in the five study areas are land-locked. Nearshore zones of larger lakes also provide rearing and foraging habitat and potential protection from predators for juvenile Arctic char, foraging and, in some cases, spawning habitat for adult Arctic char, and overwintering habitat for all life stages. Arctic char feed primarily on benthic invertebrates, although cannibalism occurs in a small proportion of at least some populations.

3.3 TERRESTRIAL ENVIRONMENT

Existing knowledge of the North Baffin region with respect to vegetation describes the area as having a harsh climate, high winds and shallow soils result in sparse and dwarfed plant life. Herb- and lichen-dominated communities constitute the main vegetative cover. The latter is closely associated with the rock fields and hilly upland areas. Common herbs are purple saxifrage, mountain avens, and arctic poppy, often mixed with shrubs such as arctic willow. The size of shrubs decreases rapidly as one moves north. Vegetative cover tends to be greater on wetter sites confined to coastal lowlands, sheltered valleys and moist nutrient-rich corridors along streams and rivers.

A key terrestrial wildlife species (to both humans and within the broader ecology) is the North Baffin Island caribou. They currently occur in low densities and their abundance seems to be cyclical – harvest data and Inuit Qaujimajatuqangit (IQ – Inuit Knowledge) suggests a roughly 60 to 70-year cycle of abundance. The cyclical pattern of caribou abundance is similar to patterns described on Greenland and south Baffin Island. The cause of these changes in abundance is currently unknown. The last period of caribou abundance in the regional study area (RSA) was 1980 to 2000. According to IQ, and trail orientation and abundance, movement will predominantly be east-west and will occur within the southern half of the RSA Caribou numbers are expected to gradually increase in the Mary River Region, but might not recover to historical highs until the 2050s. There is evidence that caribou occur, and have historically occurred, throughout the entire region and, therefore, use most of the RSA as some form of habitat. The most-used habitat is in the southern and central portion of the RSA, as indicated by caribou sign (bones, antlers, tracks, and trails) and IQ. Trails observed along the proposed railway alignment suggest that some areas are better for movement. Analyses of habitat use show a greater probability of caribou occurrence for some habitats during the calving, growing, and winter seasons, but the probability of occurrence of caribou is relatively equal in many locations throughout the Project area. The caribou that currently occupy the RSA are not migratory. The local caribou on average move less than 4 km per day during all seasons with very few focused directional movements and all movements were at the scale of tens of kilometres — most caribou remained within the areas they were collared. Additional details on Caribou

populations are summarized in Section 5 and Appendix 6F- Terrestrial Baseline Report of the Mary River FEIS.

The Terrestrial baseline report found in Appendix 6F of the Mary River FEIS is the most extensive and thorough summary of north Baffin Island caribou currently in existence. It summarizes and synthesizes the history of government surveys, local harvest, IQ, habitat use, and terrestrial wildlife surveys funded by Baffinland, and is one of the most in-depth analyses of caribou habitat selection completed in Nunavut.

Field surveys in the Project Area documented 54 bird species within the marine and terrestrial RSAs, five of them Species at Risk listed by COSEWIC (2010) or SARA (Environment Canada, SARA 2010) as identified during the time of baseline programs, including Peregrine Falcon, Short-eared Owl (documented within the terrestrial RSA but showing no signs of nesting there), and Ivory Gull, Ross's Gull and Harlequin Duck (all detected within the marine RSA, but no nesting sites were located). One additional Species at Risk, the Red Knot, has the potential to be found within the Project Area, but was not detected during baseline surveys.

Staging and breeding areas are found in the Project Area for numerous species of birds including Snow Geese, Common and King Eiders, Brant, and Long-tailed Ducks, and include a known moulting area for Snow Geese prior to fall migration. Twenty-five species were confirmed to breed throughout the marine and terrestrial study area. No large, conspicuous seabird nesting colonies were recorded during Project surveys; however, several are known to exist within and adjacent to the marine RSA, particularly on Bylot Island, in Foxe Basin, and along Hudson Strait. Marine surveys did locate a large breeding colony of Snow Geese (>5,000 individuals) on the southwestern shores of Steensby Inlet**.**

IQ surveys conducted in the surrounding communities indicated that the marine and terrestrial habitat contains several areas that are used seasonally by large numbers of various bird species. Community Elders indicated that most bird species in the area are migratory and typically arrive in late-April, May, and June, and start leaving in August. Breeding occurs throughout the area: most of the islands within the RSA are used as nesting grounds by various species of seabirds, gulls, terns and waterfowl, and some large colonies of seabirds and gulls are known along cliff habitats. Species such as geese, eiders, loons and ducks can be found nesting along coastlines or inland along freshwater lakes. Fall migration occurs between early August to late October depending on the species and the sex. Some birds, such as Common Raven, ptarmigan, and sometimes Snowy Owl, winter in the area, and some seabirds, such as Black Guillemot, also remain in the area year-round using the open shore leads in the winter.

Wolves and foxes are the dominant carnivores in the RSA and exist at low densities throughout the RSA. Very little information was collected on these midsize carnivores because they were so rarely observed. Fewer than 100 wolf and fox observations were recorded during extensive baseline surveys from 2006–2010. Information in published journal articles was supplemented with anecdotal and IQ information specific to the Project area for this baseline. Carnivore populations are tied to fluctuating prey densities (e.g., caribou and lemmings). Occurrence of carnivores might increase in the area if caribou populations

return in large numbers. Additional details on midsize carnivores in the Project area can be found in Section 2.3, Appendix 6F-Terrestial Wildlife Baseline Report of the Mary River Project FEIS.

Lemming and Arctic Hare, Lemmings are a key prey species in Arctic ecosystems. Their abundance affects the behaviour, habitat use, and population dynamics of carnivores such as Arctic fox, red fox, wolf, Snowy Owls, and falcons. Lemming populations are considered Secure in Nunavut. Populations typically undergo large regular fluctuations in population size (every three to four years). Refer to Section 2.3, Appendix 6 F of the Mary River Project FEIS, February 2012 Arctic hare are a lagomorph found in treeless regions across North America and Greenland. They are restricted to mountains, tundra, and coastal barrens due to their apparent inability to use food resources in forested areas). They may occur in groups of 10–60, or up to thousands on Arctic islands. The current population status of Arctic hare in Nunavut is classified as Secure by CESCC. In northern Baffin Island, Arctic hare are locally abundant. Additional details on small prey mammals in Baffin Island can be found in Section 2.3, Appendix 6F-Terrestial Wildlife Baseline Report of the Mary River Project FEIS.

3.4 Socio-Economic Environment

The Inuit of the North Baffin region have experienced tremendous social and cultural change over the course of a few decades. Recent changes, particularly residential schools, have affected family integrity and by implication, social cohesion. Elders are becoming more engaged in community life and in the education of youth in traditional skills. At the same time, a shift toward Western middle-class expectations appears to be taking place among Inuit youth.

The land-based economy is a major part of the livelihoods of many residents of the North Baffin. Harvesting from the land and sea is estimated to produce food worth between $12 million and $20 million per year in this region. The amount of work to harvest this food is estimated to be similar to 350 full-time jobs.

In addition, residents of the region earn money through sales of arts and crafts, through employment, and from various government social programs such as Income Support. The personal income reported by residents of the five North Baffin communities amounted to $83 million per year.

Residents' demand for wage employment is very high. People want to work, even when this work requires flying to remote locations. However, job opportunities in the North Baffin are limited. Inuit employment in North Baffin is characterized by many individuals earning small levels of income, well under what full-time work would pay, and a small number earning full-time, year-round incomes. Most residents working in full-time jobs in Iqaluit do so year-round. In North Baffin, many more full-time workers are engaged in these jobs for only short periods. Women who work full-time jobs in North Baffin are more likely to work year-round than are men.

Nunavut relies on federal transfer payments for at least 90 % of its revenue. Government employment is a mainstay of the wage economy, with many of Nunavut's small businesses and retail outlets established

to support government needs or those of public servants. The public sector accounts for a large portion of Nunavut's economic activity. Government jobs in administration, education, and health account for about half of all employment earnings in the territory. Construction has been growing as government infrastructure has been established.

These communities have a subsistence economy and have experienced dramatic population growth over the last 20 years. Over 70 % of the population is under 25. Underemployment and lack of opportunities is causing social stress. Community Elders recognize that the communities must position themselves to enter the wage economy.

For many North Baffin households, harvest of country food provides an important contribution to overall well-being. In all five communities, caribou, ringed seal, and Arctic char are of major importance. In addition, walrus is a major species of importance in Hall Beach and Igloolik, while narwhal is a key component of the harvest among households in Arctic Bay, Pond Inlet and, to a lesser degree, Clyde River.

3.4.1 Nearby Communities

There are five communities of north Baffin Island in the immediate vicinity of the Project, which have existing and historical socio-economic and/or ecosystemic ties to the Project area, and for which the Project has a direct effect on the traditional land use of their residents. Listed in alphabetical order, these communities (known as Category 1 communities in literature as they are closest to the Project) include Arctic Bay, Clyde River, Hall Beach, Igloolik, and Pond Inlet. The ties of these individual communities to the Project are described in more detail:

Arctic Bay is located on northern Baffin Island, 280 km northwest of the Mary River site. Harvest and land use patterns indicate that the effect of Project activities on these current patterns of Arctic Bay residents is less than what it would have been historically. Arctic Bay residents might use the Milne Inlet, Eclipse Sound, and Mary River areas for hunting on a sporadic or occasional basis but other geographic areas are more important to this community's land use.

Clyde River is located in northeastern Baffin Island, 415 km from the Project area. Historical land use information and discussions with Elders from various communities suggest that the people of the Clyde River area used to travel inland from Cambridge Fiord facing Baffin Bay, into the Raven River area east of Angajurjualuk Lake and southeast of Mary River. Harvest patterns suggest that contemporary land use activities are now concentrated closer to the community, however, historical ties to the Mary River area resulted in the inclusion of this community in the study area.

Hall Beach is located on the mainland just south of Igloolik, 192 km from the Steensby Port site and 288 km southwest of the Mary River site. Hall Beach harvest patterns are distinct from Igloolik despite their proximity, with a concentration of marine harvesting centred on the Hall Beach area. Some hunting occurs on Baffin Island intermixed with Igloolingmiut hunting, including in and around Rowley and Koch islands

and Steensby Inlet; thus, the Project shipping route through this area could have both land use and ecosystemic effects on the community.

Igloolik is located on the mainland but is the closest community to the Steensby Port site (155 km) and second-closest geographically to the Mary River Project site (230 km). Historically, Igloolingmiut spent the summer hunting caribou along the western side of North and Central Baffin Island. Current harvest patterns show that while Igloolingmiut use the Baffin coast and marine areas at the mouth of Steensby Inlet, their activities are heavily concentrated around the community on Melville Peninsula and the closest Baffin Island shoreline to the north. Igloolingmiut still hunt around Rowley and Koch islands and even in Steensby Inlet; thus, the Project shipping route through this area could have both land use and ecosystemic effects on the community.

Pond Inlet is geographically the closest community to the Mary River mine site, located approximately 160 km northeast of Mary River. Pond Inlet relies on hunting in the marine environment of Eclipse Sound and Milne Inlet as well as caribou hunting through the Mary River area. As such, Pond Inlet has the closest land use, historical, and ecosystemic ties to the Mary River area. Details on the socioeconomic environment surrounding the Project area are described in detail in Volume 4 of the Mary River Project FEIS, February 2012.

3.4.2 Traditional Land Use

Human habitation of the region extends back at least 4,000 years. The historic period of a region is defined as that point where human activities are documented in written record.

The historic period of the North Baffin region begins in the late 16th century with the first European whaling and exploration in areas adjacent to Baffin Bay. Two ships that over-wintered in the Igloolik in 1822 and 1823 provide the first record of Euro-Canadian exploration in the Foxe Basin area. The Hudson Bay Company, the Royal Canadian Mounted Police, and the church established themselves at different times in the vicinity of each of the existing communities, as early as 1921). The establishment of these institutions, as with the whalers before, influenced land use and settlement patterns through the mid-twentieth century. The establishment of DEW-line sites in Foxe Basin also influenced land use patterns, with Inuit settling near the DEW-line sites seeking part time employment and for trade. Traditional land use patterns changed substantially with the movement of the Inuit into permanent settlements as a result of federal policy and housing initiatives in the 1950s Contemporary Inuit land use was determined through consideration of the Nunavut Wildlife Harvest Study interviews and discussions with local communities, and the results of the MRIKS. Connection with the land continues to be an important aspect of Inuit life and is evident in current land use patterns. Although Inuit now live in permanent settlements, travel and camping continue to be important aspects of Inuit life. Travel routes have been identified linking all the communities of north Baffin Island (Clyde River, Pond Inlet, Arctic Bay, Igloolik, and Hall Beach). Travel is an important land use practice of the Inuit as it enables the development of connections to the land, enables individuals to meet with family and friends from other communities, and enables hunting and gathering. For additional and a through breakdown of land use areas surrounding the project information

refer to Figures 3.13 – Travel Routes – North Baffin Region (workshop results) and Figure 3.14 – Travel Route – North Baffin Region (interview results) from Appendix 4C – Land Use Report, Volume 4 of the Mary River Project FEIS.

Contemporary harvesting activities on North Baffin include wildlife hunting, marine mammal hunting, freshwater and marine fishing, berry picking, egg gathering, sea resource harvesting, and land resource harvesting such as soapstone. See the following figures from Appendix 4C – Land Use Report, Volume 4 of the Mary River Project FEIS for geographical representation of identified areas where harvesting activities occur:

- Figure 3.4 - Hall Beach/Igloolik Harvest Locations (Pre-1965)
- Figure 3.5 - Hall Beach/Igloolik Harvest Locations (1965-1974)
- Figure 3.6 - Arctic Bay/Pond Inlet Harvest Patterns (pre-1959)
- Figure 3.7 - Arctic Bay/Pond Inlet Harvest Locations (1959-1964)
- Figure 3.8 - Land Use information from DIAND (1982B) (showing Inuit land use by marine and terrestrial animal activity)
- Figure 3.9 - Wildlife distribution
- Figure 3.10 - Approximate Camp Areas (1930 - 1966)
- Figure 3.19 - Berry Picking Locations - North Baffin Region (workshop results)
- Figure 3.22 - Ocean Resource Collection Areas - North Baffin Region (workshop results)
- Figure 3.31 - Reported Caribou harvest locations in North Baffin (1996 - 2001)
- Figure 3.33 - Reported marine mammal harvest locations on North Baffin (1996 - 2001)
- Figure 3.35 - Reported waterfowl and egg harvest locations in North Baffin (1996 - 2001)
- Figure 3.37 - Reported Fish Harvest Locations in North Baffin (1996 - 2001
- Figure 4.2 - DFO Arctic Char Commercial Fishing Quotas for North Baffin Rivers

3.4.2.1 Land Fast Ice

Ice is an important component of land use activities, as much of the travel engaged in by residents is on land fast ice. Land fast ice is often used to reduce travel time and to access the floe edge for hunting purposes. For more information refer to Figures 3.13 – Travel Routes – North Baffin Region (Workshop Results); Figure 3.14 Travel Routes – North Baffin Region (interview results); and Figure 3.24 – Sea Ice Conditions – North Baffin from Appendix 4C – Land Use Report, Volume 4 of the Mary River Project FEIS.

Recreational Land includes several parks in the vicinity of the Project. Sirmilik National Park of Canada, established in 2001, is one of Canada's newest national parks and covers a considerable landmass with

four separate land parcels. The Bylot Island Bird Sanctuary is located within Sirmilik National Park, affording it overlapping legal protection and restrictions on land use. Tamaarvik Territorial Park, located adjacent to the community of Pond Inlet and Little Salmon River, is a relatively small park used mainly for camping. See Figure 7.1 – Parks and Conservation Areas from Appendix 4C – Land Use Report, Volume 4 of the Mary River Project FEIS for location of the parks relative to the Project.

Local outfitting resources are available in local communities for tourism activities such as kayaking, nature viewing and polar bear hunting. Cruise ships visit the North Baffin region each summer, specifically the region around Bylot Island and Sirmilik National Park.

4 PROJECT INFORMATION

4.1 PROPONENT NAME AND ADDRESS

The proponent of the Mary River Exploration Project Closure and Reclamation Plan is:

Baffinland Iron Mines Corporation
2275 Upper Middle Road East, Suite 300
Oakville, ON L6H 0C3
Tel: (416) 364-8820 Fax: (416) 364-0193

4.2 PROJECT HISTORY

The Mary River iron ore deposits were originally discovered in 1962 by Murray Watts of British Ungava Explorations Limited (Brunex). Brunex staked ten claim groups in the Project area, including the Mary claims which cover the areas now known as Deposit No. 1. The private company Baffinland Iron Mines Ltd. (BIML) was established in 1963 by the financial participants and prospectors of the Brunex group to hold the Mary River claims and leases and to develop the prospects.

BIML undertook an exploration program from 1963 through 1966, with most of the field work carried out in the summers of 1964 and 1965. This work included the establishment of a 100 km tote road between Milne Inlet and the Mary River camp, and construction of gravel airstrips near the Mary River camp, at Milne Inlet, and a tundra strip at Katiktok Lake about 40 km northwest of Mary River and near Deposit No. 4. Apart from the required land surveys, some metallurgical test work, and re-examinations of project economics, no additional fieldwork was undertaken between 1965 and 2004.

