ISO 9001:2000
FS 87377

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN
(REF. NO. NB102-00181/10-3)

Rev. No.	Revision	Date	Approved
0	Issued in Final	October 4, 2007	

Knight Piésold Ltd.

1650 Main Street West
North Bay, Ontario Canada P1B 8G5
Telephone: (705) 476-2165
Facsimile: (705) 474-8095
E-mail: northbay@knightPiésold.com

Knight Piésold
CONSULTING

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SECTION 1.0 - INTRODUCTION

1.1 PURPOSE

This Comprehensive Environmental Monitoring Plan (CEMP) has been developed for the Project, with the following objectives:

- Embody the implementation of commitments during environmental screening and permitting of the project activities, in particular the "Environmental Screening Document" (Knight Piésold Ref. No. NB102-00181/6-1, Rev.0) (ESD) prepared for the bulk sampling program
- Assess the effectiveness of proposed mitigation and the need to modify the measures or implement contingency plans
- Ensure compliance with applicable regulations and requirements of environmental permits
- Ensure all project personnel (Baffinland management, employees and contractors) are aware of environmental commitments and requirements and understand their role in meeting these obligations
- Continue with ongoing collection of baseline environmental data

Baffinland has committed to the development and implementation of the CEMP; the document fulfils Item #6 of the Nunavut Impact Review Board (NIRB) Recommended Terms and Conditions for the bulk sampling program, and also forms a schedule of the commercial lease on Inuit Owned Land (IOL) with the Qikiqtani Inuit Association (QIA).

The "Project" or the "current Project", as defined in this report and to which the CEMP applies, includes activities being undertaken over the 2007 to 2009 period, in advance of mine development such as exploration and geotechnical drilling, bulk sampling, and engineering and environmental studies.

The CEMP is a 'living document' that will be regularly updated as the Project progresses, empirical field experience is gained, and mitigation measures evolve in the spirit of adaptive management.

1.2 SCOPE OF THE MONITORING PROGRAM

The following project components will be monitored:

- General construction and operation activities, for compliance with the terms and conditions of licenses, permits and authorizations, as well as commitments outlined in the ESD
- Construction activities in and around water, to ensure the protection of fish and fish habitat

- Terrestrial wildlife, in part as a continuation of baseline studies but also to monitor response of wildlife to Project activities
- Marine wildlife, to determine the response of narwhal and any changes in distribution of seals in the immediate area of Milne Inlet due to shipping activities associated with the current Project
- Water sources for potable water consumption, treated sewage effluent prior to discharge, and receiving waters
- General site drainage in proximity to key site activities (i.e., mining, crushing, roads, fuel storage)
- Employment history and skills development of employees

Each of the above components of the monitoring plan is described in the sections that follow. Abandonment and restoration of the project and the associated monitoring is described in the "Abandonment and Restoration Plan" (Knight Piésold Ref. No. NB102-00181/6-7, Rev.1), which is a document that has been submitted for approval by the Nunavut Water Board.

1.3 ENVIRONMENTAL PROTECTION PLAN

An Environmental Protection Plan (EPP) has been developed for use by managers and field supervisors in raising awareness and guiding project personnel in the execution of the Mary River Project in a way that protects the environment and honours the legal requirements and commitments Baffinland has made for the project. The EPP consists of Operational Standards addressing how the variety of activities shall be conducted during the project to adhere to regulatory requirements and Owner's commitments. The EPP is the "hands-on" aspect of the CEMP to be distributed to all managers and supervisors.

SECTION 2.0 - OWNER'S COMMITMENTS AND REGULATORY REQUIREMENTS

Baffinland is committed to conducting its work in a manner that minimizes potential impacts to the natural environment and contributes to positive social and economic effects, particularly as they relate to communities in the North Baffin region. Baffinland seeks to ensure that its procedures and construction methods meet these commitments and regulatory requirements, and that, the commitments and requirements are understood, implemented and maintained by personnel at all levels involved with the Project.

2.1 OWNER'S COMMITMENTS DURING PROJECT SCREENING

Owner's Commitments refer to those statements/commitments made by Baffinland during the course of the environmental screening and/or discussions with Inuit organizations, government agencies and communities. Commitments made during the screening of both the exploration and geotechnical program, as well as the bulk sampling program, are included in Table 2.1.

2.2 REGULATORY REQUIREMENTS

Regulatory requirements refer to both the terms and conditions of permits and licenses that have been issued to Baffinland, as well as applicable legislation (acts and regulations). Table 2.1 lists the Owner's commitments as well as the terms and conditions for the exploration and geotechnical drilling program. The table will be updated when there are changes or additions to relevant regulatory requirements. Baffinland will assign responsibility for fulfilling these commitments to the appropriate personnel, when applicable. Table 2.2 lists the applicable legislation (acts and regulations) as well as guidelines, which have been identified to be applicable to the Project.

Exploration is focused on Federal Mineral Leases 2483, 2484 and 2485, shown on Figure 2.1. The leases are in good standing until August 2013. Ongoing mineral exploration and geotechnical studies, along with the bulk sample program are governed by the terms and conditions in the authorizations shown below.

Type of Authorization	Approval No.	Authorizing Agency	Governing Activity	Period Valid
Water License (Type B)	2BB-MRY0710	NWB	Water use and waste disposal	Feb 20, 2007 to Feb 28, 2010
Land Use Permit		INAC	Exploration and Geotechnical Activities on Crown Land	
Commercial Lease for Inuit Owned Lands	[Not yet assigned]	QIA	Mining and exploration activities on Inuit Owned Land	August 1, 2007 to October 31, 2009
Quarry Concession Agreement (Inuit Owned Lands)	[Not yet assigned]	QIA	Use of borrow and quarry materials on Inuit Owned Land	August 1, 2007 to October 31, 2009
Land Use Permit	N2007F0004	INAC	Road Construction on Crown Land	July 6, 2007 to July 6, 2009

Type of Authorization	Approval No.	Authorizing Agency	Governing Activity	Period Valid
Quarry Permit	2007QP0098	INAC	Quarrying on Crown Land	July 6, 2007 to July 6, 2009
DFO Letter of Advice	File NU-06-0084, dated July 25, 2007	DFO	Crossing installations at Category Small Watercourses	Not applicable
HADD Authorization *Fisheries Act* S.35(2)	File NU-06-0084, dated August 3, 2007	DFO	Crossing installations within fish habitat at 25 watercourses	Not applicable
Navigable Waters Protection Act Approval	8200-07-10265 8200-07-10266 8200-07-10267 8200-07-10268 8200-07-10269 8200-07-10270 8200-07-10271 8200-07-10272 8200-07-10273 8200-07-10274	Transport Canada	Construction of crossings in 10 navigable waters	TBA

The CEMP is written to reflect the Terms and Conditions of these authorizations, and will be updated as required to incorporate authorizations that are currently pending. Relevant aspects of these approvals have also been incorporated into the Environmental Protection Plan. Adherence to the Environmental Protection Plan is the best guide to ensure compliance with the various acts and regulations that apply to the Project.

In the unlikely event that changes to legislation occur during the life of this document, the CEMP will be reviewed and amended as appropriate.

SECTION 3.0 - ROLES AND RESPONSIBILITIES

3.1 ORGANIZATIONAL STRUCTURE

Figure 3.1 presents the organizational structure of the Baffinland management team responsible for various aspects of the Project. All management personnel will be involved in the dissemination and implementation of the CEMP and the companion EPP, throughout the current phase of the Project.

Roles and responsibilities for implementation are described in Table 3.1.

3.2 MONITORING AND INSPECTION

Assignment of the monitoring and inspection duties, described in Sections 4 through 13 of this Plan, is provided in Table 3.2. These responsibilities have been assigned to various personnel on the Project team, most often to the individuals responsible for the corresponding baseline program.

At present, the monitoring and inspection team is substantially represented by Knight Piésold personnel. This will change over time, as the project continues to move forward and Baffinland environmental staffing increases.

3.3 COMMUNICATION

Communication among members of the management team will involve the following:

- Formal written correspondence and meetings with stakeholders
- Site visits by community representatives
- Design, construction and planning meetings
- Field inspections and monitoring reports disseminated by Environmental Superintendent
- Electronic communications
- Tailgate/toolbox meetings
- Formal written correspondence and meetings with government regulatory bodies
- Formal environmental awareness training (Sub-section 3.4)

Communications will be appropriately recorded and filed for future reference. Where appropriate, the copies of communications will be forwarded to the Operations Manager(s), Chief Operating Officer and Vice President, Sustainable Development.