In 2002, BIML interests were acquired by Baffinland, with the purpose of revitalizing the Project. The current Baffinland Iron Mines Corporation was formed in early 2004, which now holds exclusive rights to the ore deposits at Mary River. Continuous contemporary exploration work began in 2004. In 2007, a 250,000 tonne bulk sample program was approved by the Nunavut Impact Review Board, and a Memorandum of Understanding was signed with Nunavut Tunngavik Inc. to gain mineral rights over 16,695 ha surrounding Deposits No. 1, 2 and 3. In addition an agreement was signed with Fednav to develop and deliver shipping solutions for the Project and letters of intent for the future sale of iron ore were signed with 3 steel companies (Thyssen Krupp, Salzgitter and Voestalpine). A further agreement for future sale of the iron ore was signed with ROGESA Roheisengesellschaft Saar mbH ("ROGESA"), a pig iron producing company, in 2008.

Figure 4.1 Site Location Map

The year 2008 also saw the completion of a drill program focused on geotechnical, exploration and geomechanical work, as well as further investigations at the Milne Inlet and Steensby Port sites and along the Railway. In addition, a bulk sampling program was undertaken to extract, transport and ship ore for testing in Europe. The results were used to prepare a definitive feasibility study, which found 'excessively robust economics' for a Project based on 18 Mtpa of iron ore production (Baffinland press release, February 23, 2009). In March 2008, the Company submitted a Development Proposal and associated initial permit applications in order to initiate the regulatory review of a Project based on currently defined iron ore reserves. In January 2011, Baffinland submitted a Draft Environmental Impact Statement (DEIS) for stakeholder comment and review. In February 2012, Baffinland submitted the FEIS in support of the development of the Project.

The FEIS included the construction, operation, closure and post-closure activities associated with the mine and its related infrastructures, the construction of a 150 km railway to link the Mine Site to a new port facility at Steensby Inlet, and the construction of the Steensby port. On January 13, 2013, Baffinland informed the NIRB that, due to various business drivers, Baffinland was proposing to make changes to the schedule and specific activities in the initial stages of the development associated with the original Mary River Project (File No. 08MN053). Baffinland noted it understood that the request would potentially necessitate a reconsideration of the Terms and Conditions contained within Project Certificate No. 005 as issued by the NIRB on December 28, 2012 for the Mary River Project.

The changes consisted of the re-introduction of shipment of up to 4.2 Mtpa ore via Milne Port, road transport of ore from the Mine Site to Milne Port via the Tote Road, and the deferral of the full-scale development of the original Project (18 Mtpa production, with railway link to Steensby Port and the development of Steensby Port). This phase was termed 'the Early Revenue Phase'. Baffinland received NIRB approval for the ERP amending the Project Certificate in May 2014. The amended Project Certificate allows for the future development of the 18 Mtpa railway operation, for a total combined production rate of 22.2 Mtpa. In 2015, the Type A Water Licence 2AM-MRY 1325 was successfully amended to account for activities approved for the ERP in 2014. In 2018, Baffinland sought an increase to the production volume to be shipped via Milne Inlet to 6 Mtpa, and an Amendment to the Project Certificate was issued. The Project is currently working toward the 6 Mtpa production rate via Milne Port associated with the ERP. Exploration activities have focused on continued characterization of Deposits 2 and 3 at the Mine Site, as well as survey and evaluation of other prospects in the region.

4.3 Site Geology

4.3.1 Regional Geology

The North Baffin Island region and Mary River area lie within the Committee Belt, a granite-greenstone terrane mixed with rift basin sediments and volcanic rocks. The belt lies within the Churchill Province, extending from Baker Lake to Greenland, and is divided into five main assemblages: the Archean, the Mary River Group, the Piling Group, the Bylot Supergroup, and the Turner Cliffs-Ship Formation (Aker Kvaerner, 2008).

The Mary River iron deposits are located within the Mary River Group, an assemblage of Late-Archean (2.76 to 2.72 Ga) metasedimentary to metavolcanic rocks that have been folded and preserved in greenstone belts (Aker Kvaerner, 2008). The Mary River Group greenstone belts are present as fragmented remnants stretching from Bylot Island south to Eqe Bay, with a maximum thickness of 4,000 m. Primary sequences within the Group consist of a lower series of metavolcanic rocks and an upper series of turbidite pelitic-greywacke; the stratigraphic position of iron formation, quartzite, conglomerate, minor marble, and volcanic breccia units within the belts, which varies across the region. The Mary River Group is part of the regional Committee Belt, an Archean-aged (2.9 to 2.5 Ga) assemblage of granite-greenstone terranes, granitic migmatites gneissic granitic intrusions, and clastic and carbonate sedimentary units reworked during the Paleo-Proterozoic (2.5 to 1.6 Ga).

4.3.2 Iron Ore Deposit Geology

Iron formations occur in varying thicknesses discontinuously within the Mary River Group metasedimentary units but are typically not present in economically extractable thicknesses or configurations except in the Mine Site area. The high-grade iron ore at Deposits No. 1, 2, 3 and 4 were discovered in 1962, and these initial hematite-magnetite mineralized zones were mapped within extensive belts of banded iron formation in the area over the next three years. Deposit No. 5 was discovered and surface mapped in 2009. The deposits are characterized by zones of massive layered to brecciated hematite to magnetite, variably intermixed with banded oxide to silicate facies iron formation. As typified at Deposit No. 1, the high-grade iron formations are interlayered with thin bands of chlorite-actinolite schist, staurolite-garnet-mica schist, amphibolite, and banded iron formation across their strike width, with the entire assemblage up to 400m thick.

The Mary River iron deposits are considered to belong to an Algoma-type iron formation (Aker Kvaerner, 2008) formed in a volcanic ark setting in an extensional or rift basin during the Archean. Algoma-type deposits are typically characterized by a lower series of volcanics followed by banded iron formation and/or interlayered to pure iron oxides of variable and potentially substantial thickness, in turn overlain by volcanics and volcaniclastic sediments (Gross, 1996).

4.3.3 Geotechnical Overview

4.3.3.1 Milne Port

The Milne Port area consists of a series of variably dipping, dissected terraces sloping towards the waters of Milne Inlet. The surficial deposits are marine and glacial marine sediments, ranging from coarse beach sediments (gravel and sand) to finer deltaic sediments (clay, silt, sand and gravel) to even finer deep water periglacial silt veneers (silt, clay and fine sand). The soils in the area are often covered by a thin layer of organics at the ground surface. The soils were noted to typically be frozen below 2 m depth and contain ice lenses (Mary River Project FEIS 2.1.3.1). Offshore drilling encountered loose to compact silty sand underlain by sand containing varying amount of gravel and cobbles.

4.3.3.2 TOTE ROAD

The Tote Road generally follows a glacial valley, oriented northwest-southeast to the Mine Site. The surficial deposits along this alignment generally include the following materials:

- Till deposits: veneer (up to 2 m thick) or blanket (up to 10 m thick) with drumlins and moraines (in places);
- Glaciofluvial sediments: outwash gravel and sand forming braided floodplains, terraces and fans or stratified glacial drift (gravel and sand);
- Limited bedrock exposure: especially nearer to the Mine Site/Deposit No. 1 area; and
- Mary River flows across the glacial valley to the southeast of the Mine Site, and several thaw lakes and thermokarst depressions are located along the valley floor.

4.3.3.3 MINE SITE

Deposit No. 1 is located along the top and margins of a bedrock hill on the north side of the valley, while the waste rock piles will be located along the west-facing and east-facing side slopes of the hill. Bedrock is exposed at the apex of the deposit with talus present on the upper slopes. The mid slopes on the east side of the deposit comprise up to 50 m (vertical depth) of glacial till, tapering out to near surface bedrock at the base of the slope. The till on the north and west side of deposit is shallower, in the 10 to 15 m range. The till around Deposit No. 1 is typically dominated by boulders, cobbles, gravel and trace to some organics and a moderately thick, wet organic layer is present over the majority of this upper area. The overburden materials are considered to be very ice-rich based on-site investigations, observations from bulk sample road construction and general understanding of the deposit.

Other Project-related infrastructure in the Mine Site area will be located on areas of glaciofluvial terrace along the valley floor directly south and southwest of Deposit No. 1. In addition to the glaciofluvial deposits, there appears to be some direct glacial deposition in and around the south-eastern portion of Sheardown Lake. Overburden depths over the majority of the valley floor are typically noted to be in the 10 to 20 m thickness ranges. Based on the investigations and surficial features in and around these deposits, evidence of ice-rich areas and localized massive ice bodies are present, particularly in the vicinity of the existing airstrip areas. A thin organic layer is present in some areas, over the till, in depressions and at the base of some slopes.

Underlying the glaciofluvial materials southwest of the deposit in the valley floor is weak, unconsolidated sandstone; gneissic bedrock to the south, west and north of Deposit No. 1; and amphibolite schists to the east. Often, the upper horizon of the bedrock is highly fractured and often contains ice lenses and/or infilling in the joints.

4.4 PROJECT SUMMARY

A summary of activities associated with the Mary River Exploration Project is provided below along with a location drawing, Figure 4.2, for the primary project sites associated with the Mary River Project. In addition to these primary sites, up to seven (7) satellite camps may be established in support of exploration activities at locations shown in Appendix D. Each satellite camp will be temporary in nature and will be limited to a maximum capacity of 49 persons. The Mary River Exploration Project is limited to exploration-related activities and associated camp operation. Exploration-related activities specifically include the following tasks:

- Land-based and on-ice mineral drilling.
- Mapping.
- Sampling.
- Drill core storage.
- Disposal of drilling mud.
- Geophysical and geochemical surveys.
- Mechanical trenching and stripping of surficial overburden.
- Activities to support of scientific and engineering studies to advance the Mary River Project including geotechnical investigation and geotechnical drilling.
- Progressive reclamation programs.
- Fuel storage.
- Camp operation.
- Equipment, personnel and supply transport.

LEGEND

- Project Facility Location
- Mid Rail Camp Location
- Milne Inlet Tote Road
- Contour (20 m Interval)
- Future South Railway Alignment
- Proposed North Railway - Route 3
- North Baffin Planning Region
- Sirmilik National Park
- Mining Lease Boundary
- IOL Surface Only
- IOL Surface and Subsurface
- Crown Land
- Mineral Claims Held by Baffinland
- NTI Exploration Area

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Mary River Project Activities Overview

Projection: NAD 1983 UTM ZONE 17N.
Base Map: © Queen's Printer for Ontario, 2020

0 5 10 20 30 km
Scale 1:1,100,000

N

Baffinland

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FIGURE **4.2**

SAVED: C:\Users\katie.mcguire\Documents\4 - Maps\Permits\Type B Water Licence\BIM_Fig 1 Project Activities.mxd; 21-Jan-21

4.4.1 Inuit Owned Lands

The Inuit Owned Lands (IOL) surrounding the Project area are shown on Figure 4.2. The Commercial Lease, No. Q13C301, to the Project is held by Baffinland and is leased from the Qikiqtani Inuit Association (QIA). In accordance with this and any future surface leases held with the QIA, this ECRP incorporates the guidelines developed for the Qikiqtani lands entitled the Abandonment and Reclamation (A&R) Policy for Inuit Owned Lands (Version 3.0, QIA 2013). The guiding principles of the A&R Policy require that all disturbed IOL be returned to a safe and stable condition capable of supporting human and wildlife needs consistent to social and cultural needs of the Inuit for the undisturbed lands within that area.

5 PERMANENT CLOSURE AND RECLAMATION

5.1 DEFINITION OF PERMANENT CLOSURE AND RECLAMATION

Permanent closure is defined in the MVLWB Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB/AANDC 2013) as follows:

"Permanent closure is the final closure of a mine site with no foreseeable intent by the existing proponent to return to either active exploration or mining."

Reclamation is defined in the MVLWB Guidelines as follows:

"The process of returning a disturbed site to its natural state or which prepares it for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety."

Baffinland acknowledges that due to various economic drivers (commodity prices, annual exploration program planning, extended maintenance shutdown, others), Baffinland may enter into a temporary or permanent closure scenario. For planning purposes, Baffinland defines two types of temporary closure as follows:

- **Short-term Closure (described in Sections 7.1):** Cease exploration for a period of up to one (1) year while maintaining all equipment and facilities in a state of readiness to resume operation with minimal delay or have project components at the ready for use to support closure activities. Generally, this occurs on an annual basis during winter months.
- **Long-term Closure (described in Section 7.2):** Extension of a short-term closure to over (1) year for an indefinite period while all exploration sites are maintained in a secure condition and all facilities and equipment are de-energized and winterized until the operation resumes or the site is reclaimed as part of permanent closure.

Consideration of future land use is an important closure principle in the continuous refinement of this ECRP. To date, future land use has been considered in numerous aspects of the planning, such as:

- Adopting environmental management best practices during exploration to reduce impacts where possible;
- Various planned reclamation activities which are not required to establish physical and chemical stability, such as:
    - Scarification to promote natural revegetation
    - Removal of above-grade buildings

Moving forward Baffinland will seek further input from communities and land owners on potential closure options that promote the desired post-closure land use. Feedback via engagement activities will be compiled and considered through the engagement on the Interim Closure and Reclamation Plan for the Mary River Project (BAF-PH1-830-P16-0012). Baffinland has committed to several closure objectives focusing on land use, which are presented in Table 5.1.

5.1.1 Closure Objectives and Criteria

A description of the closure criteria and applicable monitoring program that is proposed to be implemented to confirm that the objectives were met for each Project component is summarized in Table 5.1 for permanent and temporary closure. These closure objectives, criteria and monitoring outlined here are consistent with the Interim Closure and Reclamation Plan for the Mary River Project (BAF-PH1-P16-0012) and Baffinland's commitment to reclamation as a whole. Monitoring programs outlined here are discussed in more detail in the Interim Closure and Reclamation Plan.

Table 5.1: Exploration Closure Objectives, Criteria and Actions

Project Component	Closure Objectives	Closure Criteria	Actions/Measurements
Site Wide[2]	Drainage pathways for surface runoff are physically stable to limit risk to humans and receiving environment[1].	Drainage pathways will be designed by a professional engineer for long-term stability to mitigate against erosion. No significant signs of deformation, degradation and/or erosion and sedimentation which could contribute to physically unstable conditions as visually observed during geotechnical inspections by a qualified professional engineer. Inspection criteria and schedule will be refined based on the final engineering designs for site grading and specific engineered drainage controls.	Geotechnical assessment, analysis and/or monitoring of the drainage pathways where required will occur as part of the Geotechnical/Engineering Monitoring Program (Section 9). Surface water quality monitoring will be completed post-closure at applicable drainage pathways to ensure all relevant closure objectives and criteria have been met. See closure objective relating to Site Wide Surface Water.
	Exploration areas are physically stable for use by humans and receiving environment[1].	No significant signs of deformation or degradation at remaining structures and/or other disturbed areas which could contribute to physically unstable conditions. This will be confirmed by visual monitoring as part of site geotechnical inspections.	Geotechnical assessment, analysis and/or monitoring of the exploration camp areas, where required, will occur as part of the Geotechnical/Engineering Monitoring Program (Section 9). Monitoring scope and duration will be informed by operational performance results where possible, and detailed in the final grading and engineering designs for remaining structures.
	Surface water runoff and seepage that is safe for humans and the receiving environment[1].	Closure water quality meets Type B Water Licence effluent criteria, territorial/federal guidelines, and/or site-specific risk-based criteria, as relevant to the specific exploration areas and components. Criteria will be refined based on water quality monitoring results during operations and research studies.	Monitoring activities as part of the Closure and Post-Closure Monitoring and Reporting Program. Specific testing parameters, frequencies, locations and program durations will be refined over time based on locations of exploration camp(s), findings of operational monitoring programs and research studies.
	Remaining area will be safe for humans and the receiving environment[1].	No buildings or equipment remain above surface grade following final closure. Areas with risk to humans, terrestrial wildlife and/or aquatic biota will be managed to reduce hazards to an acceptable level.	Geotechnical assessment, analysis and/or monitoring of the exploration camp areas will occur as part of the Geotechnical/Engineering Monitoring Program (Section 9). Final inspection by a qualified professional[3] and representative of Designated Inuit Organization.
	Area facilitates the desired wildlife movement	To the extent possible, disturbed areas to be scarified to promote natural revegetation. Use of the exploration camp sites by wildlife (i.e. birds, mammals) will be consistent with FEIS, or updated predictions. Current residual effect predictions for individual wildlife and specific site areas are presented in Appendix G.	Geotechnical assessment, analysis and/or monitoring of the mine areas will occur as part of the Geotechnical/Engineering Monitoring Program (Section 9). T2 Final inspection by a qualified professional[3] and representative of Designated Inuit Organization. Post closure flora and fauna monitoring (Section 9) will address selected metrics to assess wildlife presence and use in comparison with FEIS or updated impact predictions.
	Natural revegetation is promoted	Grading and scarification completed to promote natural revegetation over long timelines, but specific criteria or goals for vegetation growth post-closure are not planned.	Final inspection by a qualified professional[3] and representative of Designated Inuit Organization.