3.4 TRAINING AND AWARENESS

Staff and sub-contractors working on site will be provided with environmental training as part of the Site Orientation, to achieve a basic level of awareness of environmental sensitivities and their obligations for compliance with regulatory requirements, commitments and best practices.

Operations and Site Managers and contractor supervisors will be provided this CEMP, and will receive additional orientation with respect to the requirements outlined in the CEMP. In addition, all

supervising level staff and sub-contractors will be provided with the Operational Standards as a written guidance to their work.

Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with an elevated high risk of environmental impact, such as in-water work at watercourse crossings. These will be delivered in the form of toolbox/tailgate meetings.

The content of the environmental component of the site induction will include at a minimum:

- Location of environmental sensitivities
- Location of additional information on environmental matters
- Due diligence responsibilities
- Responsibilities related to waste management, minimizing noise as necessary, road rules, etc.
- Principles and necessary steps to avoid encounters with bears and what to do if one is encountered

3.5 EXTERNAL COMMUNICATIONS

Effective forms of communication include the proactive notification to external stakeholders of construction activities and regular updates. Key stakeholders whose activities overlap with project activities include hunters from Pond Inlet and tourism outfitters. Project activity updates will be provided to the communities of North Baffin through various means including regular meetings, public notices, and radio announcements as appropriate. Baffinland will endeavour to maintain Community Liaison Offices to assist in this regard. Shipping notification will be provided to Nunavut Tourism for dissemination to tourist operators in the region.

SECTION 4.0 - AIR AND NOISE

4.1 AIR QUALITY

Potential project-related impacts to air quality include:

- Vehicle, aircraft and equipment engine exhaust emissions
- Fugitive dust emissions from the mining/blasting; crusher, conveyors and stockpiling activities
- Fugitive dust emissions from road traffic during the snow-free period

The potential impacts and proposed monitoring is summarized below.

Source	Potential Impact(s)	Proposed Monitoring
Exhaust emissions	Potential to impact other land users	Conduct representative air quality monitoring at Mary River and Milne Inlet during the current operations; compare to occupational standards - Completed
Incinerator emissions	Potential to impact other land users	Conduct stack test in the summer of 2007 - Completed
Dust emissions	Deposition on soil, snow and vegetation and subsequent uptake by animals	Snow quality sampling near blasting, crushing and stockpiling; runoff sampling near stockpiles; vegetation sampling along tote road

Related to air quality is the potential for dust deposition onto the surrounding vegetation, which is important to most terrestrial wildlife species, including caribou and arctic hare. Materials used or generated by the Project are not expected to have a meaningful effect on vegetation. The program, however, represents an opportunity for monitoring to generate data that may prove useful for planning of the full-scale project.

Vegetation sampling for metals analyses will be conducted, in proximity to the crusher, a bulk sample pit, and the Milne Inlet tote road. The objective is to understand the potential for dust fallout from a short-term mining and crushing operation, to understand the potential issues (if any) relating to operation of a large-scale crusher in a mining operation. Vegetation samples were collected and analyzed for metals in 2006, which can be used as controls.

4.2 NOISE EMISSIONS

Sources of noise from the current Project include:

- Aircraft
- Vehicles and equipment
- Blasting during mining
- Crusher and conveyors

Noise emissions, concentrated at Mary River and at Milne Inlet, will be localized and will consist of periodic blasting, equipment operation, and frequent aircraft take offs and landings. Noise at Mary River and Milne Inlet will be localized. Equipment will be operated with modern mufflers. Noise associated with road construction and operation may also have a small effect on local land users (hunters) as well as the distribution of wildlife in the area, which in turn may require hunters using the road to go further afield when hunting caribou. Noise and other effects on terrestrial wildlife are discussed in Section 7 and the effect of noise on marine wildlife and proposed monitoring is discussed in Section 9.

Potential noise impacts to both people and wildlife from aircraft will be mitigated by flying above prescribed heights, and routing flights between Pond Inlet and Mary River around the fiords used by the community, as prescribed in the EPP.

Source	Potential Impact(s)	Proposed Monitoring
Aircraft	Other land users during low level flying (moving drill rigs)	None
Vehicles and equipment (including blasting and crushing) at Mary River	Other land users and wildlife	Conduct "zone of influence" noise monitoring at near Mary River in spring of 2008
Vehicles and equipment at Milne Inlet (including sealift and construction activities)	Other land users (including camping on east end of the beach) and wildlife	Conduct "zone of influence" noise monitoring at the east beach location in August/September 2007 - Completed
Vehicle noise along Milne Inlet Tote Road	Starting mid- to late-winter through to August 2008 there will be regular truck traffic over the road, hauling the bulk sample ore with potential to impact other land users and wildlife	Measure road noise during the spring of 2008 to determine the zone of influence of this traffic on wildlife and hunters.

NIRB requires Baffinland to conduct monitoring of noise to verify predictions during the screening that noise emissions will not have a significant effect. The above monitoring program will verify these predictions.

SECTION 5.0 - PHYSICAL STABILITY AND SENSITIVE LANDFORMS

5.1 GENERAL PHSYICAL STABILITY

Various components of the current Project will be inspected and monitored on a regular basis to ensure physically stable conditions. This will include inspection of disturbed areas to ensure the effectiveness of sediment and erosion control measures, the physical stability of open pit slopes and stockpiles.

Environmental protection measures in the EPP define the measures to be employed during construction, to ensure that impacts to the environment and receiving waters are protected from contaminated runoff and increased sediment loadings.

5.2 BULK SAMPLE PITS

Ore will be extracted by blasting with explosives and then excavating. Rock excavation will be carried out from top to bottom in each pit, and access road and ramp elevation will be adjusted accordingly based on bench advance and progress in rock excavation. The total depths of the pits will be approximately 15 m. The pits will be inspected by a qualified geotechnical engineer to ensure the pit slopes will be stable in the long term.

5.3 ORE STOCKPILES

The weathered ore stockpile will be developed to an approximate height of 4 m, with maximum 2H:1V side slopes. These slopes are expected to be stable in the long term. This will be verified by inspection by a qualified geotechnical engineer.

The temporary ore stockpiles will be constructed by end dumping of rock in a single lift without compaction, as it is desirable to handle the ore as little as possible, thereby preserving the proportion of lump ore to fines to be as representative of full-scale mining as possible. The stockpiles are expected to generate stable slopes during dumping as no lifts are proposed.

5.4 ROAD EMBANKMENT CONSTRUCTION

The road embankment will be constructed to a minimum crest width of approximately 8 to 10 m. Fill from the areas immediately adjacent to the embankment and from identified borrow areas will be placed to form various road embankment thickness depending on the frost/thaw susceptibility of the underlying foundation soils (See Figures 5.1 and 5.2). The road is expected to require regular maintenance, from snowplowing during winter months to culvert and crossing maintenance in the summer.

The design of the watercourse crossings is such that, during summer, heavy flows may overtop some of the culvert crossings equipped with overflow swales. The road may be unavailable to haul traffic during a brief period in the summer, and minor repairs to the crossings may be required.

5.5 BORROW AREA DEVELOPMENT

Shallow and broad stripping of the active layer during the summer and fall of 2007 is proposed without blasting. Effort will be made to concentrate borrow activities to limit the footprint; including multiple stripping at the same locations as the material thaws.

Stripping of the active layer will result in a thawing of the underlying permafrost and eventually a re-establishment of a new active layer and permafrost depth. A release of excess moisture is expected with the thawing process, particularly if ice lenses are present. This thawing and release of moisture will be accompanied by settlement, the degree of which may vary from location to location based on the relative presence of ice lenses and topography.

Excavation will not occur within 30 m of a watercourse, and seasonal drainage ways will be re-established during pit development. Existing naturally-cut slopes in the area are approximately 1H:1V. The side slopes of the borrow pits will be made at approximately 1H:1V to 2H:1V, slightly gentler than the slopes in the natural condition. Ditching and other drainage measures will be established as needed to limit erosion and maintain positive drainage to minimize water ponding. Contouring, ditching and silt fences will be applied as required to ensure sediment and erosion control. Post-excavation monitoring of borrow pit areas will be undertaken so that the disturbed areas are free-draining to avoid excessive water ponding, and so that the areas will re-establish in a physically stable manner. The post-excavation monitoring will reduce potential sediment transport to nearby watercourses.

5.6 ROCK QUARRIES

Quarrying will not occur within 30 m of a watercourse, and drainage will be re-established during quarry development. Any rock faces will be inspected by a geotechnical engineer during quarry development to ensure physical stability. Ditching and other drainage measures will be established as needed to limit erosion and maintain positive drainage to minimize water ponding. Contouring, ditching and silt fences will be applied as required to ensure sediment and erosion control. Any stockpiled topsoil will be spread to assist in revegetation of the disturbed areas. The post-excavation monitoring will reduce potential sediment transport to nearby watercourses and will ensure conditions will be stable in the long term.