Project Component	Closure Objectives	Closure Criteria	Actions/Measurements
	Aesthetic conditions of the project areas are similar to surrounding natural conditions	No visible buildings, equipment, or non-local materials. This excludes structures remaining at, and below grade (i.e. concrete foundations) and those which stakeholders have agreed should remain post closure. Criteria may be refined through on-going engagement.	Final inspection by a qualified professional[3] and representative of Designated Inuit Organization.
Exploration Camps **Subcomponents:** • **Buildings and Equipment** • **Camp Infrastructure (e.g. pads and laydowns, secondary roads)** • **Fuel Storage areas** • **Waste Management Areas (e.g. hazardous waste containment, sumps)** • **Water Management Areas (water treatment systems)**	Physically stable disturbed areas to limit risk of failure that would impact humans and receiving environment[1]	No significant signs of deformation or degradation at remaining engineered structures (if any) and/or other disturbed which could contribute to physically unstable conditions. This will be confirmed by visual monitoring as part of site geotechnical inspections.	Geotechnical assessment, analysis and/or monitoring of the exploration camp infrastructure and ancillary areas will occur as part of the Geotechnical/Engineering Monitoring Program (Section 9).
	Chemically stable disturbed areas to limit risk impact to humans and receiving environment[1]	Chemical contaminant sources are removed from site. Residual soils meet federal/territorial soil quality guidelines or site-specific risk based criteria as required (CCME agricultural is assumed at this time). If soil exceeds the adopted criteria, it will be removed or risk managed to the satisfaction of a qualified professional[3] to achieve protection of ecological and human health.	Post Closure Site Assessment will include an ESA component at potentially impacted areas (e.g. equipment and fuel storage areas). If required, HHERA would also be undertaken. Monitoring activities as part of the Closure and Post Closure Monitoring Program. Specific testing parameters, frequencies, locations and program durations will be refined over time based locations of exploration camps, and on findings of operational monitoring programs and research studies.

Notes:

[1]Receiving Environment – includes aquatic (freshwater and marine) biota and terrestrial biota.

[2]Site Wide project component – Discussion under this heading includes all exploration areas.

[3]Qualified Professional assumes a minimum of 3 years experience in the relevant field.

5.2 Permanent Closure and Reclamation Requirements

The closure and reclamation approach for the Project was developed on the following basis:

- MVLWB/AANDC Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the NWT (MVLWB/AANDC, 2013); and
- QIA Abandonment and Reclamation Policy for Inuit Owned Lands (2013).

It adheres to generally-accepted rehabilitation criteria and focuses on both physical and chemical stabilization of the site. Land disturbances not needed to support active operations will be concurrently reclaimed.

The main work items for final mine closure and reclamation include:

- Demolition and removal of all buildings and ancillary camp infrastructure.
- Demobilization of equipment and materials to the Mary River Project Mine Site and/or Milne Port, where they may be transported off Site or repurposed.
- All hazardous materials and wastes will be removed from exploration areas to the Mary River Mine site and/or Milne Port and transported to licensed disposal facilities.
- All non-hazardous wastes will be removed from exploration areas to the Mary River Mine site and/or Milne Port for disposal in the on-Site landfills or transportation to off-Site disposal facilities.
- Scarification of disturbed areas of former camp and exploration infrastructure to encourage natural revegetation.

Planned closure activities will involve dismantling of camps and transport of materials and equipment via helicopter or overland by cat train during the late winter period to Mary River Site, Milne Port or Steensby Port for appropriate disposal at a licensed facility. Equipment and materials located at Mary River Exploration Project sites may have residual value for either re-sale or relocation to another exploration site. If the camp were to be relocated to another exploration site, it is possible that some or all of the equipment could be airlifted from a site directly to the new site. Materials or equipment may also be donated to local communities as appropriate.

The following summarizes the final closure activities with respect to the various components:

5.2.1 Buildings and Camp Infrastructure

- All tents and camp facilities (i.e., kitchens, showers, eating areas, etc.) will be dismantled and removed from site.
- Most materials related to camp facilities will have residual value for either re-sale or relocation to another exploration site. If not relocated to another exploration site, tent facilities will be transported overland or via helicopter to Milne Port, Mary River Mine Site or Steensby Port for shipment off-site or appropriate disposal at a licensed facility on-site.

- Wood structures like the dining hall, outhouse, dry, tent wood floors, bunk beds and table will be dismantled and wherever possible the wood will be salvaged for re-use; otherwise, it will be incinerated or open burned on-site if suitable. In the event that wood cannot be salvage or burned on-site, it will be sent to Milne Port, Mary Rive Mine Site or Steensby Port for disposal or shipment off-site.
- Fuel storage, hoses and filters associated with the diesel generator will be drained and managed as hazardous waste. The generator will be prepared for travel, transported to Milne Port or Steensby Port for disposal or shipment off-site.
- The water supply system (tank and lines) will be drained, and the water pump, intake and water lines will be removed from site.

5.2.2 EQUIPMENT

- Equipment such as the skid-steers and zoom boom will be used in closure and reclamation activities.
- Currently there is a sewage treatment system at Steensby Port that is still containerized and not in operation. In the event of final closure, this equipment will be transported off-site as per the manufacturer's specifications (as applicable) and within a manner that meets closure objectives. This sewage treatment system will be operated only under full development of the Mary River Project at Steensby Port and therefore its operation is subject to separate authorizations from the Mary River Exploration Project.

5.2.3 FUEL, FUEL STORAGE FACILITIES AND CONTAMINATED SOILS

- Drums of fuel will be consolidated, inspected and securely sealed.
- Any open drums of diesel, off-specification fuel as well as waste oil will be used in the camp incinerator (if available) or will be consolidated and transported off-site.
- Sealed fuel containers will be sold, relocated to another exploration site, provided to the Mary River Project, or provided to other users in the region, such as Pond Inlet.
- Any waste or contaminated fuel will be sent either to Milne Port or Steensby Port for disposal offsite at a licensed facility.
- Empty fuel drums and cylinders will be transported by sealift and returned to the vendor or disposed of at licensed disposal facilities.
- Fuel storage facilities consist of lined containment areas. The bedding inside the liner will be tested for petroleum hydrocarbons before being removed. Liners will be disposed of off-site at an approved facility. Soil beneath the lined areas and any other soils suspected of petroleum hydrocarbon contamination will be tested.

- Any contaminated soils will be excavated using the skid steers and will removed off-site in tote bags for disposal. It is expected contaminated soils will be bioremediated within the landfarm located at Milne Port or alternatively, sent via sealift to an approved facility for disposal[3].

5.2.4 Chemicals

- Any calcium chloride on-site will be transported off-site to the calcium chloride storage area at Mary River Project sites or southern facilities for salvage or disposal.
- All other chemicals, such as lubricants and cleaning supplies, will be placed in a sea container and will be transported off-site for either re-use of disposal.

5.2.5 Wastes

- Grey water sump(s) used at remote camps will be abandoned in-place.
- Backfill and restore all sumps to the pre-existing natural contours of the land.
- Suitable wood will be open burned.
- All remaining wastes will be transported to Milne Port, the Mine Site or Steensby Port for disposal or shipment off-site.

5.2.6 Restoration of Other Disturbed Areas and Drill Holes

- All disturbed surfaces will be prepared by ripping, grading, or scarifying the surface to conform to the natural topography.
- No final closure and reclamation activities are required for drill holes as these are restored to natural conditions immediately upon completion of drilling.

[3] Soil shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation (2010). The use of reclaimed soils for the purpose of backfill or general site grading may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.

6 PROGRESSIVE RECLAMATION

Where practical, areas which are no longer needed to carry out exploration activities will be progressively reclaimed. As per CIRNAC Guidelines[4], "Progressive reclamation takes place prior to permanent closure to reclaim components and/or decommission facilities that no longer serve a purpose. These activities can be completed during operations with the available resources to reduce future reclamation costs, minimize the duration of environmental exposure, and enhance environmental protection. Progressive reclamation may shorten the time for achieving closure objectives and may provide valuable experience on the effectiveness of certain measures that might be implemented during permanent closure."

The overall intent of the proposed progressive rehabilitation measures is to assist in achieving Baffinland's site abandonment goal to return exploration sites and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities in as minimal duration as reasonably practical. Progressive reclaimation for the exploration program will involve, but is not limited to the following:

- Restoration of drill holes to natural conditions at the completion of drilling, or at the end of the field season, including capping of any holes where artesian flow was encountered;
- Backfilling of sumps to the pre-existing natural contour of the land;
- Grading and scarifying laydowns and disturbed areas to promote re-vegetation; and
- Demobilization of exploration camp(s) infrastructure, wastes and fuel storage when no longer required for future exploration works.

Further options for progressive reclamation will be identified throughout the life of the exploration project as a result of feedback from communities on desired end land use, input from land owners, and new developments in reclamation proceedures and policies. Further discussion on progressive reclamation of the Mary River Project is outlined in the Interim Closure and Reclamation Plan (BAF-PH1-830-P16-0012).

[4] MVLWB/AANDC, Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories, November 2013

7 TEMPORARY CLOSURE

7.1 SHORT-TERM TEMPORARY MINE CLOSURE – CARE AND MAINTENANCE

As exploration drilling is a seasonal activity, on an annual basis Baffinland will make a determination which Mary River Exploration Project sites will be required for the upcoming exploration season. If a camp or area is deemed required, it will be occupied/established as appropriate. At the end of the exploration season, the camp or area are subject to temporary (seasonal) closure and care and maintenance activities.

Temporary or seasonal closure care and maintenance activities include:

7.1.1 STRUCTURES

- All tents and camp facilities (i.e., kitchens, showers, eating areas, etc.) will be thoroughly cleaned and all wastes and open food will be incinerated (if available) or taken off-site. All remaining foodstuffs will be contained in sealed in secure containers to ensure wildlife attractants are not left over winter.
- Any overflow tents (prospector or dome-style) will be taken down and packed up.
- Oil stoves and propane systems will be shut off, and supply oil drums and propane cylinders closed.
- All doors and window will be secured shut to prevent animals and snow from entering the structures.

7.1.2 WATER SUPPLY

- The water supply system (tank and lines) will be drained.
- The water pump, intake and water lines will be stored away.

7.1.3 FUEL

- Drums of fuel will remain within the engineered containment structures.
- All drums and cylinders will be inspected and securely sealed.
- Empty fuel drums and cylinders will be returned to Mary River Project sites or other appropriate facility.

7.1.4 CHEMICALS

- Any calcium chloride at the drill sites will be returned to the calcium chloride storage area at Mary River Project sites.
- All other chemicals, such as lubricants and cleaning supplies, will be stored in sealed buildings.

7.1.5 GENERATOR/MECHANICAL EQUIPMENT

- The diesel camp generator and other mechanical equipment will be shut-down and winterized according to manufacturer's procedures.
- All fuel hoses will be drained and stored away, and storage tanks will be sealed and inspected for leaks.

7.1.6 WASTES

- Suitable wood will be disposed of by open burning. All other remaining wastes are transported to Mary River Project sites for disposal or shipment off-site.
- The greywater sump(s) will be buried and not be disturbed. Kitchen and shower water holding tanks will be drained.

No additional closure and reclamation activities are required for other disturbed areas or drill holes as these are restored to natural conditions immediately upon completion of drilling or at the end of the field season.

7.1.7 SHORT-TERM TEMPORARY CLOSURE MONITORING, MAINTENANCE, AND REPORTING

During the Temporary Closure Care and Maintenance period, all terms and conditions of Type 'B' Water Licence 2BE-MRY1421 will remain in force. "Care and Maintenance" monitoring program will include routine inspection, monitoring and reporting as required by Type 'B' Water Licence 2BE-MRY1421 and its associated management plans. Additional monitoring, maintenance and reporting for the care and maintenance of the Mary River Project is outlined in the Interim Closure and Reclamation Plan for the Mary River Project (BAF-PH1-830-P16-0012).

7.2 LONG-TERM TEMPORARY MINE CLOSURE – CARE AND MAINTENANCE

Short-term temporary closure occurs on annual basis at all active Mary River Exploration Project sites as exploration work typically occurs seasonally and camps are de-occupied at the end of the season (roughly October). In the event Baffinland deems the camp not necessary for the subsequent or up-coming season, the camp would be classified in long-term temporary closure. Long-term temporary closure activities of camp and exploration locations mirror short-term temporary closure process described above. Long-Term temporary closure is defined as the state of inactivity resulting from economic or other considerations for a period greater than one year. Additional monitoring, maintenance and reporting for the long term care and maintenance of the Mary River Project is outlined in the Interim Closure and Reclamation Plan for the Mary River Project (BAF-PH1-830-P16-0012).

8 INTEGRATED SCHEDULE OF ACTIVITIES

As progressive reclamation is being conducted throughout the life of the Mary River Exploration Project, final closure and reclamation activities are expected to last a period of no more than two (2) years. All development areas will be subjected to a closure inspection by a company representative or contractor, and final conditions photographed. A brief A&R report or site visit by community or land owner representatives can be arranged if desired. A one-time follow-up inspection will be carried out the year following final closure, to ensure that conditions have not changed and remain stable.

9 POST-CLOSURE SITE ASSESSMENT

Post closure monitoring for exploration areas is included in the assessment outlined in the Interim Closure and Reclamation Plan for the Mary River Project (BAF-PH1-830-P16-0012), please refer to this document for complete details and schedule of activities.

10 FINANCIAL SECURITY

The financial cost of the Mary River Exploration Project closure and reclamation has been estimated using the Mining RECLAIM spreadsheet provided by Crown Indigenous Relations and Northern Affairs Canada (CIRNAC).

The financial cost obtained is based on the information available at the time of publishing. Several assumptions and estimations have been made and are described in Appendix B. The spreadsheet may require to be updated as the Mary River Exploration Project progresses to take into consideration additional activities that have not been considered that may have associated closure liability. To make up for uncertainties, the highest prices of the range provided by the Mining RECLAIM unit costs spreadsheet were systematically chosen.

10.1 Mary River Exploration Project Closure Cost

Mining RECLAIM calculates the total capital costs required for the Project closure and reclamation. This cost has been split into Inuit Owned Lands (IOL) Lands and Crown Lands with land and water reclamation liability attributed to each. Specifically, costs relating to the infrastructure, equipment and remediation actions on these sites were attributed to the corresponding categories outlined below.

The cost associated with IOL Lands includes the following decommissioning activities:

- Full cost of decommissioning mineral exploration areas on IOL
- 50% of the cost associated with remote sites.

The cost associated with Crown Lands includes the following decommissioning activities:

- 50% of the cost associated with remote sites.
- Full cost of decommissioning Mid - Rail Camp (14 days @ six (6) man camp)
- Full cost of decommissioning Steensby Inlet Camp (14 Days @ six (6) man camp)
- Full cost of operating Mid-Rail Camp: seven (7) person camp
- Full cost of operating Steensby Inlet Camp.

Full cost for demobilization of Freight Sealift from Steensby Port to Port of Valleyfield

Note: Remote sites have been split equally between IOL and Crown lands due to uncertain nature of the location of exploration activities.

The Mary River Exploration Project closure and reclamation is estimated to cost $1,247,000. The break down between IOL and Crown Lands and land and water liability is presented in Table 8-1.

Table 8-1: Total Cost and Breakdown for Mary River Exploration Project Closure and Reclamation

Liability Allocation	IOL			Crown Land			PROJECT TOTAL
	Land	Water	Total	Land	Water	Total	
SUBTOTAL	$120,311	$14,808	$135,119	$886,706	$0	$886,706	$1,021,825
Project Management (5%)	$6,016	$740	$6,756	$44,335	$0	$44,335	$51,091
Bonding (1%)	$1,203	$148	$1,351	$8,867	$0	$8,867	$10,218
Insurance (1%)	$1,203	$148	$1,351	$ 8,867	$0	$8,867	$10,218
Engineering (5%)	$ 6,016	$740	$6,756	$44,335	$0	$44,335	$51,091
Contingency (10%)	$12,031	$1,481	$13,512	$88,671	$0	$88,671	$102,183
GRAND TOTAL - CAPITAL COSTS	**$146,779**	**$18,066**	**$164,845**	**$1,081,781**	$0	**$1,081,781**	**$1,246,627**

11 CONCORDANCE TABLES

Table 11.1 has been prepared to characterize the content of the ECRP and updated with reference to this ECRP. The concordance table is consistent with the principles of the Qikiqtani Inuit Association (QIA) Abandonment and Reclamation Policy for Inuit Owned Lands ('the Policy') and structured in accordance with Appendix C of the QIA Security Policy (v3).

Table 11.1: QIA Abandonment and Reclamation Policy for Inuit Owned Lands Concordance Table

Item	QIA Abandonment and Reclamation Policy for Inuit Owned Lands (v3)	Baffinland Response
1	Have **all** reports and plans including addendums and responses been submitted?	Yes
2	Are the submitted reports and plans executable standalone documents with adequate rational and detail?	Yes
3	Do all reports and plans contain appropriate referencing (document name, author, section, and page number) to **all** supporting information?	Yes
4	Do the reports and plans demonstrate a firm understanding, of QIA's *Guiding Principles on Reclamation* and provide rationale on how these principles have been satisfied?	Yes
5	Has IQ and consultation with Community Land and Resources Committee(s) been applied? Has the Tenant provided detailed community consultation records?	Closure and reclamation issues discussed at hearings related to the Project Certificate. Further detail outlined in the Mary River Project ICRP.
6	Are **all** the components that are considered in the abandonment and reclamation plan listed?	Yes
7	Does each component of the Project have an abandonment and reclamation objectives and criteria?	Yes
8	Has an A&R plan been provided with a financial security estimate?	Yes

Item	QIA Abandonment and Reclamation Policy for Inuit Owned Lands (v3)	Baffinland Response
9	Have Table 1, 2, 3 and 4 of Appendix B been used in completing the financial security estimate?	No. See Appendix B for description of methodology
10	Has evidence been provided to support the Policy assumptions for all reports and plans?	Yes

Table 11.2 has been prepared to show concordance with Part J, Number 2 of the Type 'A' Water Licence, 2AM-MRY1325.

Table 11.2: Type 'A' Water Licence 2AM-MRY1325 Amendment No.1, Part J, Item 2

Baffinland Type 'B' Water Licence No. 2BE-MRY1421 Requirements Applying to Closure and Restoration or Temporary Closing (Part I)	
Type 'B' Water Licence No. 2BE-MRY1421, Part I	**Mary River Exploration Project A&R Plan Section**
1. The Licensee shall submit to the Board for approval within sixty (60) days following the issuance of this Licence, a revised, stand-alone, Closure and Restoration Plan prepared in accordance with applicable sections of the "Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories (1990) and that must reflect the reduced scope of activities under this licence.	N/A
2. Licensee shall complete all restoration work prior to the expiry of this Licence.	N/A
3. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.	6
4. The Licensee shall backfill and restore, to the satisfaction of an Inspector, all Sumps to the pre-existing natural contours of the land.	5 and 7
5. The Licensee shall remove from the site, all infrastructure and site materials, including but not limited to, all fuel caches, drums, barrels, buildings and contents, docks, water pumps and lines, material and equipment prior to the expiry of this Licence.	5 and 7
6. The Licensee shall, unless otherwise identified within the approved Plan under Part H, Item 1, remove all culverts and open the natural drainage channels of all water crossings associated with the Project. In carrying out this activity, measures shall be implemented to minimize erosion and sedimentation.	5
7. In order to promote the growth of vegetation and the needed microclimate for seed deposition, all disturbed surfaces shall be prepared by ripping, grading, or scarifying the surface to conform to the natural topography.	5 and 7
8. Areas that have been contaminated by hydrocarbons from normal fuel transfer procedures shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation (2010). The use of reclaimed soils for the purpose of backfill or general site grading may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.	5 and 7
9. The Licensee shall restore all drill holes and disturbed areas to natural conditions immediately upon completion of drilling. The restoration of drill holes must include the removal of any drill casing materials and if having encountered artesian flow, the capping of holes with a permanent seal.	5 and 7
10. The Licensee may store drill core produced by the appurtenant undertaking in an appropriate manner and location at least thirty-one (31) metres above the ordinary High Water Mark of any adjacent Water body, where any direct flow into a Water body is not possible and no additional impacts are created.	5

Baffinland Type 'B' Water Licence No. 2BE-MRY1421 Requirements Applying to Closure and Restoration or Temporary Closing (Part I)	
Type 'B' Water Licence No. 2BE-MRY1421, Part I	**Mary River Exploration Project A&R Plan Section**
11. The Licensee shall contour and stabilize all disturbed areas to a pre-disturbed state upon completion of work.	5 and 7

12 GLOSSARY OF TERMS, ACRONYMS, OR ABBREVIATIONS

12.1 GLOSSARY OF TERMS

Term	Meaning
Abandonment	The permanent dismantlement of a facility so it is permanently incapable of its intended use. This includes the removal of associated equipment and structures.
Active layer	The layer of ground above the permafrost which thaws and freezes annually.
Alkalinity	Measure of the capacity of a solution to neutralize a strong acid.
Backfill	Material excavated from a site and reused for filling the surface or underground void created by mining. Reinsertion of materials in extracted part(s) of the ore body. Materials used for backfilling can be waste-rock or overburden. In most cases backfill is used to refill mined-out areas in order to: ▪ Assure ground stability. ▪ Prevent or reduce underground and surface subsidence. ▪ Provide roof support so that further parts of the ore body can be extracted and to increase safety. ▪ Provide an alternative to surface disposal. And ▪ Improve ventilation.
Background	An area near the site under evaluation not influenced by chemicals released from the site, or other impacts created by onsite activity.
Baseline	A surveyed condition and reference used for future surveys.
Benign	Having little or no detrimental effect.
Berm	A mound or wall, usually of earth, used to retain substances or to prevent substances from entering an area.
Best Management Practices	Any program, technology, process, operating method, measure, or device that controls, prevents, removes, or reduces pollution and impact on the environment.
Biodiversity	The variety of plants and animals that live in a specific area.
Bioremediation	The use of microorganisms or vegetation to reduce contaminant levels in soil or water.
Borrow Pit	A source of fill or embanking material.
Care and Maintenance	A term to describe the status of a mine when it undergoes a temporary closure.
Closure	When a mine ceases operations without the intent to resume mining activities in the future.
Closure Criteria	Detail to set precise measures of when the objective has been satisfied.
Closure Goal	The guiding statement that provides the vision and purpose of reclamation. Attainment of the closure goal happens all closure objectives have been satisfied. By its nature, the closure goal is a broad, high-level statement and not directly measurable.

Term	Meaning
Closure Principles	A fundamental basis for the selection of closure objectives.
Closure Objectives	Statements that describe what the selected closure activities are aiming to achieve; they are guided by the closure principles.
Comminution	Size reduction of an ore by crushing and/or grinding to such a particle size that the product is a mixture of relatively clean particles of mineral and gangue. In order to produce a relatively pure concentrate, it is necessary to grind the ore fine enough to liberate the desired minerals.
Contaminant	Any physical, chemical, biological or radiological substance in the air, soil or water that has an adverse effect. Any chemical substance with a concentration that exceeds background levels or which is not naturally occurring in the environment.
Contouring	The process of shaping the land surface to fit the form of the surrounding land.
Cumulative Effects	The combined environmental impacts that accumulate over time and space as a result of a series of similar or related actions or activities.
Crushing	Comminution process that reduces the particle size of run-of-mine ore to such a level that grinding can be carried out. This is accomplished by compression of ore against rigid surfaces, or by impact against surfaces in rigidly constrained motion path.
Cryoconcentration	Concentration of solutes due to exclusion by ice.
Decommissioning	Process by which a mining operation is shut down i.e.: permanently closing a site. Removing equipment, buildings and structures. Rehabilitation and plans for future maintenance of affected land and water are also included.
Dewatering	Process of removing water from an underground mine or open pit, or from the surrounding rock or non-lithified area. The term is also commonly used for the reduction of water content in concentrates, tailings and treatment sludges.
Disposal	The relocation, containment, treatment or processing of unwanted materials or materials that are not reusable. This may involve the removal of contaminants or their conversion to less harmful forms.
Drainage	Manner in which the waters of an area exist and move, including surface streams and groundwater pathways. A collective term for all concentrated and diffuse water flow.
Drainage Chemistry	Concentrations of dissolved components in drainage, including element concentrations, chemical species and other aqueous chemical parameters.
Effluent	Treated or untreated liquid waste material that is discharged into the environment from a structure such as a settling pond or a treatment plant.
End Land Use	The allowable use of disturbed land following reclamation. Municipal zoning and/or approval may be required for specific land uses.
Environment	Interrelated physical, chemical, biological, social, spiritual and cultural components that affect the growth and development of living organisms.
Erosion	The wearing away of rock, soil or other surface material by water, rain, waves, wind or ice, the process may be accelerated by human activities.

Term	Meaning
Evaporation	Physical process by which a liquid is changed into a gas.
Existing Operation	An installation in operation or, in accordance with legislation existing before the date on which this Directive is brought into effect, an installation authorized or in the view of the competent authority the subject of a full request for authorization, provided that that installation is put into operation no later than one year after the date on which this Directive is brought into effect.
Frost Heave	Annual ground displacements and differential ground pressures due to the freezing of water within soils.
Geochemistry	Science of the chemistry of geological materials and the interaction between geological materials with the environment.
Geology	Study of the earth, its history and the changes that have occurred or are occurring, and the rocks and non-lithified materials of which it is composed and their mode of formation and transformation.
Grade	Dimensionless proportion of any constituent in an ore, expressed often as a percentage, grams per tonne (g/t) or parts per million (ppm).
Ground Thermal Regime	Temperature conditions below the ground surface. A condition of heat losses and gains from geothermal sources and the atmosphere.
Groundwater	All subsurface water that occurs beneath the water table in rocks and geologic formations that are fully saturated. Distinct from surface water.
Humidity Cell Test	Kinetic test procedure used primarily to measure rates of acid generation and neutralization in sulphide-bearing rock.
Hydrogeology	Science of the groundwater circuit (interrelationship of geologic materials and processes with water).
Hydrology	The science that deals with water, its properties, distribution and circulation over the Earth's surface.
Inert Waste	Material having insignificant leachability and pollution content which will not require laboratory analysis.
Infiltration	Entry of water into a porous substance.
Inukshuk	A stone representation of a person, used as a milestone or directional marker by the Inuit of the Canadian Arctic.
In Situ Treatment	A method of managing or treating contaminated soils, sludges and waters "in place" in a manner that does not require the contaminated material to be physically removed or excavated from where it originated.
Landfill	An engineered waste management facility at which waste is disposed by placing it on or in land in a manner that minimizes adverse human health and environmental effects.
Leachate	Solution obtained by leaching e.g. water that has percolated through soil containing soluble substances and that contains certain amounts of these substances in solution.
Leaching	Passage of a solvent through porous or crushed material in order to extract components from the liquid phase. For example, gold can be extracted by heap

Term	Meaning
	leaching of a porous ore, or pulverized tailings. Other methods are tank leaching of ore, concentrates or tailings and in-situ leaching.
Lithology	Composition of rocks, including physical and chemical characteristics such as colour, mineralogical composition, hardness and grain size.
Migration	The movement of chemicals, bacteria, and gases in flowing water or vapour.
Mineral Resource	Concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.
Mining	Methods and techniques to extract ore from the ground, including support facilities (e.g. stockpiles, workshops, transport, ventilation) and supporting activities in the mine itself or in the vicinity.
Mining Operation	Any extraction of ore from which mineral substances are taken, where the corporate intent is to make an operating profit or build continuously toward a profitable enterprise.
Mitigation	The process of rectifying an impact by repairing, rehabilitating or restoring the affected environment, or the process of compensating for the impact by replacing or providing substitute resources or environments.
Monitoring	Observing the change in geophysical, hydrogeological or geochemical measurements over time. Process intended to assess or to determine the actual value and the variations of an emission or another parameter, based on procedures of systematic, periodic or spot surveillance, inspection, sampling and measurement or another assessment methods intended to provide information about emitted quantities and/or trends for emitted pollutants.

Term	Meaning
Naturally Re-vegetate or Natural Re-vegetation	For the purposes of the Mary River Project natural re-vegetation will include scarification and covering with overburden as required and allowing the surrounding natural vegetation to encroach and be re-established on the disturbed area.
Objectives	Objectives describe what the reclamation activities are aiming to achieve. The goal of mine closure is to achieve the Long-term objectives that are selected for the site.
Open Pit Mining	Mining operation takes place on the surface. Mining operation and environment are in contact over an extended area.
Operator	Any natural or legal person that is responsible for the control, operation, and maintenance of the mine, mineral processing plant, tailings dam and/or related facilities including the after-closure phases.
Ore	Mineral or variety of accumulated minerals of sufficient value as to quality and quantity that it/they may be mined at a profit. Most ores are mixtures of extractable minerals and extraneous rocky material.
Orebody (mineral deposit)	Naturally occurring geological structure consisting of an accumulation of a desired mineral and waste-rock, from which the mineral can be extracted, at a profit, or with a reasonable expectation thereof.
Overburden	Layer of natural grown soil or massive rock on top of an orebody. In case of open pit mining operations it has to be removed prior to extraction of the ore
P	Phosphate
Passive Treatment	Treatment technologies that can function with little or no maintenance over long periods of time.
Permafrost	Ground that remains at or below zero degrees Celsius for a minimum of two consecutive years.
Permafrost Aggradation	A naturally or artificially caused increase in the thickness and/or area extent of permafrost.
Permeability	The ease with which gases, liquids, or plant roots penetrate or pass through soil or a layer of soil. The rate of permeability depends upon the composition of the soil.
Phreatic Surface	The term phreatic is used in Earth sciences to refer to matters relating to ground water below the water table (the word originates from the Greek phrear, phreat- meaning “well” or “spring”). The term ‘phreatic surface’ indicates the location where the pore water pressure is under atmospheric conditions (i.e. the pressure head is zero). This surface normally coincides with the water table.
Potentially Acid Generating (PAG)	Rock or overburden material that has the potential to produce acidity irrespective of its effect on the adjacent pore water or whether the material is net acid producing or neutralizing.

Term	Meaning
Progressive Reclamation	Actions that can be taken during mining operations before permanent closure, to take advantage of cost and operating efficiencies by using the resources available from mine operations to reduce the overall reclamation costs incurred. It enhances environmental protection and shortens the timeframe for achieving the reclamation objectives and goals.
Primary Crushing	Process of reducing ore into smaller fragments to prepare it for further processing and/or so that it can be transported to the processing plant. In underground mines, the primary crusher is often located underground, or at the entrance to the processing plant.
Quarry	Whole area under the control of an operator carrying out any activity involved in the prospecting, extraction, treatment and storage of minerals, including common related infrastructures and waste management activities, being not a mine. It is distinguished from a mine because it is usually open at the top and front, and used for the extraction of building stone, such as slate, limestone, gravel and sand.
Reclamation	The process of returning a disturbed site to its natural state or one for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.
Rehabilitation	Activities to ensure that the land will be returned to a form and productivity in conformity with a prior land use plan, including a stable ecological state that does not contribute substantially to environmental deterioration and is consistent with surrounding aesthetic values.
Remediation	The removal, reduction, or neutralization of substances, wastes or hazardous material from a site in order to prevent or minimize any adverse effects on the environment and public safety now or in the future.
Restoration	The renewing, repairing, cleaning-up, remediation or other management of soil, groundwater or sediment so that its functions and qualities are comparable to those of its original, unaltered state.
Re-vegetation	Replacing original ground cover following a disturbance to the land.
Risk Assessment	Reviewing risk analysis and options for a given site, component or condition. Risk assessments consider factors such as risk acceptability, public perception of risk, socio-economic impacts, benefits, and technical feasibility. It forms the basis for risk management.
Run-of-mine (ROM)	Run of mine. Unprocessed conveyed material (ore) from the mining operation.
Runoff	Part of precipitation and snowmelt that does not infiltrate but moves as overland flow and drains off the land into bodies of water.
Scarification	Seedbed preparation to make a site more amenable to plant growth.
Screening	Separating material into size fractions.
Security Deposit	Funds held by the Crown or designated owner of the land that can be used in the case of abandonment of an undertaking to reclaim the site, or carry out any ongoing measures that may remain to be taken after the abandonment of the undertaking.

Term	Meaning
Sediment	Solid material, both mineral and organic, that has been moved by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.
Seismic	Relating to an earthquake or to other tremors of the Earth, such as those caused by large explosions.
Solubility	Quantity of solute that dissolves in a given volume and type of solvent, at given temperature and pressure, to form a saturated solution. The degree to which compounds are soluble depends on their ability, and that of the other dissolved species, to form ions and aqueous complexes in particular drainage chemistry.
Sump	An underground catch basin in a mine where water accumulates before being pumped to the surface.
Supernatant	The clear liquid that floats about the sediment or precipitate.
Surface Water	Natural water bodies such as river, streams, brooks, ponds and lakes, as well as artificial watercourses, such as irrigation, industrial and navigational canals, in direct contact with the atmosphere.
Sustainable Development	Industrial development that does not detract from the potential of the natural environment to ensure benefits for future generations.
Tailings	Material rejected from a mill after most of the recoverable valuable minerals have been extracted.
Taliks	Unfrozen zones that can exist within, below, or above permafrost layers. They are usually located below deep water bodies.
Temporary Closure	When a mine ceases operations with the intent to resume mining activities in the future. Temporary closures can last for a period of weeks, or for several years, based on economical, environmental, political, or social factors.
Thermokarst	A landscape characterized by shallow pits and depressions caused by selective thawing of ground ice, or permafrost.
Topsoil	Natural huminous layer on top of the orebody, which has to be stripped prior to start-up of ore extraction.
Traditional Knowledge	A cumulative, collective body of knowledge, experience, and values built up by a group of people through generations of living in close contact with nature. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual and political change.
Ultramafic	Igneous rock composed chiefly of mafic minerals, e.g. monomineralic rocks composed of hypersthenes, augite, or olivine.
Waste-rock, Discard, or Spoil Material	All rock materials, except ore and tailings that are produced as a result of mining operations.
Watershed	A region or area bordered by ridges of higher ground that drains into a particular watercourse or body of water.
Water Table	The level below where the ground is saturated with water.