5.7 MONITORING OF SENSITIVE LANDFORMS

The Project will involve the disturbance of surficial landforms through cut and fill operations associated with road construction and excavations in borrow locations. Exposure of ice lenses of massive ice will result in melting and subsequent localized failures and erosion. However, designed road crosses are not known to intersect any ice-rich or unique periglacial features such as drumlins or ribbed moraines. Periglacial features will be monitored to confirm construction designs do not intercept them, or where they are intercepted the impact is mitigated.

Regular inspection of disturbed areas will be undertaken to ensure physical stability and reduce potential sediment transport to nearby watercourses, with corrective action undertaken as described

above. Monitoring of disturbed areas will continue through post-closure as described in the Abandonment and Restoration Plan.

SECTION 6.0 - RE-VEGETATION

Mine closure in southern climates typically involves the use of re-vegetation to physically stabilize disturbed ground surfaces. The dry and cold high arctic climate, however, limits the growth of vegetation and its application to physically stabilize ground surfaces.

There are areas at Mary River that were disturbed in the 1960s which have not been disturbed by current exploration activities. These areas demonstrate the progress of natural re-vegetation over a 40+ year period. These areas have been sampled to determine percent cover and species composition, relative to nearby undisturbed areas (control sites). This information will be useful in project planning and closure design.

As part of the current Project, Baffinland will allow disturbed areas to revegetate naturally.

SECTION 7.0 - TERRESTRIAL WILDLIFE

Potential impacts to wildlife could arise during construction of the new camp, operation of the existing Mary River camp, from traffic and noise at the mine site, along the tote road (Milne Inlet Road), at the port facilities, and possibly because of increased access by hunters along the improved tote road. General impacts that could potentially affect a wide range of species can be organized into the following six main categories:

- Impacts directly related to the Milne Inlet Road
- Disturbance
- Habitat loss
- Attraction and habituation
- Hunting (mortality sinks)
- Bioaccumulation of heavy metals and other pollutants in forage plants

These are described in detail below. Potential impacts for point locations will occur at the proposed mine site and at port locations. These kinds of impacts differ from those that result from the Milne Inlet Road. Linear corridors require an alternative management strategy, compared to localized developments.

7.1 GENERAL POTENTIAL IMPACTS TO WILDLIFE

7.1.1 Potential Impacts of the Road

Many wildlife species gravitate towards roads because they are easier to travel on. Roads can create habitat. The vegetation on road sides typically greens-up first in spring, attracting herbivores and omnivores, gravel areas attract caribou for relief from biting insects, and roads can be a source of salts for caribou. The structure of the road, the habitats it traverses, patterns and intensity of use by wildlife, and patterns and intensity of vehicle traffic all play major roles in determining the extent to which a road may affect wildlife (Jalkotzy et al. 1997; Underhill and Angold 2000).

The Milne Inlet tote road has the potential to affect wildlife by acting as:

- A travel corridor
- A barrier or filter if wildlife movements across the road are blocked completely or selectively, respectively
- A mortality sink if wildlife are attracted and die as a result (e.g. collisions, increased hunting by humans, or attraction and habituation to human food and garbage)

Wildlife may respond to the road, traffic on the road and camp infrastructure in the following primary ways:

- Move away from the road
- Increase activity and energy expenditure near the road

- Delay crossing or fail to cross the road
- Reduce use of habitats adjacent to the road
- Be injured or killed by collisions with vehicles
- Be killed as a result of hunting and trapping along the road
- Be attracted and become habituated to human food at camps and garbage along the road

The predominant factors that contribute to road-related wildlife deaths are traffic density, vehicle speed and road width. These factors directly affect the success, or otherwise, of an animal reaching the opposite side of the road, with an increase in any factor reducing the probability of an animal crossing safely (Underhill and Angold, 2000). All wildlife species are potentially at risk of being killed by traffic. However, unlike a public road in a more populated area, on the Milne Inlet tote road traffic density and speeds are such that these risks are lower.

7.1.2 Disturbance

Displacement associated with disturbance may have physical and physiological effects that can act at the level of individuals, groups, or populations. Animals that are displaced from important habitats may sustain increased energetic costs that can directly influence health and survival of themselves, their offspring, and their population (Diavik, 1998). They may also face reduced security and increased predation risk. Movement patterns can be disrupted by air or road traffic-related disturbance. This can result in dissection of home ranges, and potentially populations. Disturbance associated with a road can affect wildlife as follows:

- Animals suffer physiological stress by attempting to cross the road with traffic
- Animals refuse to cross the road which results in their displacement from important foraging or security habitats on the other side of the road
- Reduced use of habitats adjacent to the road occurs because of disturbance from traffic.

Animals respond to disturbance due to point-sources of noise, such as construction or drilling, in similar ways, although the extent of the disturbance is localized and may be of short duration. Prolonged low-level air traffic, however, can cause reactions similar to those caused by a road with traffic.

7.1.3 Habitat Loss or Alteration

Habitat will be lost by the construction of camps and port sites, and by improvements to the tote road. Gravel roads and pads which support buildings and equipment are analogous to natural features such as glacial-fluvial materials and gravel bars on stream flood plains. In summer such habitats may attract caribou seeking insect relief, bird species that select dry or gravely sites for nesting, and foxes or ermine that burrow in such material. Habitat will

become available again at the end of the current Project, if the Project does not advance to the development of a mine, and re-vegetation will occur over time.

7.1.4 Attraction, Food-conditioning and Habituation

Wildlife species, particularly carnivores, are attracted to locations of human activity to feed on garbage or to obtain shelter in man-made structures. Improper handling of human food and waste has resulted in food-conditioning and habituation of wildlife. A food conditioned animal has obtained anthropogenic food. It then may perceive human beings and/or their facilities as sources of food. A habituated animal has become indifferent to a stimuli or event due to repeated exposure. A fox that is not deterred becomes used to living near a camp and is habituated. If it has access to human food, it then becomes food-conditioned.

Arctic and red foxes are present year-round at all mine sites, camps and wherever people generate and dispose of garbage and food. Foxes may obtain food directly from people, at camps from improperly managed garbage, from caribou kills left over by wolves, and gut piles from human hunters. Despite stringent regulations, history has shown that problems with people feeding foxes at mines, exploration camps and along access roads is common.

Such supplemental food has the potential to improve over-winter survival, as well as productivity (Eberhardt et al. 1983). Eberhardt et al. (1983) noted increased concentration of fox activity around developed oilfield sites, particularly in fall and early winter, compared with summer use. Up to 23 foxes were captured at a single dump in seven days. The high mobility of the species (Eberhardt and Hanson 1978) suggests that individuals may come from long distances to access food, and that they continue to remain in the development area. The density of arctic fox dens was almost twice as high within the Prudhoe Bay oilfield development as it was in adjacent undeveloped areas (Eberhardt *et al.* 1983).

In the project area the species of greatest risk for habituation are wolves, arctic foxes and red foxes. Food-conditioning results in un-natural behaviour, can attract more dangerous carnivores such as polar bears, and in the case of wolves and foxes, can lead to humans being bit by rabid animals. Arctic foxes are a primary vector of rabies, especially during their population highs that occur roughly every three years. Rabies has also been documented in wolves that have attacked people (Linnell et al. 2002).

Wolves, although less numerous, are no less dangerous than foxes. In cases where wolves have frequent opportunities to encounter people, individuals have become habituated and developed fearless behaviour towards people. All of the wolves that have attacked humans in North America have lost their wildness by being repeatedly exposed to humans and losing their fear of people as a consequence (Linnell et al. 2002, McNay 2002).

7.1.5 Hunting and Mortality Sinks

As caribou can be attracted to roads and other developments, they can become easy prey for hunters. Because wolves are always associated with caribou, higher harvests of carnivores can also occur. Such areas can become "mortality sinks' for wildlife, if hunting is permitted in the vicinity of the road or development.

7.1.6 Bioaccumulation of Heavy Metals and Other Pollutants

Areas surrounding sites of disturbance, such as roads, are affected by dust fall-out on the adjacent land and vegetation. If heavy metals or other pollutants are naturally present in soils, these can be released by disturbance caused by vehicles and construction activities. The extent of area affected is a factor of prevailing wind conditions and will require monitoring.