Term	Meaning
Weathering	Processes by which particles, rocks and minerals are altered on exposure to surface temperature and pressure, and atmospheric agents such as air, water and biological activity.

12.2 Acronyms and Abbreviations

The following are acronyms or abbreviations that may be used in this document:

Abbreviation	Description
General	
A&R	Abandonment and Reclamation
ARD	Acid Rock Drainage
Baffinland	Baffinland Iron Mines Corporation
CCME	Canadian Council of Ministers of the Environment
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EHS	Environmental Health and Safety
EIS	Environmental Impact Statement
EMMP	Environmental Mitigation and Monitoring Plans
ERP	Proposed Early Revenue Phase
ESA	Environmental Site Assessment
FEIS	Final Environmental Impact Statement
FOL	Federal Owned Lands
Ga	Giga-annum (billion years)
HADD	Harmful Alteration, Disruption, or Destruction
HTA/HTO	Hamlets, Hunters, and Trappers Association/Organization
HTO	Hunters and Trappers Organization
ICRP	Interim Closure and Reclamation Plan
IIBA	Inuit Impact and Benefits Agreement
IOL	Inuit Owned Lands
IQ	Inuit Qaujimajatuqangit (Inuit knowledge, or traditional knowledge)
KI	Key Indicator
LAC	Land Advisory Committee
LSA	Local Study Area
MASL	Metres above Sea Level
Mary River	Nuluujaak
MDAG	Mineral Development Advisory Group
MERA	Mineral and Energy Resource Assessment
ML	Metal Leaching
MOU	Memorandum of Understanding
Mtpa	Million Tonne-Per-Annum
NLCA	Nunavut Land Claims Agreement
NSA	Nunavut Settlement Area
NWT	Northwest Territories
PAG	Potential Acid Generating

Abbreviation	Description
PCRP	Preliminary Closure and Reclamation Plan
PDA	Potential Development Area
PDW	Pre-Development Works
PLA	Production Lease Area
PPR	Personal Property Registry
RA(s)	Responsible Authority(ies)
RMO	Resource Management Officer
RSA	Regional Study Area
TC-NWPP	Transport Canada Navigable Waters Protection Program
the Project	Mary River Project
TK	Traditional Knowledge
VC	Valued Component
VEC	Valued Ecosystem Component
VSEC	Valued Socio-Economic Component
Federal and Territorial Acts	
AWPPA	Arctic Waters Pollution Prevention Act
BCANU	Business Corporations Act (Nunavut)
CEAA	Canadian Environmental Assessment Act
CEPA	Canadian Environmental Protection Act, 1999
CLA	Commissioner's Land Act
CNPA	Canada National Parks Act
CWA	Canada Wildlife Act
EG&GANU	Engineers, Geologists and Geophysicists Act (Nunavut)
EMAANU	Emergency Medical Aid Act (Nunavut)
EPANU	Environmental Protection Act (Nunavut)
EUANU	Explosives Use Act (Nunavut)
EXA	Explosives Act
FA	Fisheries Act
FPANU	Fire Prevention Act (Nunavut)
LSANU	Labour Standards Act (Nunavut)
MBCA	Migratory Birds Convention Act, 1994
MH&SANU	Mine Health and Safety Act (Nunavut)
NW&NSRTA	Nunavut Waters and Nunavut Surface Rights Tribunal Act
PHANU	Public Health Act (Nunavut)
TDGA	Transportation of Dangerous Goods Act, 1992
TDGANU	Transportation of Dangerous Goods Act (Nunavut)
TLA	Territorial Lands Act
TPANU	Territorial Parks Act (Nunavut)
WANU	Wildlife Act (Nunavut)
WCANU	Workers' Compensation Act (Nunavut)
Federal and Territorial Regulations	
AWPPR	Arctic Waters Pollution Prevention Regulations
CFAEAP&R	Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements
CLR	Commissioner's Land Regulations
CMR	Canada Mining Regulations

Abbreviation	Description
CRFR	AECB Cost Recovery Fees Regulations, 1996
CSLR	Comprehensive Study List Regulations
CSLRNU	Comprehensive Study List Regulations (Nunavut)
CSRNU	Camp Sanitation Regulations (Nunavut)
ELR	Exclusion List Regulations
EURNU	Explosives Use Regulations (Nunavut)
EXR	Explosives Regulations
FPRNU	Fire Prevention Regulations (Nunavut)
ILR	Inclusion List Regulations
LLR	Law List Regulations
MBSR	Migratory Bird Sanctuary Regulations
MH&SRNU	Mine Health and Safety Regulations (Nunavut)
MDMER	Metal and Diamond Mining Effluent Regulations
NA&PSR	Nunavut Archaeological and Palaeontological Sites Regulations
NBRLUP	North Baffin Regional Land Use Plan
NPWR	National Parks Wildlife Regulations
NWTFR	Northwest Territories Fishery Regulations
NWTWR	Northwest Territories Waters Regulations
PCSRNU	Propane Cylinder Storage Regulations (Nunavut)
SCP&RRNU	Spill Contingency Planning and Reporting Regulations (Nunavut)
TDGR	Transportation of Dangerous Goods Regulations
TDGRNU	Transportation of Dangerous Goods Regulations (Nunavut)
TDR	Territorial Dredging Regulations
TLR	Territorial Lands Regulations
TLUR	Territorial Land Use Regulations
TPRNU	Territorial Parks Regulations (Nunavut)
TQR	Territorial Quarrying Regulations
WAR	Wildlife Area Regulations
WCRNU	Workers' Compensation Regulations (Nunavut)
WSRNU	Wildlife Sanctuaries Regulations (Nunavut)
Federal Government Departments and Agencies	
AANDC	Aboriginal Affairs and Northern Development Canada
CTA	Canadian Transportation Agency
DFO	Fisheries and Oceans Canada
DOJ	Department of Justice Canada
EC	Environment Canada
CIRNAC	Crown Indigenous Relations and Northern Affairs Canada, formerly Indian and Northern Affairs Canada and prior to that Aboriginal Affairs and Northern Development Canada
NRCan	Natural Resources Canada
PCH	Parks Canada Agency (Canadian Heritage)
TC	Transport Canada
Territorial Government Departments and Agencies	
CGSNU	Department of Community and Government Services
CLEYNU	Department of Culture, Language, Elders and Youth
DOJNU	Department of Justice

Abbreviation	Description
DOENU	Department of Environment
ED&TNU	Economic Development & Transportation
GN	Government of Nunavut
H&SSNU	Department of Health and Social Services
WSCC	Workers Safety and Compensation Commission of the Northwest Territories and Nunavut
Institutions Of Public Government	
CLARC	Community Land and Resource Committee
CLO	Community Liaison Officer
IPGs	Institutions of Public Government
MVLWB	Mackenzie Valley Land and Water Board
NIRB	Nunavut Impact Review Board
NPC	Nunavut Planning Commission
NSRT	Nunavut Surface Rights Tribunal
NWB	Nunavut Water Board
NWMB	Nunavut Wildlife Management Board
Inuit Organizations	
DIO	Designated Inuit Organizations
MHTO	Mittimatalik Hunters and Trappers Organization
NTI	Nunavut Tunngavik Incorporated
QIA	Qikiqtani Inuit Association
RIA	Regional Inuit Association
RWO	Regional Wildlife Organization

13 REFERENCES

AANDC, 2007. Mine Site Reclamation Guidelines for the Northwest Territories, prepared by Indian and Northern Affairs Canada, dated January 2007.

Aker Kvaerner, 2008. Definitive Feasibility Study Report Mary River Iron Ore Project Northern Baffin Island, Nunavut.

Baffinland, 2013. Mary River Project - Addendum to Final Environmental Impact Statement, prepared by Baffinland Iron Mine Corporation, dated June 2013.

COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2010. COSEWIC Species Status Reports. Environment Canada, Ottawa, Ontario (cosewic.gc.ca).

Environment Canada, SARA. 2010. Species at Risk Act (SARA) (www.sararegistry.gc.ca).

INAC, 2002. Mine Site Reclamation Policy for Nunavut, prepared by Indian and Northern Affairs Canada, dated 2002.

INAC, 2002a. Mine Site Reclamation Policy for the Northwest Territories, prepared by Indian and Northern Affairs Canada, dated 2002.

MVLWB/AANDC, 2013. Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the NWT, prepared by Mackenzie Valley Land and Water Board & Aboriginal Affairs and Northern Development Canada, dated November 2013.

NWTWB, 1990. Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories, prepared by Northwest Territories Water Board, dated September 1990.

NRCan (Natural Resources Canada), 1994. *The Whitehorse Mining Initiative Leadership Council Accord Final Report* (October 1994).

QIA, 2013. Abandonment and Reclamation Policy for Inuit Owned Lands (v3), May 2013. Prepared by Qikiqtani Inuit Association.

Appendix A
RECLAIM Model Output

A.1 Summary of Type B Closure Cost Estimate

SUMMARY OF COSTS

CAPITAL COSTS

COMPONENT TYPE	COMPONENT NAME	TOTAL COST	LAND LIABILITY	WATER LIABILITY
OPEN PIT	Mary River Mine Pit	$0	$0	$0
	Bulk Sample Pit	$0	$0	$0
	Mineral Exploration Areas	$59,589	$59,589	$0
UNDERGROUND MINE	-	$0	$0	$0
TAILINGS	-	$0	$0	$0
ROCK PILE	Mary River Stockpile	$0	$0	$0
BUILDINGS AND EQUIPMENT	Milne Site	$0	$0	$0
	Tote Road	$0	$0	$0
	Mary River Mine	$0	$0	$0
	Railway	$0	$0	$0
	Steensby Port	$0	$0	$0
	Mineral Exploration Areas	$9,326	$9,326	$0
	Remote Sites	$102,792	$102,792	$0
	Mid-Rail Camp	$136,168	$136,168	$0
	Steensby Inlet Camp	$699,141	$699,141	$0
CHEMICALS AND SOIL MANAGEMENT		$0	$0	$0
WATER MANAGEMENT		$14,808	$0	$14,808
POST-CLOSUREMONITORING AND MAINTENANCE		$0	$0	$0
	SUBTOTAL	**$1,021,824**	**$1,007,016**	**$14,808**
		PERCENTAGES	**99%**	**1%**
MOBILIZATION/DEMOBILIZATION		$0	0	0
PROJECT MANAGEMENT	5%	$51,091	$50,351	$740
Bonding	1%	$10,218	$10,070	$148
Taxes (GST on supplies) - est.	allowance	$0	$0	$0
Insurance	1%	$10,218	$10,070	$148
ENGINEERING	5%	$51,091	$50,351	$740
CONTINGENCY	10%	$102,182	$100,702	$1,481
Market Price Factor Adjustment	0%	$0	$0	$0
GRAND TOTAL - CAPITAL COSTS		**$1,246,625**	**$1,228,560**	**$18,066**

FIGURE A- 1: SUMMARY OF TYPE B CLOSURE COST ESTIMATE

A.2 Open Pit

Open Pit Name: *Mineral Exploration Areas* **Pit # *3***

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost	Refer to Section	Refer to Table B-2, Row #
OBJECTIVE: CONTROL ACCESS										
Fence	m		#N/A	0.00	$0		$0	$0		
Signs	each		#N/A	0.00	$0		$0	$0		
Berm at crest	m		#N/A	0.00	$0		$0	$0		
Block roads	m3		#N/A	0.00	$0		$0	$0		
Other			#N/A		$0		$0	$0		
OBJECTIVE: STABILIZE SLOPES										
Off-load crest, soil A	m3		#N/A	0	$0		$0	$0		
Off-load crest, soil B	m3		#N/A	0	$0		$0	$0		
Doze/trimoverburden at crest	m3		#N/A	0	$0		$0	$0		
Drill & blast pit crest	m3		#N/A	0	$0		$0	$0		
buttress slope	m3		#N/A	0	$0		$0	$0		
Other			#N/A	0	$0		$0	$0		
OBJECTIVE: COVER/CONTOUR SLOPES										
Dump demolition materials (pit or landfill or qı	m3		#N/A	0	$0		$0	$0		
Place overburden over demolition material	m3		#N/A	0	$0		$0	$0		
Rip rap	m3		#N/A	0	$0		$0	$0		
Vegetate slopes	ha		#N/A	0	$0		$0	$0		
Vegetate pit floor	ha		#N/A	0	$0		$0	$0		
Level Pads, backfill sumps and grade to natu	$	18000	TBUS	1	$18,000	100%	$18,000	$0	Section B.3.1.1	Row #5
OBJECTIVE: SPILLWAY										
Excavate channel, soil A	m3		#N/A	0	$0		$0	$0		
Excavate channel, soil B	m3		#N/A	0	$0		$0	$0		
Concrete	m3		#N/A	0	$0		$0	$0		
Rip rap	m3		#N/A	0	$0		$0	$0		
Other	each		#N/A	0	$0		$0	$0		
OBJECTIVE: FLOOD PIT										
remove stationary equipment (sump pump)	each		#N/A	0	$0		$0	$0		
remove power lines	each		#N/A	0	$0		$0	$0		
Embankment/dam - Soil A	m3		#N/A	0	$0		$0	$0		
Embankment/dam - Soil B	m3		#N/A	0	$0		$0	$0		
supply/install pump & piping system	each		#N/A	0	$0		$0	$0		
operate pumps to flood pit	each		#N/A	0	$0		$0	$0		
Llme addition, _____ kg/m3 of water	tonne		#N/A	0	$0		$0	$0		
Lime, purchase and shipping	tonne		#N/A	0	$0		$0	$0		
Other			#N/A	0	$0		$0	$0		
RECLAIM QUARRIES										
Contour slopes	m3		#N/A	0	$0		$0	$0		
Berm at crest	m3		#N/A	0	$0		$0	$0		
Place overburder	m3		#N/A	0	$0		$0	$0		
Vegetate	m3		#N/A	0	$0		$0	$0		
OTHER ITEMS										
Stability inspection			#N/A	0	$0		$0	$0		
Drill Holes fillled and Residual Casings Cuts	$	30376	TBUS	1	$30,376	100%	$30,376	$0	Section B.3.1.2	Row #4
Inspection and final reclamation of explorati	$	11213	TBUS	1	$11,213	100%	$11,213	$0	Section B.3.1.2	Row #7
Subtotal					$59,589	100%	$59,589	$0		
						Pct Land	Total Land	Total Water		

FIGURE A- 2: TYPE B OPEN PIT RECLAMATION COSTS

A.3 Buildings and Equipments

Building / Equip Name: *Mineral Exploration Areas* **Bldg / Equip #:** *6*

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost	Refer to Section	Refer to Table B-2, Row #
OBJECTIVE: DISPOSE MOBILE EQUIPMENT										
Decontaminate and ship off-site	each		#N/A	0	$0		$0	$0		
Decontaminate, dispose on-site	each		#N/A	0	$0		$0	$0		
Other (sealift for equipmt)	each		#N/A	0	$0		$0	$0		
OBJECTIVE: REMOVE CONTAMINATED BUILDINGS										
Decontaminate crushing plant	each		#N/A	0	$0		$0	$0		
Decontaminate tanks & plumbing	each		#N/A	0	$0		$0	$0		
Decontaminate thickeners	each		#N/A	0	$0		$0	$0		
Decontaminate water treatment plant	each		#N/A	0	$0		$0	$0		
Decontaminate maintenance shop	each		#N/A	0	$0		$0	$0		
Decontaminate power plant	each		#N/A	0	$0		$0	$0		
Decontaminate bulk fuel storage	each		#N/A	0	$0		$0	$0		
Decontaminate ANFO plant	each		#N/A	0	$0		$0	$0		
Deontaminate offices/warehouse/accom	each		#N/A	0	$0		$0	$0		
Removal of asbestos siding on buildings	each		#N/A	0	$0		$0	$0		
Removal of friable asbestos on equipment	each		#N/A	0	$0		$0	$0		
Other			#N/A	0	$0		$0	$0		
OBJECTIVE: REMOVE NON-CONTAMINATED BUILDINGS										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
consolidate & dump boneyard debris	m3		#N/A	0	$0		$0	$0		
other			#N/A	0	$0		$0	$0		
OBJECTIVE: BREAK BASEMENT SLABS										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
Other	m2		#N/A	0	$0		$0	$0		
OBJECTIVE: LANDFILL FOR DEMOLITION WASTE										
Place soil cover	m3		#N/A	0	$0		$0	$0		
Vegetate	ha		#N/A	0	$0		$0	$0		
Landfill disposal fee	tonne		#N/A	0	$0		$0	$0		
OBJECTIVE: GRADE AND CONTOUR MILL & PLANT SITE										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
other	m2		#N/A	0	$0		$0	$0		
OBJECTIVE: RECLAIM ROADS										
Remove culverts	each		#N/A	0	$0		$0	$0		
Remove bridges	each		#N/A	0	$0		$0	$0		
Scarify and install water breaks	ha		#N/A	0	$0		$0	$0		
remove/doze down berms	m3		#N/A	0	$0		$0	$0		
create wildlife passage ramps	m3		#N/A	0	$0		$0	$0		
Vegetate	ha		#N/A	0	$0		$0	$0		
other			#N/A	0	$0		$0	$0		
SPECIALIZED ITEMS										
Prepare core for Long-term site storage	$	1756	TBUS	1	$1,756	100%	$1,756	$0	Section B.3.5.1.1	Row # 6
Salt mixing stations	$	7570	TBUS	1	$7,570	100%	$7,570	$0	Section B.3.5.1.1	Row # 8
				Subtotal	$9,326	100%	$9,326	$0		
						Pct Land	Total Land	Total Water		