7.2 GENERAL WILDLIFE MITIGATION MEASURES

The ESD (Knight Piésold Ref. No. NB102-00181/6-1, Rev.0) identified a number of changes in project design, operational safeguards, and contingency plans to be applied to mitigate potential impacts. Highlights of the potential impacts and proposed mitigation include:

- Limit potential impacts to wildlife by limiting noise emissions to the extent possible. All mining and road construction equipment used during the program is properly equipped with appropriate mufflers, to minimize noise. The periods of use of crushers and conveyors is short term, in the order of several months compared with the length of the current Project. Options for further noise mitigation are limited, and impacts are relatively localized and short term. Therefore, no other mitigation is proposed for land-based equipment.
- Minimize project footprint, thus minimizing the loss of habitat and reduction of habitat effectiveness. Habitat effectiveness decreases when wildlife use of a previously important habitat declines not because of habitat loss but because of disturbance.
- Adhere to the intent and spirit of both the traffic management plan and the caribou protection measures outlined in the North Baffin Regional Land Use Plan. This will minimize direct mortalities due to collisions with vehicles, and disruption of wildlife movements across the road. The Traffic Management Plan is included in the EPP.
- Minimize attractants at camps through responsible waste management and effective environmental awareness programs;
- Minimize and eliminate contamination of habitat by industrial products, and
- Address the potential for human interactions with polar bears through the development and implementation of a Human-Polar Bear Conflict Management Plan (refer to Baffinland Safety Manual).

7.2.1 Traffic Management Plan

Potential disturbance and habitat alienation because of the Milne Inlet tote road will be controlled through road traffic management and education of drivers and heavy equipment operators. Road regulations during operation include:

- Haul truck traffic will be restricted to 50 km/hr, which can be monitored by tracking the arrival times of trucks at the Midway camp and final destination, as well as by road superintendents if necessary. Light vehicle traffic speeds will be dictated by road conditions, to a maximum of 80 km/hr.
- When wildlife, especially caribou and migratory birds, are in the vicinity of the road, traffic will be monitored more closely to ensure drivers are following regulations.
- Trucks will travel in convoys of two to four at a time, for safety of the trucks as well as the safety of other users.
- Wildlife has the right-of-way. If wildlife is present on the road, all vehicles will stop at a minimum distance of 30 m or where safe. Drivers will wait until caribou and other wildlife have safely cleared the road before proceeding.
- Any substantial movements of caribou in the vicinity of the road during the spring (when the caribou are either migrating or possibly calving) will be reported to the Environmental Superintendent. The Environmental Superintendent will determine if any further mitigation is required to meet the intent of the North Baffin Land Use Plan.
- A strict no hunting policy will be implemented among employees of Baffinland and its contractors while at the work site.

7.2.2 General Adaptive Management Thresholds

The specific threshold values that will be used to indicate that impact levels are higher than predicted, triggering an adaptive management response, will be determined on a species-by-species basis (discussed below) and will likely be adjusted as more baseline data is collected in 2007 and 2008. Aspects of the species' biology that will be measured for disturbance/impact levels will include overall species diversity, abundance, and distribution. For certain species (such as raptors) individual behaviour and reproductive success before and after disturbance will also be monitored (Before-After-Control-Impact designs).

In general, if the analysis indicates that the impacts are larger (i.e. having a more substantial negative effect on the previously mentioned response variable) and/or more widespread (impact area is larger) than predicted, compared to control plots, and if the unexpected trend occurs for more than two years (thus proving its not a random spatial-temporal effect) than appropriate adaptive management procedures can be implemented in subsequent project phases (again, on a species-by-species basis, as discussed below).

7.2.3 Wildlife Log

A Wildlife Log is contained in Appendix A, for the incidental reporting of all wildlife observations by all site personnel, at or near the camp as well as during remote work or traveling by vehicles or air.

7.3 CARIBOU

This section describes the potential impacts, planned mitigation to address potential impacts, and the associated monitoring of caribou to determine the effectiveness of mitigation and residual impacts.

7.3.1 Potential Impacts Specific to Caribou

Potential impacts of the current Project on barren-ground caribou include:

- Disturbance and displacement because of visual barriers during road construction and snow clearing in winter
- Disturbance because of road and air traffic, leading to changes in distribution, movements and migratory corridors
- The tote road facilitates access for hunters, leading to higher harvest levels

These potential impacts are discussed further below.

7.3.1.1 Visual Barriers

The physical presence of roads does not generally appear to be a deterrent to caribou, wherever studied. The location and structure of roads are important determinants of individual caribou response. Roads that form a visual barrier because of height have the potential to hide predators and can deter caribou from crossing (Roby 1978). During winters with high snow levels, plowing can result in elevated snow banks, which may impair vision and movement of caribou across some areas, or deflect movements along the road (V. Banci, pers. obs.).

7.3.1.2 Disturbance

A greater effect for caribou than habitat loss and alteration is potential disturbance due to noise and traffic. Noise will be associated with activities at Mary River, Milne Inlet, and along the road both during construction and with road traffic during operations. Noise at Mary River and Milne Inlet will be emitted primarily from aircraft activity and stationary point sources with a relatively localized and predicable effect. Localized disturbance to wildlife is expected, and caribou may avoid these areas in the short term. BHP (1995), Jalkotzy *et al.* (1997), Axys and Penner (1998) and BHP (2000) have reviewed the extensive literature regarding responses of caribou to development and associated roads. In summary, observations show that caribou are adaptable and if not impeded will continue to behave normally without negative population level effects.

The initial response of wildlife to moving vehicles is flight. Such responses generate increases in energetic requirements, with a corresponding decline in fitness (Axys and Penner 1998). As wildlife habituates to traffic, flight reactions decline in frequency and intensity.

7.3.1.3 Hunter Access

An issue concerning the improved tote road on caribou and other wildlife is the impact of improved access for hunters. Inuit from Pond Inlet traditionally and currently hunt in the Mary River area, traveling by snowmobile in the winter and in the summer by boat and ATV. Access is not possible during break-up and freeze-up.

It is expected that hunting within the area is unlikely to increase substantially as a result of road improvements. The Milne Inlet tote road is located roughly 150 km over sea ice or water from Pond Inlet, translating into approximately 6 hours travel in a boat or 6 to 12 hours in a snowmobile, depending upon ice conditions. In winter, the presence of the road does not currently facilitate improved access; discussions with Pisiksik Working Group (pers. comm., 2006) suggest that snowmobile traffic inland from Milne Inlet does not preferentially follow the existing road alignment but follows overlapping and parallel routes inland, in part seeking areas with better snow conditions for snowmobile traffic. However, the existing road is located within a natural travel corridor for wildlife and people, and this route will continue to be used by hunters. Snowmobile access becomes difficult however when overland snow conditions deteriorate in the spring. In the summer, access to the area by ATV will be improved with the removal of potential barriers at major watercourses. This will allow hunters to reach further inland and hunt more area in less time, potentially resulting in increased caribou harvests. It is uncertain if an increased number of people will access the Mary River area during summer to hunt, given that the road is a 4 to 6 hour boat ride from Pond Inlet.

Increased hunting may result as a consequence of people from the community working at the site, and being more aware of caribou movements in the area. This effect has already been observed at Mary River. This appears to coincide with what appears to have been a pre-existing trend towards increased use of the Mary River for caribou hunting, independent of and prior to resumption of exploration activities in 2004, since caribou have became less abundant at locations closer to the community.

Increased caribou harvests owing to communication between community hunters and Inuit site personnel is not an issue specific to the current Project, but increased project-related traffic along the road may increase sightings being reported to the community. Increased hunting in the region provides socio-economic benefits, but could impact on the current low density caribou population.

7.3.2 Mitigation Measures Specific to Caribou

Inadvertent construction of visual barriers during improvements of the Milne Inlet tote road will be avoided by ensuring the road is built as close to the surrounding land as is possible.

Few data exist on traffic thresholds tolerated by caribou before normal behaviour is changed. At the Kuparuk oilfield near Prudhoe Bay, traffic volumes in excess of 10 to 15 vehicles per hour were reported to reduce the ability of calving and post-calving caribou to cross roads (Curatolo and Murphy 1986; R. Shideler, pers. comm, in BHP 2000). Although most groups eventually crossed roads, the significance of additional energetic costs resulting from delayed movements was unknown.

Adverse reactions by caribou may not necessarily be significant. Cronin *et al.* (2000) acknowledged that displacement of caribou from oil-field infrastructure at Prudhoe Bay, Alaska, can occur during the calving season but that these local impacts did not result in negative population level effects. Additionally, the Central Arctic caribou herd has grown at a rate comparable to herds in undeveloped areas (Cronin *et al.* 2000). The lack of population level effects suggests a high level of adaptability and potential habituation to roads by barren ground caribou.

Successful mitigation of the impacts of traffic disturbance on caribou has been implemented at many developments including the EKATI™ mine (BHP 2000) and the Prudhoe Bay oil field (BLM 1997). Mitigation measures include the monitoring of caribou movement and the control of traffic (i.e., caribou have the right of way) when caribou are near the road or are about to cross. Similar measures have been implemented for the Tibbitt to Contwoyto winter road in the Northwest Territories (V. Banci, pers. comm.). At least to the present time, the presence of the winter road has not appeared to have altered the distribution or movements of Bathurst caribou.

As described in the Milne Inlet tote road traffic management plan (Sub-section 7.2.1), the primary mitigation strategy is to allow caribou the right of way when they are encountered on the road or about to cross the road. If necessary, traffic will stop to enable crossings of groups or to allow groups of caribou paralleling the road to move into adjacent habitat. These measures will serve to minimize energetic disturbance and collision mortality. Management actions will be consistent with the intent of the Caribou Protection Measures outlined in the North Baffin Regional Land Use Plan (Nunavut Planning Commission, 2000).

Employees will not be permitted to hunt while they are at Mary River for work; they will be returned to the community between shift rotations and will not be permitted to stay in the area to hunt as part of their shift rotations. In the spirit of worker safety, Baffinland will request that community members respect a proposed 1 km buffer from the road and the camps where hunting will not occur. This restriction is not expected to limit caribou harvests, understanding that hunters do not travel solely along the existing road.

The issue of increased caribou harvests requires further dialogue between the Project representatives, the community, and the Government of Nunavut. Baffinland will engage these parties in discussion on this subject as the Project continues to move forward. No mitigation is proposed for the current Project to limit communications or restrict hunting in the region.

7.3.3 Caribou Monitoring Program

Caribou will be monitored through ongoing baseline surveys throughout the year, in accordance with the Wildlife Research Permit issued to Knight Piésold by the Government of Nunavut, Department of Environment (GN-DOE). During construction activities for the bulk sampling program and operation of the Milne Inlet tote road, monitoring will include aerial surveys focused on the road and on habitats that have been identified as high-value.

The following summarizes the terms regarding caribou monitoring from the Wildlife Research Permit (WL 000831) issued to Knight Piésold in 2007 (GN-DOE 2007):

- Caribou surveys will be conducted at an elevation of 300 m above ground level (agl) during pre- and post-calving and at an elevation of 150 m agl at other times;
- whenever caribou are encountered flights will always increase elevation to a minimum of 300 m agl
- One survey during calving season will be allowed at 40 m agl
- Number of surveillance flights to be two per season (spring, summer, fall and winter)

Aerial surveys during calving will be conducted at 150 m agl, not at 40 m agl as allowed in the research permit.

7.4 CARNIVORES

7.4.1 Potential Impacts

Potential impacts that affect all wildlife such as traffic management, hunting, food conditioning and contaminants, have been discussed under general mitigation and monitoring plans. These discussions are not repeated in this section unless their applicability for wolves was not addressed in previous sections.

The potential impacts of the project on carnivores are:

- The loss of denning habitat because of the use of glacial-fluvial materials for road building and gravel pads, and
- Disturbance, especially at active dens.

Habitat loss and disruption related to the project are unlikely to constitute important negative impacts on regional carnivore populations. Because of their linear nature, roads cross environmental and topographical contours and can link a range of different habitats,

facilitating movement through otherwise unsuitable landscapes (Underhill and Angold 2000). Wolves have been observed using road corridors preferentially as travel routes (Thurber et al. 1994). Wolves are unlikely to be deterred from their traditional movement corridors, and the Milne Inlet tote road is unlikely to be frequented by wolves. Habituation to human food and garbage along the road and at camps are greater potential risks for wolves than is habitat loss or displacement.

Wolves are tied to specific areas only during the denning period. Wolf dens are traditional and may be used over many years (BHP 1995, 2000). In the barrenlands most den sites have been found on eskers or in other glacial deposits (Cluff et al. 2002). It is possible that road construction and borrow excavations near carnivore dens could cause wolves and their pups to abandon their dens.

Chapman (1977) studied the effects of human disturbance at wolf dens in Alaska. Although human disturbance appeared to cause den abandonment in some cases, no direct mortality was documented. Pups were moved to an alternate den site and reared successfully to at least 3 months old. Human disturbance has also been suggested as a factor limiting re-use of dens in subsequent years (Chapman 1977); however, several reports of successful re-use following human disturbance also exist.

Arctic and red foxes are plastic in their behaviour and tolerate high levels of human disturbance. In Alaska oilfields, foxes denned in culverts and road embankments as well as in natural sites (Ballard *et al*. 2000, Eberhardt et al. 1983). At the EKATI diamond mine in the Northwest Territories, active fox dens established during and after exploration and mining activities were located near an airstrip, in the embankment of roads, and in the midst of stored equipment and materials (V. Banci, pers. obs.) Disturbance because of project activities to denning foxes is not anticipated. In fact, it is more likely that foxes will establish their dens in the project area, because of the possibility of obtaining food.

Although rarely sighted on Baffin Island, wolverines remain an important furbearer for local communities. Few hunters pass up the opportunity to harvest a wolf or a wolverine, which have high-value pelts. Most (70%) wolverines in the Northwest Territories and Nunavut are hunted from snow machine during winter (Mulders 1999), as are wolves. Although rare, any wolverine sign will encourage hunters to give chase. A road can become a mortality sink if caribou numbers increase, hunting increases, and wolverines are attracted to the gut piles left by human hunters.

Mitigation measures to prevent habituation of wolves and foxes will benefit wolverines and avoid potential problems. Wolverine will be monitored during regular baseline activities and may be detected during snow-tracking and DNA hair sampling for wolves. No other mitigation measures or monitoring plans are required or recommended.

7.4.2 Monitoring

The occurrence of wolf dens in the Milne Inlet tote road corridor is unlikely given that the area was subject to a detailed survey by helicopter in 2006. Detailed survey of borrow areas was conducted in 2007. Impacts to denning habitat are not expected from road activities. Given that wolf density may increase if caribou numbers increase, wolf denning activity will be monitored over the long term, to determine if the number of active dens in the project location increases.

In the event that an active wolf den or homesite (also known as rendezvous site) is located, personnel will be advised to avoid air and foot traffic within a 2 km radius of the den. A homesite is a secondary den where the pups are moved to when they are older. It may consist of an actual den, or an above-ground location with some cover. Construction or drilling activity in the buffer area will not be allowed until the wolves have left. Monitoring will continue from the beginning of denning (mid May) until late August. At this time, wolves approximately two months after whelping, family groups appear to be safe from disturbance (Mech et al. 1991).

The den or homesite will be monitored on the ground by qualified biologists at a distance of 1,500 m, in accordance with Wildlife Research Permit WL000831 issued to Knight Piésold in 2007.

Foxes and wolves that approach humans will be actively deterred by shouting, chasing and use of noise makers (bear bangers) if necessary. Such activity will prevent habituation, which is possible even in the absence of food. If an active den is located adjacent to human activity, for example, in an embankment of the road, all personnel will be advised, and stricter speed limits (10 km per hour) will be implemented in the vicinity of the den. The location of the den will be marked with appropriate signage.

7.5 SMALL MAMMALS

7.5.1 Potential Impacts and Monitoring

Arctic hares and lemmings appear to be widely distributed. Negative potential impacts of the project on small mammals and hares include habitat losses where camps will be located and the road is improved. Dust deposition adjacent to the tote road could impair habitat used by small mammals and hares in this area, and other species such as birds. Dust monitoring is described in Sub-section 4.1.

7.6 BIRDS

Potential impacts to birds include:

- Disruption of raptor nesting near Deposit No.1 or at quarrying locations
- Disruption of loon and goose nesting and moulting habitat

- Disruption of migrating birds, particularly geese, along the road corridor
- Disruption of waterbirds and shorebirds due to site activities adjacent to lakes and at Milne Inlet

Universal mitigation that will be applied includes avoidance of known nests, or areas where birds are displaying territorial behaviour indicative of a nearby nest, by project personnel and equipment to the extent possible. If nests are found in a work area the Environmental Superintendent will be contacted and further mitigation planned, such as closure of that area until the post-breeding period (typically mid-August).

A monitoring program for 2007 and 2008 is proposed that includes surveying raptors, loons, ducks, geese, songbirds, and shorebirds, as both a continuation of baseline work as well as to monitor the effects of disturbance on bird species diversity, abundance, and distribution (as well as behaviour and breeding success for raptors and loons).