FIGURE A- 3: TYPE B BUILDINGS AND EQUIPMENT RECLAMATION COSTS MINERAL EXPLORATION AREAS

Building / Equip Name: *Remote Sites* **Bldg / Equip #: *7***

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost	Refer to Section	Refer to Table B-2, Row #
OBJECTIVE: DISPOSE MOBILE EQUIPMENT										
Decontaminate and ship off-site	each		#N/A	0	$0		$0	$0		
Decontaminate, dispose on-site	each		#N/A	0	$0		$0	$0		
Other (sealift for equipmt)	each		#N/A	0	$0		$0	$0		
OBJECTIVE: REMOVE CONTAMINATED BUILDINGS										
Decontaminate crushing plant	each		#N/A	0	$0		$0	$0		
Decontaminate tanks & plumbing	each		#N/A	0	$0		$0	$0		
Decontaminate thickeners	each		#N/A	0	$0		$0	$0		
Decontaminate water treatment plant	each		#N/A	0	$0		$0	$0		
Decontaminate maintenance shop	each		#N/A	0	$0		$0	$0		
Decontaminate power plant	each		#N/A	0	$0		$0	$0		
Decontaminate bulk fuel storage	each		#N/A	0	$0		$0	$0		
Decontaminate ANFO plant	each		#N/A	0	$0		$0	$0		
Deontaminate offices/warehouse/accom	each		#N/A	0	$0		$0	$0		
Removal of asbestos siding on buildings	each		#N/A	0	$0		$0	$0		
Removal of friable asbestos on equipment	each		#N/A	0	$0		$0	$0		
Other			#N/A	0	$0		$0	$0		
OBJECTIVE: REMOVE NON-CONTAMINATED BUILDINGS										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
consolidate & dump boneyard debris	m3		#N/A	0	$0		$0	$0		
other			#N/A	0	$0		$0	$0		
OBJECTIVE: BREAK BASEMENT SLABS										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
Other	m2		#N/A	0	$0		$0	$0		
OBJECTIVE: LANDFILL FOR DEMOLITION WASTE										
Place soil cover	m3		#N/A	0	$0		$0	$0		
Vegetate	ha		#N/A	0	$0		$0	$0		
Landfill disposal fee	tonne		#N/A	0	$0		$0	$0		
OBJECTIVE: GRADE AND CONTOUR MILL & PLANT SITE										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
other (Construction and use of airstrips and icestrip)	m2		#N/A	0	$0		$0	$0	Section B.3.5.2.1	NA
OBJECTIVE: RECLAIM ROADS										
Remove culverts	each		#N/A	0	$0		$0	$0	Section B.3.5.2.2	NA
Remove bridges	each		#N/A	0	$0		$0	$0	Section B.3.5.2.2	NA
Scarify and install water breaks	ha		#N/A	0	$0		$0	$0	Section B.3.5.2.2	NA
remove/doze down berms	m3		#N/A	0	$0		$0	$0	Section B.3.5.2.2	NA
create wildlife passage ramps	m3		#N/A	0	$0		$0	$0	Section B.3.5.2.2	NA
Vegetate	ha		#N/A	0	$0		$0	$0	Section B.3.5.2.2	NA
other			#N/A	0	$0		$0	$0	Section B.3.5.2.2	NA
SPECIALIZED ITEMS										
Decommission remote sites	$	102792	TBUS	1	$102,792	100%	$102,792	$0	Section B.3.5.2.3	Row #9
			Subtotal		$102,792	100%	$102,792	$0		
						Pct Land	Total Land	Total Water		

FIGURE A- 4: TYPE B BUILDINGS AND EQUIPMENT RECLAMATION COSTS - REMOTE SITES

Building / Equip Name: *Mid-Rail Camp*					Bldg / Equip #: *8*					
ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost % Land	Land Cost	Water Cost	Refer to Section	Refer to Table B-2, Row #	
OBJECTIVE: DISPOSE MOBILE EQUIPMENT										
Decontaminate and ship off-site	each		#N/A	0	$0		$0	$0		
Decontaminate, dispose on-site	each		#N/A	0	$0		$0	$0		
Other (sealift for equipmt)	each		#N/A	0	$0		$0	$0		
OBJECTIVE: REMOVE CONTAMINATED BUILDINGS										
Decontaminate crushing plant	each		#N/A	0	$0		$0	$0		
Decontaminate tanks & plumbing	each		#N/A	0	$0		$0	$0		
Decontaminate thickeners	each		#N/A	0	$0		$0	$0		
Decontaminate water treatment plant	each		#N/A	0	$0		$0	$0	Section B.3.5.3.1	NA
Decontaminate maintenance shop	each		#N/A	0	$0		$0	$0		
Decontaminate power plant	each		#N/A	0	$0		$0	$0		
Decontaminate bulk fuel storage	each		#N/A	0	$0		$0	$0	Section B.3.5.3.1	NA
Decontaminate ANFO plant	each		#N/A	0	$0		$0	$0		
Deontaminate offices/warehouse/accom	each		#N/A	0	$0		$0	$0		
Removal of asbestos siding on buildings	each		#N/A	0	$0		$0	$0		
Removal of friable asbestos on equipment	each		#N/A	0	$0		$0	$0		
Other			#N/A	0	$0		$0	$0		
OBJECTIVE: REMOVE NON-CONTAMINATED BUILDINGS										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	$	1756	TBUS	1	$1,756	100%	$1,756	$0	Section B.3.5.3.2	Row# 19
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	$	15804	TBUS	1	$15,804	100%	$15,804	$0	Section B.3.5.3.2	Row# 18
consolidate & dump boneyard debris	m3		#N/A	0	$0		$0	$0		
Related Infrastructure	$	3512	TBUS	1	$3,512	100%	$3,512	$0	Section B.3.5.3.2	Row# 20
OBJECTIVE: BREAK BASEMENT SLABS										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
Other	m2		#N/A	0	$0		$0	$0		
OBJECTIVE: LANDFILL FOR DEMOLITION WASTE										
Place soil cover	m3		#N/A	0	$0		$0	$0		
Vegetate	ha		#N/A	0	$0		$0	$0		
Landfill disposal fee	tonne		#N/A	0	$0		$0	$0		
OBJECTIVE: GRADE AND CONTOUR MILL & PLANT SITE										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
other	m2		#N/A	0	$0		$0	$0		
OBJECTIVE: RECLAIM ROADS										
Remove culverts	each		#N/A	0	$0		$0	$0	Section B.3.5.3.3	NA
Remove bridges	each		#N/A	0	$0		$0	$0	Section B.3.5.3.3	NA
Scarify and install water breaks	ha		#N/A	0	$0		$0	$0	Section B.3.5.3.3	NA
remove/doze down berms	m3		#N/A	0	$0		$0	$0	Section B.3.5.3.3	NA
create wildlife passage ramps	m3		#N/A	0	$0		$0	$0	Section B.3.5.3.3	NA
Vegetate	ha		#N/A	0	$0		$0	$0	Section B.3.5.3.3	NA
other			#N/A	0	$0		$0	$0	Section B.3.5.3.3	NA
SPECIALIZED ITEMS										
Decomission Decommission Laydown Areas	$	878	TBUS	1	$878	100%	$878	$0	Section B.3.5.3.4	Row# 21
General site Clean up	$	2634	TBUS	1	$2,634	100%	$2,634	$0	Section B.3.5.3.4	Row# 22
Camp Operation	$	7404	TBUS	1	$7,404	100%	$7,404	$0	Section B.3.5.3.4	Row# 35 to Row #38
Fly waste from Mid Rail Camp to Mary River Camp for landfillir	$	104180	TBUS	1	$104,180	100%	$104,180	$0	Section B.3.5.3.4	Row# 23
			Subtotal		$136,168	100%	$136,168	$0		
						Pct Land	Total Land	Total Water		

FIGURE A- 5: TYPE B BUILDINGS AND EQUIPMENT RECLAMATION COSTS - MID-RAIL CAMP

Building / Equip Name: *Steensby Inlet Camp* **Bldg / Equip #:** *9*

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost	Refer to Section	Refer to Table B-2, Row #
OBJECTIVE: DISPOSE MOBILE EQUIPMENT										
Decontaminate and ship off-site	$	4218	TBUS	1	$4,218	100%	$4,218	$0	Section B.3.5.4.1	Row #32
Decontaminate, dispose on-site	each		#N/A	0	$0		$0	$0		
Other (sealift for equipmt)	$	2020	TBUS	1	$2,020	100%	$2,020	$0	Section B.3.5.4.1	Row #31
OBJECTIVE: REMOVE CONTAMINATED BUILDINGS										
Decontaminate crushing plant	each		#N/A	0	$0		$0	$0		
Decontaminate tanks & plumbing	each		#N/A	0	$0		$0	$0		
Decontaminate thickeners	each		#N/A	0	$0		$0	$0		
Decontaminate water treatment plant	each		#N/A	0	$0		$0	$0	Section B.3.5.4.2	NA
Decontaminate maintenance shop	each		#N/A	0	$0		$0	$0		
Decontaminate power plant	each		#N/A	0	$0		$0	$0		
Decontaminate bulk fuel storage	each		#N/A	0	$0		$0	$0		
Decontaminate ANFO plant	each		#N/A	0	$0		$0	$0		
Deontaminate offices/warehouse/accom	each		#N/A	0	$0		$0	$0		
Removal of asbestos siding on buildings	each		#N/A	0	$0		$0	$0		
Removal of friable asbestos on equipment	each		#N/A	0	$0		$0	$0		
Other			#N/A	0	$0		$0	$0		
OBJECTIVE: REMOVE NON-CONTAMINATED BUILDINGS										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	$	2020	TBUS	1	$2,020	100%	$2,020	$0	Section B.3.5.4.3	Row #26
bulk fuel storage	$	1670	TBUS	1	$1,670	100%	$1,670	$0	Section B.3.5.4.3	Row #29
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	$	23448	TBUS	1	$23,448	100%	$23,448	$0	Section B.3.5.4.3	Row #25
consolidate & dump boneyard debris	m3		#N/A	0	$0		$0	$0		
Related Infrastructure	$	2634	TBUS	1	$2,634	100%	$2,634	$0	Section B.3.5.4.3	Row #27
OBJECTIVE: BREAK BASEMENT SLABS										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
Other	m2		#N/A	0	$0		$0	$0		
OBJECTIVE: LANDFILL FOR DEMOLITION WASTE										
Place soil cover	m3		#N/A	0	$0		$0	$0		
Vegetate	ha		#N/A	0	$0		$0	$0		
Landfill disposal fee	tonne		#N/A	0	$0		$0	$0		
OBJECTIVE: GRADE AND CONTOUR MILL & PLANT SITE										
crushing plant	m2		#N/A	0	$0		$0	$0		
conveyors & transfer towers	m2		#N/A	0	$0		$0	$0		
tanks & plumbing	m2		#N/A	0	$0		$0	$0		
thickeners	m2		#N/A	0	$0		$0	$0		
water treatment plant	m2		#N/A	0	$0		$0	$0		
maintenance shop	m2		#N/A	0	$0		$0	$0		
power plant	m2		#N/A	0	$0		$0	$0		
bulk fuel storage	m2		#N/A	0	$0		$0	$0		
ANFO plant	m2		#N/A	0	$0		$0	$0		
offices/warehouse/accom	m2		#N/A	0	$0		$0	$0		
other	m2		#N/A	0	$0		$0	$0		
OBJECTIVE: RECLAIM ROADS										
Remove culverts	each		#N/A	0	$0		$0	$0	Section B.3.5.4.4	NA
Remove bridges	each		#N/A	0	$0		$0	$0	Section B.3.5.4.4	NA
Scarify and install water breaks	ha		#N/A	0	$0		$0	$0	Section B.3.5.4.4	NA
remove/doze down berms	m3		#N/A	0	$0		$0	$0	Section B.3.5.4.4	NA
create wildlife passage ramps	m3		#N/A	0	$0		$0	$0	Section B.3.5.4.4	NA
Vegetate	ha		#N/A	0	$0		$0	$0	Section B.3.5.4.4	NA
other			#N/A	0	$0		$0	$0	Section B.3.5.4.4	NA
SPECIALIZED ITEMS										
Decomission Decommission Laydown Areas	$	7644	TBUS	1	$7,644	100%	$7,644	$0	Section B.3.5.4.5	Row #28
General site Clean up	$	4218	TBUS	1	$4,218	100%	$4,218	$0	Section B.3.5.4.5	Row #30
Camp Operation	$	18304	TBUS	1	$18,304	100%	$18,304	$0	Section B.3.5.4.5	Row #39
Resupply by Helicopter	$	57239	TBUS	1	$57,239	100%	$57,239	$0	Section B.3.5.4.5	Row #33
Demobilize Freight Sealift Steensby Port to Port of Valleyfield	$	575726	TBUS	1	$575,726	100%	$575,726	$0	Section B.3.5.4.5	Row #40 to Row # 42
				Subtotal	$699,141	100%	$699,141	$0		
						Pct Land	Total Land	Total Water		

FIGURE A- 6: TYPE B BUILDINGS AND EQUIPMENT RECLAMATION - STEENSBY INLET

A.4 Water

1 **Water Management :**

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost	Refer to Section	Refer to Table B-2, Row #
A	OBJECTIVE: WATER SUPPLY EMBANKMENT										
	Toe buttress, drain mat'l	m3		#N/A	0	$0		$0	$0		
	, fill mat'l A	m3		#N/A	0	$0		$0	$0		
	, fill mat'l B	m3		#N/A	0	$0		$0	$0		
	Rip rap	m3		#N/A	0	$0		$0	$0		
	Vegetate	ha		#N/A	0	$0		$0	$0		
	Breach dam	m3		#N/A	0	$0		$0	$0		
	Other			#N/A	0	$0		$0	$0		
B	OBJECTIVE: UPGRADE SPILLWAY										
	Excavate channel, mat'l A	m3		#N/A	0	$0		$0	$0		
	, mat'l B	m3		#N/A	0	$0		$0	$0		
	Concrete	m3		#N/A	0	$0		$0	$0		
	Rip rap	m3		#N/A	0	$0		$0	$0		
	Other			#N/A	0	$0		$0	$0		
E	OBJECTIVE: STABILIZE &/OR UPGRADE DIVERSION DITCHES										
	Excavate channel	m3		#N/A	0	$0		$0	$0		
	doze & spread excavated material	m3		#N/A	0	$0		$0	$0		
	Vegetate, spread material	ha		#N/A	0	$0		$0	$0		
	Rip rap in channel base	each		#N/A		$0		$0	$0		
F	OBJECTIVE: BREACH DITCHES										
	Excavate breaches	m3		#N/A	0	$0		$0	$0		
	install rip rap	m3		#N/A	0	$0		$0	$0		
	install flow dissipation	m3		#N/A	0	$0		$0	$0		
	vegetate remainder of ditch	m2		#N/A	0	$0		$0	$0		
G	OBJECTIVE: REMOVE PIPELINES										
	Remove pipes	$	14808	TBUS	1	$14,808		$0	$14,808	Section B.3.7.1	Row #3
	Concrete plug deep pipes	m3		#N/A	0	$0		$0	$0		
	Other			#N/A	0	$0		$0	$0		
H	Groundwater Collection - Long-term Collection System										
	excavate/install sumps	m2		#N/A	0	$0		$0	$0		
	install pumping wells	m3		#N/A	0	$0		$0	$0		
	install pumps/pipelines/power supply			#N/A	0	$0		$0	$0		
I	OBJECTIVE: COLLECT DRAINAGE FOR TREATMENT										
	Excavate channel	m3		#N/A	0	$0		$0	$0		
	doze & spread excavated material	m3		#N/A	0	$0		$0	$0		
	Vegetate, spread material	ha		#N/A	0	$0		$0	$0		
	Rip rap in channel base	each		#N/A	0	$0		$0	$0		
	Construct contaminated water storage pond										
	Excavation	m3		#N/A	0	$0		$0	$0		
	supply geomembrane, HDPE, ES3, GCL	m2		#N/A	0	$0		$0	$0		
	upper and lower bedding layers	m3		#N/A	0	$0		$0	$0		
	install geomembrane, HDPE, ES3, GCL	m2		#N/A	0	$0		$0	$0		
	erosion protection layer	m3		#N/A	0	$0		$0	$0		
J	OBJECTIVE: TREAT DRAINAGE (see "ONGOING TREATMENT" for operating costs)										
	Build treatment plant	LS		#N/A	0	$0		$0	$0		
	build sludge containment facility	LS		#N/A	0	$0		$0	$0		
					Subtotal	$14,808	0%	$0	$14,808		
							Pct Land	Total Land	Total Water		

FIGURE A- 7: TYPE B WATER MANAGEMENT RECLAMATION COSTS

Appendix B
Cost Estimate Assumptions for RECLAIM Model

B.1 Introduction

The costs for the Type B Closure Cost Estimate were determined using the costs presented in Baffinland Iron Mines Corporation, Mary River Project, 2013 Abandonment and Reclamation Plan For Advanced Exploration Activities, January 2013 (hereon referred to as: 2013 A&R Plan (AMEC, January 2013))[3] . Appendix G3, Cost Estimation Details for Closure of the 2013 A&R Plan (AMEC, January 2013) For Advanced Exploration Activities was used for detailed cost analysis. All capital costs described in 2013 A&R Plan (AMEC, January 2013) relating to the scope of work described in the renewal and amendment of Baffinland Iron Mines Corporation (BIMC) Type "B" Water Licence No. 2BE-MRY1421 are captured in the supporting RECLAIM model unless noted otherwise.