7.6.1 Raptors

Potential Impacts

The potential exists to disrupt raptors nesting on cliffs, either in proximity to mining activities at Deposit No. 1 or from quarrying. In 2006, only one peregrine falcon nest was located at the base of Deposit No. 1 and another pair was continually seen 1 km further downstream on the Mary River (indicating a defended territory and therefore, likely a nest). Breeding peregrine falcons have demonstrated an unusually high level of tolerance to mining and blasting activities, as evidenced by peregrine falcons nesting on the open pit walls at the EKATI™ mine in the Northwest Territories (Banci, pers. comm., 2006).

Mitigation

Known raptor nests have been plotted relative to proposed rock quarry and the primary borrow source locations, on Figures 7.1 to 7.3. Conflicts were identified and the proposed quarry and borrow sources for the current Project have been selected on the basis of avoiding direct conflicts with established raptor nests.

Monitoring of Raptors and Raptor Nests

Raptor species diversity, abundance, and distribution (as well as behaviour and breeding success) will be surveyed from late May-September in 2007 and 2008 in a continuation of baseline work as well as to monitor the effects of disturbance from the current Project.

7.6.2 Loons, Ducks and Geese

Potential Impacts

The Milne Inlet tote road travels through the Phillips Creek watershed, a lush, productive, tundra valley that has an abundant supply of wetlands, streams, rivers, and waterbodies of various sizes (ranging from small shallow ponds up to large deep lakes). The 2006 surveys indicate that these areas are used by a high density, but low diversity, of waterbirds such as loons, ducks, and geese.

Breeding pairs of loons and long-tailed ducks were identified on most lakes within the study area and were observed nesting on shorelines or islands. The bulk sample activities will not directly infringe on lakes or immediate shorelines where nests may be located, but loons may be disrupted by noise and disturbance from construction and traffic. It is predicted that disturbed loons will abandon any occupied areas directly adjacent to the mine site and road corridor and move west to less disruptive, seemingly suitable, habitat.

It is possible that the thousands of geese migrating through in the spring (late May to early June) and fall (late August and early September) may shift their flight pathways slightly (approximately 1-5 km to the west) in response to noise and disturbance along the road during construction, which will take place to a limited extent in the spring and will be concentrated in the late summer and fall period. Traffic in August and September could also potentially disrupt migrating birds during their fall migration.

While the Phillips Creek valley isn't used by a significant number of geese for nesting (no colonies, and less than ten individual nests were found between the Mary River Camp and Milne Inlet), hundreds of birds (primarily snow geese) used the area briefly (approximately two weeks) as stop-over sites during their spring and fall migrations. Birds stopped to refuel on tundra vegetation (geese), aquatic insects and plants (loons and ducks) in the various waterbodies. In August, hundreds of geese used this area to moult their feathers which is a very energetically expensive process that requires a reliable supply of food and minimal levels of stress (from predators or other sources). A vast majority (approximately 85%) of the migrating geese did not stop in the Project area.

Mitigation

The potential impacts on loons, ducks and geese, is expected to be low and localized to only a few waterbodies found directly adjacent to the tote road, and therefore, no mitigation measure are proposed for these species. Wildlife surveys in 2006 indicated that there is an abundant supply of nearby suitable habitat for these species to move to but it is predicted that very few birds will be disturbed enough to abandon their traditional breeding sites.

Monitoring of Loons, Ducks and Geese

Loons, ducks, and geese species diversity, abundance, and distributions (as well as behaviour and breeding success of loons) will be surveyed from late May-September in 2007 and 2008 in a continuation of baseline work as well as to monitor the effects of disturbance from the current Project.

7.6.3 Songbirds and Shorebirds

Potential Impacts

Extensive activities in close proximity to waterbodies are not anticipated with the exception of Milne Inlet. The 2006 shorebird surveys in Milne Inlet identified low population densities of lapland longspurs, horned larks, American pipits, Baird's sandpipers, American golden plovers, black-bellied plovers, and common ringed plovers. Since these birds occur at such low densities along the shores of Milne Inlet this habitat may be lower in quality than elsewhere in the Phillips Creek valley to the south (or that these are young, inexperienced birds that have been forced to these more marginal areas through intra- and interspecific competition). Surveys throughout the shoreline areas in and around Milne Inlet indicate that there is a sufficient amount of nearby habitat that disturbed birds can relocate too if disturbed and it is assumed that the habitat quality of the shoreline is fairly constant throughout the Inlet.

Mitigation

For the current Project, the only mitigating plans specific to songbirds and shorebirds currently proposed is the avoidance of known nests. The potential impacts on these birds are low because of their low densities and the abundant availability of habitat for these birds away from project activities. It is predicted that individual birds that lose habitat due to mining or the building of stockpiles etc. will be able to move freely to new areas away from mining activities, unimpeded by competition with other birds. However, it is likely that this limited number of birds that are directly affected by habitat loss will be unable to breed during the first year of disturbance (2007) as it will be too late to successfully raise young by the time they re-establish themselves in other areas.

Monitoring of Songbirds and Shorebirds

Songbird and shorebird species diversity, abundance, and distributions will be surveyed from June-September in 2007 and 2008 in a continuation of baseline work as well as to monitor the effects of disturbance from the Project.

Starting in 2007, shorebird surveys will follow the protocols suggested by the Program for Regional and International Shorebird Monitoring (PRISM) which is an international organization (developed by the Canadian Shorebird Working Group and the U.S. Shorebird Research and Monitoring Working Group) that coordinates shorebird monitoring programs

in North America using a standardized survey technique. These survey techniques have been endorsed by, and are now used by, various government research agencies in Canada and the United States, such as the Canadian Wildlife Service, the U.S. Fish and Wildlife Service, and the International Shorebird Survey Group. Both the songbird and the shorebird data will also be provided to the North American Breeding Bird Surveys.

7.6.4 Seabirds and Gulls

Potential Impacts

No major seabird colonies or large feeding flocks were identified around the shoreline and waters of Milne Inlet, and nearby Koluktoo Bay, Eskimo Inlet, Tremblay Sound, and the southern half of Eclipse Sound in 2006. Based on these results alone (only two surveys conducted in August 2006, and not including the shorelines of Bylot Island and Sirmilik National Park), we do not envision any large impacts to seabirds associated with loading and unloading operations in Milne Inlet. However, ships travelling in and out of Eclipse Sound must by necessity pass within close proximity to the large seabird colony at Cape Graham Moore, on Bylot Island, as well as Canada's largest snow goose colony, also on Bylot Island.

Potential impacts to seabirds include temporary disruption of foraging when ships pass by, and through minor or catastrophic fuel spills. With respect to temporary disruption of foraging, Sealift, Navy, and cruise ships have long been entering into Pond Inlet and Navy Board Inlet, and there appears to have been no long-term impacts to seabird and goose colonies on Bylot Island. It is doubtful that the increased ship traffic in 2007 and 2008 will have an effect on these colonies behaviours on the water or at the colonies.

The likelihood of a large-scale catastrophic fuel spill is low, however it always remains a potential threat during any shipping operation. The potential for minor fuel spills is higher, but also remains low overall. Seabirds are particularly vulnerable to even minor exposure to fuel through contamination of their plumage and through the ingestion of fuel contaminated food. Oiled plumage can result in the loss of isolative capacity leading to hypothermia, or the loss of buoyancy, which in turn could result in drowning. Ingestion of oil can lead to changes in physiology, internal tissue damage, or death. Birds that feed at the water surface, along the shoreline, or dive into the surface waters to feed are all highly vulnerable to exposure in the event of even a minor spill. Colonial nesting species and species that form large feeding aggregations are also highly vulnerable, especially to large-scale spills.

Mitigation

Although disturbance from shipping activity is not expected to have long-term consequential impacts on seabirds, a monitoring program is proposed for 2007 and 2008 that will serve as both a continuation of baseline work as well as function to monitor the effects of noise and disturbance on bird distributions. No mitigating plans are proposed for

seabirds with respect to shipping activity in 2007 but monitoring will occur before, during, and after these activities and if necessary, mitigation plans will be made for 2008.

Monitoring of Seabirds and Gulls

Seabird species diversity, abundance, and distributions will be surveyed in July, August, and September in 2007 and 2008 in a continuation of baseline work as well as to monitor the effects of disturbance from the current Project activities.

SECTION 8.0 - FISHERIES AND AQUATIC RESOURCES

Potential impacts to fish and aquatic habitat could arise during road construction alongside watercourses and during the construction of watercourse crossings (culverts) along the road where watercourses provide fish habitat or are immediately upstream of fish habitat. Where fish habitat has been identified, work must proceed in accordance with established methods and in accordance with the terms and conditions of the authorization issued by DFO under the *Fisheries Act*.

8.1 FISH AND FISH HABITAT

The *Fisheries Act* defines fish to include all parts of fish, shellfish, crustaceans and marine animals, and their eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals. Fish habitat includes spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly to carry out their life processes. Any project that upsets the physical, chemical and biological balance of fish habitat may damage it. Examples of projects that could potentially cause harm to fish habitat include the following: removal of riparian habitat and potential introduction of sediment into nearby aquatic habitats; infilling of fish habitat due to causeway construction; dredging operations; removal or modification of fish habitat features that provide shelter to fish, etc. Harmful alteration, disruption or destruction of fish habitat (HADD) is any meaningful change in one or more habitat components that can reasonably be expected to cause a real reduction in the capacity of the habitat to support the life requisites of fish.

There are a number of instances with upgrades to the Milne Inlet Tote Road where a HADD cannot be avoided. An authorization from DFO has been issued under Subsection 35(2) of the *Fisheries Act*. The authorization prescribes conditions that must be applied to both carry out the proposed work and to compensate for loss of fish habitat. Compensation is the replacement of natural habitat, increase in the productivity of existing habitat, or maintenance of fish production by artificial means, where other measures are not adequate to maintain habitats for Canada's fisheries resources.

8.2 POTENTIAL IMPACTS TO FISHERIES

Project activities have the potential to impact fisheries resources through the:

- Release of sediment to watercourses affecting water quality
- Alteration of fish habitat or blockage of fish passage
- Accidental releases of deleterious substances (i.e., fuel spills)
- Potential entrainment of fish through water supply intakes for drilling and potable water

The potential for fuel spills in and around water will be addressed by refuelling of equipment at a distance greater than 30 m, as specified in land use approvals and wherever possible. The potential for entrainment of fish through water supply intakes will be addressed through adherence to the Department of Fisheries and Oceans guideline entitled “Freshwater Intake End-of-Pipe Fish Screen Guideline” (DFO, 1995).

The construction of watercourse crossings has the potential to negatively affect fish and fish habitat from construction of the crossing structures or post-construction influence of the completed structures on fish habitat.

Elevated levels of suspended sediment are the primary change in water quality due that could result from work in or around water. Construction activities typically result in short-term effects, while long term effects can arise through erosion of ditches and slopes if not mitigated. Sediment sources related to construction activities include equipment crossings, excavation, blasting, and installation of bank protection measures (riprap), erosion from ditches and steep slopes, erosion from exposed areas on the right-of-way, and increased bed scour or bank erosion due to changes in downstream flow patterns.

Culverts can also result in long-term sediment-related impacts through undersized culverts washing out and the displacement of embankment fill and bed material to downstream habitats. If a culvert is installed at a gradient higher than the streambed downstream scour is likely along with blocked upstream fish passage.

Road and watercourse crossing maintenance may also introduce sediment into watercourses. Maintenance activities should be conducted using best management practices (BMPs) and other measures that minimize the introduction of sediment into watercourses. Ditches and slopes must be regularly inspected and maintained to ensure that erosion is controlled.

The construction of bridge abutments, bank protection measures, and the installation of culverts can potentially results in the loss or alteration of the fish habitat in the footprint of these structures on the bed and banks of watercourses. Channel margins are important habitat for fry and juvenile Arctic char for feeding and to escape predation. Encroachment of bridge abutments and piers in these areas results in their permanent loss. Changes in channel morphology due to construction and maintenance of watercourse crossings can result in changes to bed material which potentially affects food production, cover, and spawning.

Positive impacts can also result from proper culvert placement where it is correctly sized, allows upstream fish passage, provides cover, and maintains a portion of the natural bed material. Typically a scour pool will form on the downstream side of culverts or any crossing structure that constrains the channel. Watercourse crossings can act as a habitat feature in watercourses where habitat is uniform and instream cover such as pools is not abundant. If the type of habitat affected by the crossing is abundant throughout the stream and therefore not limiting to fish there is a very low probability that it will result in a negative impacts, and may in fact provide a positive impact by artificially creating some habitat heterogeneity at the site.

8.3 CROSSINGS IDENTIFIED AS FISH HABITAT

An evaluation of which watercourse crossings along the Milne Inlet tote road are deemed fish habitat has been completed in consultation with DFO. Those watercourse crossings that have been determined not to be fish habitat are listed in Table 8.1. Culvert installation work at these locations

can proceed, applying standard work practices described in the EPP without an authorization under Section 35(2) of the *Fisheries Act*.

There are 59 watercourse crossings that have been deemed fish habitat and are listed in Table 8.2. DFO has determined that work at 24 of these crossings is not expected to result in a HADD. For these crossings, DFO has issued a 'Letter of Advice' that must be followed in completing the work. The remaining 25 crossings are expected to result in a HADD and are therefore subject to an authorization under Section 35(2) of the *Fisheries Act*. Construction at these crossings is subject to the terms and conditions of the fisheries authorization, which are described in the EPP. An additional 10 crossings with fish habitat have been designated as fish habitat compensation works. Works at these sites will restore, restore access to or enhance fish habitat.

8.4 DFO LETTER OF ADVICE

DFO issued a Letter of Advice for proposed works that will not likely result in negative effects to fish habitat if additional protection measures are implemented (DFO, 2007a). The following additional protection measures have been specified by DFO and are to be implemented during construction:

- *Water crossings should be backfilled with substrate material that is consistent with the existing substrate size and texture found within the watercourse and will remain in/under the crossing*
- *Water depth within the water crossing should be not less than 20 cm or the same depth as the natural channel especially during low flows*
- *Work should be conducted during low flow conditions and should be avoided during large precipitation/runoff events*
- *All materials and equipment used for the purpose of site preparation and project completion should be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, etc.) from entering the water*
  - *Any stockpiled materials should be stored and stabilized away from the water*
  - *Vehicle and equipment re-fuelling and maintenance should be conducted away from the water*
  - *Any part of equipment entering the water should be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water*
  - *Only clean material free of fine particulate matter should be placed in the water*
- *Sediment and erosion control measures should be implemented prior to work and maintained during the work phase, to prevent entry of sediment into the water*
  - *All sediment and erosion control measures should be inspected regularly to ensure that they are functioning properly and are maintained and/or upgraded as required*
  - *All disturbed areas of the work site should be stabilized immediately and re-vegetated as soon as conditions allow*

The above measures are to be implemented during all construction works near to water.

8.5 FISH HABITAT COMPENSATION PLAN

In accordance with DFO's No Net Loss policy, fish habitat compensation measures will be carried out to compensate for HADDs at watercourse crossings which are fish habitat. A compensation plan was developed as part of the "Fish Habitat No Net Loss and Monitoring Plan" (Knight Piésold Ref. No. NB102-00181/10-4, Rev.0) submitted to DFO.

Potential fish habitat compensation sites, along with calculated areas, are presented in Table 8.3. In summary, the compensation plan will include the following measures or actions:

- Barrel culverts at Extra-Small crossings CV187 and CV159 will be replaced with properly installed corrugated steel culverts
- Existing improperly installed culverts at small crossings CV113, CV152, CV157, CV166, and CV170 will be replaced with properly installed culverts at the same locations. The new installations will be embedded a minimum of 10% of their diameter into the stream bed to facilitate fish movement and habitat maintenance during low flow periods.
- Debris will be removed from the streambed at crossings CV001, CV154, CV181, and CV183
- Habitat enhancement measures will be implemented at crossings CV176, and BG16
- To the extent practicable Baffinland to use natural smooth rounded stone or large armour stone to protect approaches to water crossings, as opposed to blast rock rip-rap or gabion baskets

8.6 CONSTRUCTION PLAN AND MITIGATION

A construction plan formed part of the "Fish Habitat No Net Loss and Monitoring Plan" (Knight Piésold Ref. No. NB102-00181/10-4, Rev.0) submitted to DFO. Materials and equipment will arrive at Milne Inlet starting in early August, and road upgrades including culvert installations will start shortly thereafter, starting with crossings closest to Milne Inlet. The project schedule is such that the entire road will not be constructed within the July-August timing window defined in the Nunavut Operational Statements (DFO, 2007b), however, mitigation measures have been implemented to ensure that construction does not interfere with spawning habitat or interrupt migration. Much of the construction will occur during low flow periods in September or once flow has ceased in October/November. Construction will continue into 2008.

Full-time supervision of the road construction will be provided by Knight Piésold to ensure overall quality assurance/quality control (QA/QC) of the work, including the implementation of environmental protection measures and compliance with permit requirements.