RECLAIM makes use of separate worksheets to organize the information, and calculate the closure and reclamation costs based on Unit Costs predefined for several activities (a list of the unit costs defined by RECLAIM can be found in the 'Unit_Costs' tab of each RECLAIM model). Components addressed include:

- Open pit.
- Waste Rock pile.
- Buildings and Equipments.
- Chemicals.
- Water.
- Mobilization.
- Post Closure.
- Ongoing water monitoring.

Several reclamation strategies ("Objectives") are listed for each component, and broken down into lists of actions that can be priced separately. A unit cost spreadsheet (part of the generic RECLAIM model) provides a range of prices for most actions; it has been completed where possible with the most accurate available or Project specific costs.

Based on the level of information and the type of activities to be performed during Closure and Reclamation, the following percentages were applied to the indirect costs into the RECLAIM model. These percentages are calculated based on the subtotal of capital costs:

- Project Management – 5%.
- Bonding – 1%.
- Insurance – 1%.

[3] This document has been distributed and made available to all relevant stakeholder and any additional evidence required to support unit costs and quantities can be found within the 2013 A&R Plan (AMEC, January 2013).

- Engineering – 5%.
- Contingency – 10%.

The cost estimate in the 2013 A&R Plan (AMEC, January 2013) Appendix G3 was developed based on all the closure and reclamation costs unit rates and quantities defined as person day and equipment hours. The dollar value of these calculations was carried over to the RECLAIM model to account for them.

To reflect the cost presented in Appendix G3 of the 2013 A&R Plan (AMEC, January 2013) into RECLAIM a hybrid system was developed. With this system the total cost for each item (man hour cost + equipment cost) was input as the quantity assuming a Unit Cost of $1 without contingency. For example, if the cost of the reclamation activities for a certain item was estimated as $20,000 in the 2013 A&R Plan (AMEC, January 2013), then it was assigned 20,000 units at $1 in the RECLAIM model.

Note: RECLAIM spreadsheet calculates Project Management fee as a percentage of the subtotal of capital costs (for the purpose of this estimate, a 5% of the subtotal of capital costs was assigned to the Project Management). Appendix G3 of 2012 A&R Plan has a breakdown for Project Management & Supervision costs (General Site Area, cells 1 to 9, Appendix G3 of 2013 A&R Plan (AMEC, January 2013)) which works out as 3% of the total capital cost. This AMEC cost was therefore excluded from the RECLAIM model to avoid double counting.

Note: All contingency values assigned in 2013 A&R Plan (AMEC, January 2013) - Appendix G3 have not been included to allow for RECLAIM's contingency methodology as a percentage of the subtotal of capital costs. For the purpose of this estimate, a 10% contingency was assigned. A 10% contingency was determined based on review of the Qikiqtani Inuit Association (QIA) Abandonment and Reclamation Policy for Inuit Owned Lands (2013) , Appendix D and BIMC experience in North Baffin Island supported by contributions from its consultants, Hatch, which have extensive Canadian and international closure experience in Arctic and other environments. Reclamation activities for the Mary River Exploration Project are predominantly an earthworks exercise with simple demolition. High allowances for contingency are not required as the construction program will be relatively simple.

In order to keep track the source of the costs and quantities and what activities drive them, a reference was inserted in each line item of RECLAIM that cross references the costing source to Appendix G3 of the 2013 A&R Plan (AMEC, January 2013). Therefore the RECLAIM Model presented and Appendix G3 of the 2013 A&R Plan (AMEC, January 2013) should be read as complementary documents. Based on calculations of the RECLAIM Model, the cost of reclamation for the scope of work described in the renewal and amendment of Baffinland Iron Mines Corporation (BIMC) Type "B" Water Licence No. 2BE-MRY1421 is as follows:

TABLE B- 1: TYPE B CLOSURE COST ESTIMATE REALLOCATION SUMMARY

Liability Allocation	IOL			CROWN			PROJECT TOTAL
	Land	Water	Total	Land	Water	Total	
DIRECT COSTS	$120,311	$14,808	$135,119	$886,706	$0	$886,706	$1,021,825
Project Management (5%)	$6,016	$740	$6,756	$44,335	$0	$44,335	$51,091
Bonding (1%)	$1,203	$148	$1,351	$8,867	$0	$8,867	$10,218
Insurance (1%)	$1,203	$148	$1,351	$ 8,867	$0	$8,867	$10,218
Engineering (5%)	$ 6,016	$740	$6,756	$44,335	$0	$44,335	$51,091
Contingency (10%)	$12,031	$1,481	$13,512	$88,671	$0	$88,671	$102,183
GRAND TOTAL CAPITAL COSTS	**$146,779**	**$18,066**	**$164,845**	**$1,081,781**	$0	**$1,081,781**	**$1,246,627**

B.2 Type B Closure Cost Estimate

Costs under Type B Water Licence include:

- All costs associated with Steensby Camp
  - Steensby Inlet Camp operation.
  - Decommission of Steensby Inlet Camp.
  - Demobilize freight Sealift Steensby Port to Port Valleyfield.
- All cost associated with Mid-Rail and any other rail camps
  - Mid-Rail Camp operation.
  - Decommission of Remotes Sites.
  - Decommission of Mid-Rail Camp.
- All Costs associated with drilling and drill holes;
  - Mineral Exploration Areas.
- All Costs associated with additional temporary in nature Pioneer/Satellite Camps, if any.

A summary of the Type B Closure Cost Estimate RECLAIM model is presented in FIGURE A- 1 of Appendix A. All subsequent figures FIGURE A- 3 to FIGURE A- 7 of Appendix A are screenshots from the respective tabs in the RECLAIM model that derives the summary cost table.

B.3 Assumptions

The screenshots of the RECLAIM Model presented in Figures A-2 to A-7 are based on the assumptions listed in Section B.3.1 to Section B.3.10. This assumption should be read in conjunction with TABLE B- 2, which represents the Basis for 2013 Estimate, based on AMEC, 2013. Baffinland Iron Mines Corporation, Mary River Project, 2013 Abandonment and Reclamation Plan for Advanced Exploration Activities, dated January 2013.

No cost associated with the mobilization and demobilization of fuel has been accounted for in the Type B Water License. However, cost associated with fuel related to Type B reclamation work as described in Appendix A has been accounted for in the Type 'A' Water License ($2,900,091), including the following activities:

- Cash cost of fuel and barrel deposit ($1,535,691);
- Hercules Aircraft mobilization from Yellowknife to Mary River ($1,364,400).

B.3.1 Open Pit

There will be no Open Pit activities associated with the Type B Water Licence and therefore this component of RECLAIM was not considered. Geotechnical Drilling have been determined to have a negligible final reclamation cost as they are progressively reclaimed to meet to reclamation objectives during operations and this cost is captured in the drilling programs operations budget.

Mineral Exploration areas are included and accounted for in the Type B Reclamation Cost Estimate, as is presented in FIGURE A- 2. The basis of estimate is presented in TABLE B- 2 and includes the following reclamation activities:

B.3.1.1 OBJECTIVE: Cover/Contour Slopes

The activity "Level pads, backfill sumps and grade to natural contours" has been included in the Type B Reclamation Cost Estimate, as presented in FIGURE A- 2: Type B Open Pit Reclamation Costs. The Basis for 2013 Estimate, based on AMEC 2013, is presented in TABLE B- 2, Row #5.

B.3.1.2 OBJECTIVE: Other Items

The following activities have been included in the Type B Reclamation Cost Estimate, as presented in FIGURE A- 2. The basis of estimate is presented in TABLE B- 2 and includes the following items:

- Drill holes filled and residual casings cut (see TABLE B- 2, Row #4)
- Inspection and final reclamation of exploration drill hole locations (see TABLE B- 2, Row #7)

B.3.2 Underground Mine

There will be no Underground Mine associated with the Mary River Exploration Project and therefore this component of RECLAIM was not considered.

B.3.3 Tailings

There will be no Tailings activities associated with the Type B Water Licence and therefore this component of RECLAIM was not considered.

B.3.4 Stockpile

There will be no Stockpiles associated with the Type B Water Licence and therefore this component of RECLAIM was not considered.

B.3.5 Buildings and Equipment Assumptions

B.3.5.1 Mineral Exploration Areas

Small mobile pioneer camps may be established under the authorization of Type "B" Water Licence No. 2BE-MRY1421. These camps will be temporary in nature, mobile, have a limited population (anticipated each camp would not exceed 49 persons) and only be used on a short term basis. Based on these characteristics small mobile pioneer camps have been determined to have a negligible final reclamation cost, as presented in FIGURE A- 4: Type B Buildings and Equipment Reclamation Costs Mineral Exploration Areas.

However, if larger and non-mobile pioneer camps are established under authorization of Type "B" Water Licence No. 2BE-MRY1421an amendment of security estimate cost will be required.

B.3.5.1.1 OBJECTIVE: Specialized Items

The following activities have been included in the Type B Reclamation Cost Estimate as presented in FIGURE A- 3, under the Objective Specialized Items. The basis of estimate is presented in TABLE B- 2 and includes the following items:

- Prepare core for long-term site storage (see TABLE B- 2, Row #6)
- Decommission Salt mixing stations (see TABLE B- 2, Row #8)

B.3.5.2 Remote Sites

FIGURE A- 4 presents the Reclamation Cost associated with Remote Camps. Thus the following Objectives have been considered:

- Reclaim Roads (See Section B.3.5.2.1)
- Specialized Items (See Section B.3.5.2.2)

B.3.5.2.1 OBJECTIVE: Reclaim Roads

No permanent roads for remote sites have been considered.

B.3.5.2.2 OBJECTIVE: Specialized Items

The decommission of remotes sites have been included in the Type B Reclamation Cost Estimate as specialized items for mineral exploration areas, as presented in FIGURE A- 4. The basis of estimate is presented in TABLE B- 2 and includes the following specialized items:

- Inspection and final reclamation of geotechnical drill holes and test pit location (TABLE B- 2, Row #11)
- Removal of casing/thermistors (TABLE B- 2, Row #12)
- Decommissioning of meteorological stations (3) (TABLE B- 2, Row #13)
- Decommissioning of hydrology stations (4) (TABLE B- 2, Row #14)
- Removal of current meter in Steensby Inlet (TABLE B- 2, Row #15)

B.3.5.3 Mid-Rail Camp

FIGURE A- 5 presents the Reclamation Cost associated with Mid-Rail Camp. Thus the following Objectives have been considered:

- Remove Contaminated Buildings (See Section B.3.5.3.1)
- Remove Non-Contaminated Buildings (See Section B.3.5.3.2)
- Reclaim Roads (See Section B.3.5.3.3)
- Specialized Items (See Section B.3.5.3.4)

B.3.5.3.1 OBJECTIVE: Remove Contaminated Buildings

Mid-Rail Camp have associated a sewage treatment facility and a fuel storage facility. In the RECLAIM model (FIGURE A- 5), the cost associated to these items (i.e. Decontaminate water treatment plant and Decontaminate bulk fuel storage) is set to nil as these items have been accounted for in the Type B Reclamation Cost Estimate under the activity “Demobilize Freight Sealift Steensby Port to Port of Valleyfield - Year 3”. TABLE B- 2 row 45 to 48 present the basis for estimate for this activity.

B.3.5.3.2 OBJECTIVE: Remove Non-Contaminated Buildings

As per FIGURE A- 5, the decommission of the Mid-Rail camp considers 18 wood structure tents and assumes six (6) man crew six (6) days to completely decommission the camp. It also assumes one (1) working supervisor and five (5) labourers. The basis of estimate is presented in TABLE B- 2 and includes the following items:

- Power plant (TABLE B- 2, Decommission/package gensets and incinerator, Row #19)
- Offices/warehouse/accom (TABLE B- 2 Decommission/Package stand alone accommodation/work tent camp, Row #18)
- Related Infrastructure (TABLE B- 2 Decommission tent camp and related infrastructure (lines, piping, associated buildings), Row #20)

B.3.5.3.3 OBJECTIVE: Reclaim Roads

See section B.3.5.2.1

B.3.5.3.4 OBJECTIVE: Specialized Items

The following activities have been included in the Type B Reclamation Cost Estimate as specialized items for Mid-Rail Camp (FIGURE A- 5). The basis of estimate is presented in TABLE B- 2 and includes the following specialized items:

- Decommission Laydown Areas TABLE B- 2, Row #21)
- General site Cleanup (TABLE B- 2, Row #22)
- Camp Operation (TABLE B- 2, Row #35 to Row #38)
- Fly waste from Mid Rail Camp to Mary River Camp for landfilling (TABLE B- 2 Row #23)

In the event of any expansion to Mid-rail Camp, not including the substitution of equivalent facilities, an amendment of security estimate cost would be required.

B.3.5.4 Steensby Inlet Camp

FIGURE A- 6 presents the Reclamation Cost associated with Steensby Inlet Camp. Thus, the following Objectives have been considered:

- Dispose Mobile Equipment (See Section B.3.5.4.1)
- Remove Contaminated Buildings (See Section B.3.5.4.2)
- Remove Non-Contaminated Buildings (See Section B.3.5.4.3)
- Reclaim Roads (See Section B.3.5.4.4)
- Specialized Items (See Section B.3.5.4.5)

B.3.5.4.1 OBJECTIVE: Dispose Mobile Equipment

The following items have been included in the Type B Reclamation Cost Estimate for mobile equipment disposal at Steensby Inlet Camp, as presented in FIGURE A- 6. The basis of estimate is presented in TABLE B- 2 and includes the following items:

- Decontaminate and ship off-site (TABLE B- 2, Organize material for shipment and sealift support, Row #32)
- Other (sealift for equipment) (TABLE B- 2, Decommission remaining mobile equipment (4 pieces), Row #31)

B.3.5.4.2 OBJECTIVE: Remove Contaminated Buildings

Steensby Inlet Camp has associated a sewage treatment facility. In the RECLAIM model (FIGURE A- 6.); the cost associated to this item (i.e. Decontaminate water treatment plant) is set to nil as these items have been accounted for in the Type B Reclamation Cost Estimate under the activity "Demobilize Freight Sealift Steensby Port to Port of Valleyfield - Year 3". TABLE B- 2, Row #45 to Row #48 presents the basis for estimate for this activity.

B.3.5.4.3 OBJECTIVE: Remove Non-Contaminated Buildings

The decommission of the Steensby Inlet camp have been included in the Type B Reclamation Cost Estimate, as presented in FIGURE A- 6. The basis of estimate is presented in TABLE B- 2 and includes the following items:

- Power Plant (TABLE B- 2, Decommission/package gensets and incinerator, Row #26)
- Bulk fuel storage (TABLE B- 2, Decommission fuel storage (200 drums of fuel), Row #29)
- Offices/warehouse/accom (TABLE B- 2, Decommission/Package stand alone accommodation/work tent camp (25 wood structure tents), Row #25)
- Related Infrastructure (TABLE B- 2, Decommission related infrastructure (lines, piping, associated buildings), Row #27)

B.3.5.4.4 OBJECTIVE: Reclaim Roads

See section B.3.5.2.1

B.3.5.4.5 SPECIALIZED ITEMS

The following activities have been included in the Type B Reclamation Cost Estimate as specialized items for Steensby Inlet Camp, as presented in FIGURE A- 6. The basis of estimate is presented TABLE B- 2 and includes the following specialized items:

- Decommission Laydown Areas TABLE B- 2, Row #28)

- General site Cleanup (TABLE B- 2, Row #30)
- Camp Operation (TABLE B- 2, Row #40 to Row #43)
- Resupply by Helicopter (TABLE B- 2 Row #33)
- Demobilize Freight Sealift Steensby Port to Port of Valleyfield (TABLE B- 2, Row # 45 to Row #48)

In the event of any expansion to Steensby Inlet Camp, not including the substitution of equivalent facilities, an amendment of security estimate cost would be required.

B.3.6 Chemicals

There will be no foreseeable chemical reclamation activities required associated with the Type B Water Licence scope of work and therefore this component of RECLAIM was not considered.

B.3.7 Water Management

B.3.7.1 Objective: Remove Pipelines

The removal of pipelines for exploration areas has been included as part of the water management tab. The basis for estimate (based on AMEC, January 2013) considers four (4) person crew (general labour) during three (3) days. The estimate also considers six (6) hours helicopter time to sling down water lines from Deposit #1. The water lines have been packaged and moved numerous times. Refer to TABLE B- 2, Row #3, for Basis for 2013 Estimate.

B.3.8 Mobilization

Mobilization costs have been accounted for in the Buildings and Equipment tab of RECLAIM. No mobilization costs were included in the Mobilization tab, and therefore this component of RECLAIM was not considered.

B.3.9 Post Closure

Post Closure activities associated with the Type B Water Licence will be conducted in conjunction with the operation of the Mary River Project and during closure as described in the Mary River Interim Mine Closure and Reclamation Plan. Therefore no cost has been considered the Type B Reclamation Cost Estimate.

B.3.10 On Going Water

On-Going Water activities associated with the Type B Water Licence will be conducted in conjunction with the operation of the Mary River Project and during closure as described in the Mary River Interim Mine Closure and Reclamation Plan. Therefore no cost has been considered the Type B Reclamation Cost Estimate.

TABLE B- 2: TYPE B ESTIMATE COST - BASIS FOR 2013 ESTIMATE[4]

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
1	***Grand Total***				***$19,028***				***$64,695***	***$83,723***	
2	**Decommission mineral exploration areas - Grand Total**				**$19,028**				**$64,695**	**$83,723**	
3	Remove water lines from exploration areas	Person Day	12	$439	$5,268	Hours	6	$1,590	$9,540	$14,808	Four (4) person crew - three (3) days. Assume general labour used. Six (6) hours helicopter time to sling down water lines from Deposit #1. The water lines have been packaged and moved numerous times. Estimate based on historical productivity to package and move piping.

[4] Source and additional supporting can be found in: AMEC, 2013. Baffinland Iron Mines Corporation, Mary River Project, 2013 Abandonment And Reclamation Plan For Advanced Exploration Activities, dated January 2013

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
4	Drill holes filled and residual casings cut	Person Day	4	$439	$1,756	Hours	18	$1,590	$28,620	$30,376	Geotech hole reclamation helicopter utilization in 2009 = 0.27 hours/hole with holes spread out across 130miles of railway. Assume the same drill hole reclamation productivity for exploration drills although the exploration holes are all located only kilometres from the main camp. There are 18 holes requiring reclamation at Deposit #1. Assume a very conservative (1) hour per hole, (2) man labour crew with helicopter support.
5	Level pads, backfill sumps and grade to natural contours	Person Day	5	$996	$4,980	Hours	60	$217	$13,020	$18,000	Assume excavator used to backfill. 18 holes with sumps. Sumps are 3m x 10m x 1.5m = 45m3 each. Assume HEO and 3 hours dozer time/sump to backfill and reclaim each sump.

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
6	Prepare core for long-term site storage adjacent to airstrip at Mary River	Person Day	4	$439	$1,756	Hours		$0	$0	$1,756	The entire exploration core was moved in to containers for permanent storage in 2010. An allowance has been made to containerize the working inventory of core not containerized under an abandonment scenario.
7	Inspection and final reclamation of exploration drill hole locations	Person Day	2	$439	$878	Hours	6.5	$1,590	$10,335	$11,213	Deposit 1 - 45; Deposit 2&3 - 23 holes. Although the majority of the reclamation work was completed in 2010, final inspections were not completed and the estimate reflects the full scope of work as outstanding. Scope includes final inspection by helicopter with general labour support

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
8	Decommission salt mixing stations	Person Day	10	$439	$4,390	Hours	2	$1,590	$3,180	$7,570	Only one helicopter lift is required. Estimate a conservative 2 hours helicopter time to remove salt station from mineral exploration area. Scope to be completed by helicopter with general labour support.
9	**Remote Sites**										
10	***Grand Total***				**$ 15,024**				**$ 87,768**	**$ 102,792**	
11	Inspection and final reclamation of geotechnical drill holes and test pit locations	Person Day	10	$439	$4,390	Hours	33	$1,590	$52,470	$56,860	2012 Estimate based on actual labour and helicopter hours to complete exactly half of the holes in 2009. Assume Helicopter hours = 0.27 hours/hole. 10 additional helicopter hours added to the 23 hours required to cover additional mobilization time to the south end of the rail alignment.

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
12	Removal of casing/thermistors	Person Day	6	$439	$2,634	Hours	16.2	$1,590	$25,758	$28,392	2012 Estimate revised based on 2009 geotech hole actual reclamation productivity and costs. Helicopter hours = 0.27 hours/hole * 60 holes = 16.2 hours. Labour 1.08 Man hrs/hole* 60 = 65 hours = six (6) man days. Scope to be completed by helicopter with general labour support.
13	Decommissioning of meteorological stations (3)	Person Day	6	$800	$4,800	Hours	3	$1,590	$4,770	$9,570	Assume two (2) persons /day/station and 1 hour helicopter time support for each. Scope includes demolition and disposal in Landfills. Scope to be completed by helicopter with general labour support.

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
14	Decommissioning of hydrology stations (4)	Person Day	4	$800	$3,200	Hours	3	$1,590	$4,770	$7,970	Labour budget two (2) persons for two (2) days to remove all the hydrology stations. Helicopter hour budget revised based on detailed analysis of flying distance from MR to meters back to MR. Estimated distance is 227knots. Avg Helicopter speed is 120 k/hr. Total flying time is 227 Kn/120kn/hr = 1.9 hrs, therefore assume 3 hours of helicopter time. Scope to be completed by helicopter with general labour support.
15	Removal of current meter in Steensby Inlet	Person Day			$0	Hours			$0	$0	The battery for the buoy release mechanism on both units no longer has power. The units are no longer retrievable. No cost applied to task in 2012.

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
16	**Camp and Related Facilities**										
17	**Decommission Mid - Rail Camp (14 days @ 6 man camp)**		**76**		**$33,364**				**$95,400**	**$128,764**	
18	Decommission/Package stand alone accommodation/work tent camp	Person Day	36	$439	$15,804	Hours			$0	$15,804	(18 wood structure tents) Assumes 6 man crew 6 days to completely decommission the camp. Assume one (1) working supervisor and five (5) laborers. General labour & equipment rates.
19	Decommission/Package gensets and incinerator	Person Day	4	$439	$1,756	Hours			$0	$1,756	
20	Decommission tent camp and related infrastructure (lines, piping, associated buildings)	Person Day	8	$439	$3,512	Hours			$0	$3,512	
21	Decommission lay down areas	Person Day	2	$439	$878	Hours			$0	$878	
22	General site cleanup	Person Day	6	$439	$2,634	Hours			$0	$2,634	
23	Fly waste from Mid Rail Camp to Mary River Camp for landfilling	Person Day	20	$439	$8,780	Hours	60	$1,590	$95,400	$104,180	

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
24	**Decommission Steensby Inlet Camp (14 Days @ 6 man camp)**		**86**		**$38,500**				**$66,612**	**$105,112**	
25	Decommission/Package stand alone accommodation/work tent camp (25 wood structure tents)	Person Day	48	$439	$21,072	Hours	36	$66	$2,376	$23,448	Assume six (6) man operations for eight (8) days. Equipment costed at 3rd party contractor rate. Operator labour and equipment rates
26	Decommission/package gensets and incinerator	Person Day	4	$439	$1,756	Hours	4	$66	$264	$2,020	Assume four (4) persons one (1) day, general labour and equipment cost. Equipment costed at 3rd party contractor rate. General labour and equipment rates.
27	Decommission related infrastructure (lines, piping, associated buildings)	Person Day	6	$439	$2,634	Hours	0	$66	$0	$2,634	Assume three (3) persons for two (2) days. Equipment costed at 3rd party contractor rate. General labour and equipment rates.

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
28	Decommission lay down areas	Person Day	12	$439	$5,268	Hours	36	$66	$2,376	$7,644	Assume four (4) persons for three (3) days to clean up camp to decommission camp lay down area. Sealift lay down area requires no decommissioning - Material ready to ship. Equipment costed at 3rd party contractor rate. General labour and equipment rates.
29	Decommission fuel storage (200 drums of fuel)	Person Day	2	$439	$878	Hours	12	$66	$792	$1,670	Only 180 drums remain at the camp. Assume two (2) man days' labour, and equipment to re-strap partial pallets Equipment costed at 3rd party contractor rate. Operator labour and equipment rates.
30	General site cleanup	Person Day	6	$439	$2,634	Hours	24	$66	$1,584	$4,218	Assume three (3) persons two (2) days. Equipment costed at 3rd party contractor rate. Operator labour and equipment rates.

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
31	Decommission remaining mobile equipment (4 pieces)	Person Day	2	$812	$1,624	Hours	6	$66	$396	$2,020	Assume one (1) mechanic and one operator for one (1) day to drain fuel tanks - This is the only requirement for sealift. Equipment costed at 3rd party contractor rate. Operator labour and equipment rates.
32	Organize material for shipment and sealift support	Person Day	6	$439	$2,634	Hours	24	$66	$1,584	$4,218	Assume two (2) person for sealift support for three (3) days. Assume Labour and equipment cost. Equipment costed at 3rd party contractor rate. Operator labour and equipment rates.
33	Steensby Port resupply by Helicopter	Person Day	0	$0	$0	Hours	36	$1,590	$57,240	$57,240	Hours are for removal of the floating dock and water line (12) + 12 hours/week *2 week demob+sealift support.
34	**Camp Operations**										
35	MidRail Operate 7 person camp				$7,204				$200	$7,404	

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
36	6 person camp operation (Support Labour)	Person Day	9	$621	$5,589	Hours			$0	$5,589	2012 estimate basis - nine (9) days living at site requires one (1) cook. Last five (5) days are fly in.
37	Camp Operating Overhead	Person Day	0	$0	$0	Monthly Lot	1	$200	$200	$200	2012 estimate basis (Monthly costs): - Telephone & communications = one (1) satellite phone ($100) = $100 - Office Supplies $100/month - Total monthly lot cost = $200
38	Food	Person Day	85	$19	$1,615				$0	$1,615	2012 estimated contains revised person days based on Mid-Rail reclamation work and camp operations support.
39	**Steensby Inlet Camp Operation**				**$18,104**				**$200**	**$18,304**	

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
40	6 person camp operation - Decommissioning	Person Day	24	$530	$12,720	Hours			$0	$12,720	Requires one (1) cook and a bear monitor/laborer. Last two days the camp is supported from Mary River by helicopter. See labour rates.
41	2 person camp operation - Sealift	Person Day	6	$530	$3,180	Hours			$0	$3,180	Estimate for three (3) day sealift. Three (3) Day temporary tent operation for sea lift support - Requires one (1) cook and one (1) bear monitors. Sealift labour budgeted at two (2) since all the material is packaged and the sealift company has the equipment. Additional labour as support only.

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
42	Camp Operating Overhead	Person Day	0	$0	$0	Monthly Lot	1	$200	$200	$200	Estimate based on (Monthly costs): - Telephone and communications = one (1) satellite phone ($100) = $100 - Office Supplies $100/month - Total monthly lot cost = $200
43	Food	Person Day	116	$19	$2,204				$0	$2,204	Estimate based on Total Steensby Man days @ $19/person day food. See food estimate based on 2010 actual costs.
44	**Sealift Materials**										
45	Demobilize Freight Sealift Steensby Port to Port of Valleyfield -Year 3				$0				$575,726	$575,726	
46	Shipment, loading and off loading	Person Day	0	$600	$0	Hours	0		$0	$0	

Row #	Reclamation Activities	Labour				Equipment					
		Units	#Units	Unit Rate	Cost	Units	#Units	Unit Rate	Cost	Total cost	Basis for 2013 Estimate
	Mineral Exploration Areas (Dep. 1-3)										
47	Vessel Costs Steensby - 1 freight backhaul sealift in Year 3	Person Day		$0	$0	Rev Tonne	1965	$198	$389,070	$389,070	Sealift volumes (m3). = 4912 cubes/2.5 = 1966 Revenue Tonnes. Rate is based Sealift vendor quote =$198/rev Tonne.
48	Land Freight				$0	Cubes	4912	$38	$186,656	$186,656	Land freight based on quotes provide for hauling Nuna heavy equipment backhaul to Edmonton, Alberta. The exact demob location is not known. Assume a land freight rate at the high end of the scale. 4912 cubes backhauled at $38/cubes. Land freight rate provided by vendor quote.

Appendix C
Site Photos of Current Site Conditions

Figure C-1: Steensby Camp Aerial Photo #1

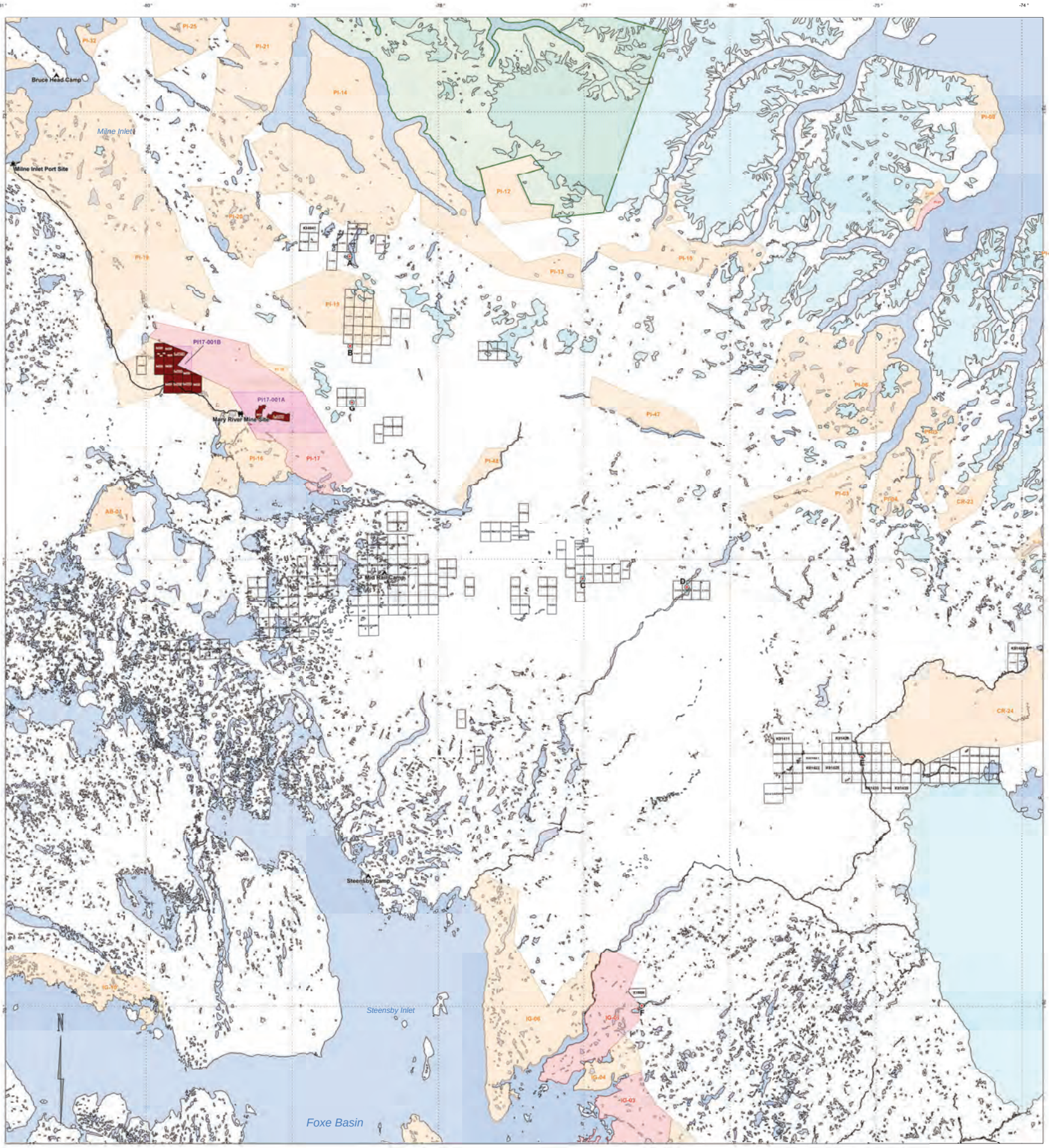
Figure C-2: Steensby Camp Aerial Photo #2

Figure C-3: Steensby Camp Photo #3

Figure C-4: Mid-Rail Camp Photo #1

Figure C-5: Mid-Rail Camp Photo #2

Appendix D
Locations of Potential Satellite Camps



Baffinland

Current Land Tenure

Date: 2020-10-28	
Author: Jon Hey, P.Geo	
Office: Exploration	
Drawing: 1	
Scale: 1:446,300	Projection: Longitude / Latitude (WGS 84)

0 30.02
kilometers

LEGEND

BIM Infrastructure
- Tote Road
- Potential Camp (location not exact)

Baffinland Land Tenure
- Mineral Claim
- Mining Lease
- NTI-BIM Exploration Agreement

Inuit Owned Land
- Type 1 - Surface Rights Only
- Type 2 - Surface and Subsurface Rights Including Minerals

Federal Land
- National Park

Geographic Features
- Permanent Snow & Ice
- Waterbody