One-time fording of watercourses with equipment will be necessary during construction. It will also be necessary to work within the watercourse – the objective during in-water work is to plan these activities ahead of time and conduct the work as quickly as possible. The release of sediment associated with the construction works during the flowing water season will be minimized by using standard accepted practices including limiting the time spent in-stream to the extent possible. The longer term potential effect of the crossing on channel morphology and erosion will be minimized by incorporating bank protection measures and overflow swales to pass high flood flows.

Erosion protection measures may be required to protect the abutment fill at the major crossings. Prior to installations, a site assessment will be conducted by representatives of the construction contractor and the Knight Piésold road construction supervisor(s) to identify stabilization requirements that may be required. Field assessments will be documented using the Watercourse Crossing Monitoring Data Form included in Appendix A.

All culverts and sea containers will be installed in accordance with the fisheries authorizations. A minimum of one (1) culvert per crossing location will be embedded a minimum of 10% of the diameter into the bed of the crossing to provide flow for fish passage during low flow conditions.

The following mitigation measures are to be undertaken during construction:

- To the greatest extent practicable, natural smooth rounded stones or large armour stone will be used to protect approaches to water crossings, as opposed to blast rock riprap or gabion baskets
- To facilitate fish movement and habitat maintenance during low flow periods, culverts will be installed with a minimum embedment of 10% (of their diameter or height) below the natural upstream and downstream channel inverts where it does not involve blasting
- The sequence and timing of road enhancement activities and construction practices will be planned, and will be implemented so as to minimize potential impacts to area watercourses (enhance existing fish habitat where possible), as well as associated monitoring activities
- Best management practices will be applied at all water crossings to avoid erosion and prevent sediment from entering waters occupied by fish, including but not limited to the use of silt (turbidity) curtains, silt fences and sediment traps/sumps
- Debris will be removed from the stream bed at crossings where old drums used in the past as culverts have been left in the stream
- Fish habitat enhancement measures will be implemented
- Lower flow culverts will be available for fish passage adjacent to the sea container box culverts
- Culverts and sea containers installed as part of the Extra-Large crossings will be removed when the crossings are decommissioned

8.7 FISH AND FISH HABITAT MONITORING PLANS

A monitoring plan has been developed to ensure that all measures and works specified in the Plan and the fisheries authorization have been implemented and are functioning as intended. This Monitoring Plan will be implemented at the 25 HADD authorized crossings and the 13 compensation sites listed on Tables 8.2 and 8.3, unless indicated otherwise below. The monitoring plan will be implemented annually from 2007 through 2009.

8.7.1 Construction Monitoring

During in-water construction of all Medium, Large and Extra-Large crossings ranked as fish habitat and all compensation and restoration sites, a designated environmental inspector will be on site to ensure implementation of the designs as intended in the Plan and conditions of the authorization. A Watercourse Crossing Monitoring Form, included in

Appendix A, has been prepared to be completed by the environmental inspector just prior to, during and immediately post construction.

Information to be collected and items to be monitored at each location, and recorded on he Watercourse Crossing Monitoring Form, includes:

- Construction dates
- Location
- Fish and fish habitat assessment
- Channel characteristics pre and post construction, upstream and downstream.
- Sediment and erosion control measures
- Crossing installation details
- Record of the photographs

For in-water work within the restricted timing window from September 1 to June 30, the Extra-Large, Large and Medium crossings with fish habitat will be assessed on-site by the designated environmental inspector prior to the onset of construction to confirm the absence or presence of potential spawning sites situated within 20 m either upstream or downstream of the crossing location, and whether spawning Arctic char are present in the vicinity.

During construction of HADD authorized crossings with flow, turbidity will be monitored downstream of the crossings where possible. Details of this monitoring are outlined in the sub-section below.

Crossings will be visually inspected immediately after road construction to confirm that the culverts are functioning as intended and that fish access has been maintained or enhanced. Positive and/or negative effects will be documented.

In addition to the measures outlined above, there is the possibility of field adjustments to the exact location of any of the crossings within the watercourse. In these cases, a habitat assessment will be completed to confirm that impacts to habitat remain materially the same before proceeding.

8.7.2 Post Construction Monitoring

Medium, Large and Extra-Large crossings ranked as fish habitat and compensation and restoration sites will be monitored post construction to ensure that all measures and works specified in the Plan and the fisheries authorization have been implemented and are functioning as intended.

Flow will be monitored to ensure that the installation of crossing structures has not adversely affected upstream and downstream fish migration. Flow will be measured during the spring runoff period and after extreme storm events, in 2008 and 2009, at the four Extra-Large crossings to determine if flows exceed the ability of adult char swimming.

Flow depth will be measured at all 25 HADD authorized crossings during the low flow period in August to ensure fish passage is possible through the embedded culvert.

Fish habitat compensation works will be monitored to ensure that the works are functioning as intended. Fish passage and habitat conditions will be assessed at the compensation sites, where relevant, post-construction through observation and fish trapping.

Compensation sites, where restoring fish access to upstream habitat was the goal, will be inspected upstream and downstream to identify barriers to fish migration. Electrofishing will be conducted within the fish accessible reach to document fish presence during the first full open water season post-construction.

Habitat restoration sites will be visually inspected post-construction to ensure that stream substrate below the debris removal spots is consistent with the rest of the stream. If not, the situation will be assessed and rehabilitation measures such as moving larger rocks to the area will be undertaken if appropriate. At CV181 and CV183 the possibility for fish migration will be confirmed in post construction inspections. Electrofishing will be conducted within the fish accessible reach to document fish presence during the first full open water season post-construction, as appropriate.

Habitat enhancement sites will be monitored to ensure that sediment inputs to the downstream environment have been reduced. Turbidity will be monitored pre and post rainfall events downstream of BG016 and CV176, approximately 3 times (as possible) through the open water season post construction.

Turbidity will be monitored approximately two weeks after construction, where possible, as outlined in the subsection below.

8.7.3 Photographic Record

A photographic record will be maintained of all HADD authorized crossings and fish habitat compensation works will be maintained showing conditions before, during and after construction. The photographs will document all sediment and erosion measures implemented, all compensation works undertaken and culvert installation at the HADD authorized crossings. Views of the crossing from upstream, downstream and across the channel will be recorded at each location. The date taken, direction and vantage point for each photo will be recorded on the Watercourse Crossing Monitoring Form contained in Appendix A. Photographs will be taken from the same vantage points and direction before, during and after construction.

The photographic record will be submitted to the Iqaluit, NU office of the Department of Fisheries and Oceans, Fish Habitat Management, Eastern Arctic Area, on or before December 31 of 2007, 2008 and 2009 showing works completed that year. The photos will be accompanied by plans showing the vantage points and viewing direction for each photo.

The photographic record will show that all works and undertakings have been completed according to the approved Plan and conditions of the fisheries authorization.

8.7.4 Turbidity Monitoring

Turbidity has been shown to affect fish habitat. Suspended solids in turbid water can clog fish gills, reduce growth rates, decrease resistance to disease, and prevent egg and larval development. Settled particles can smother eggs of fish and aquatic insects.

During road construction, on-site visual monitoring of turbidity will be conducted, and will be used to ensure that various mitigation measures are implemented, including:

1. Minimizing timing of in-water work
2. Limiting fording to one-time, where possible
3. Implementing and maintaining effective sediment and erosion control measures
4. Delaying work if it is visibly apparent that char are migrating through the particular crossing

To document site conditions during and after construction and decommissioning, turbidity will be monitored in watercourses with fish habitat both upstream and downstream of construction activities where possible. The upstream reading will provide background turbidity information for the watercourse, while the downstream reading will provide information on changes in turbidity caused by construction. Upstream readings will be collected well away from any construction activity (approx. 50 m) to provide accurate results. Depending on activities and site conditions, readings may be collected at more than one location upstream and downstream. At each monitored watercourse crossing, a Turbidity Monitoring Data Form, included in Appendix A, will be completed to document conditions and record turbidity readings. Factors to be considered include, but are not limited to:

- Current and recent weather conditions
- Water level
- Bank erosion
- Water colour
- Riparian vegetation
- Substrate composition
- Presence of fish in watercourse (visible from bank)
- Depth of water
- Type and duration of construction activities

Turbidity will be measured during construction, as well as approximately 2 weeks after construction activity is completed at each monitored watercourse crossing. In comparing background data with post-construction data, factors affecting turbidity, such as weather conditions and stream flow, will be considered. Turbidity measured post construction will be compared with upstream turbidity measured during construction.

8.7.5 Water intake and Sewage Outfalls

The location of the water intake and treated sewage effluent lines will be monitored for impacts to the environment through visual inspections. No impacts are expected. However, DFO may issue a letter of advice, the conditions of which will be adhered to.

8.8 ICE BLOCKAGE MONITORING AND CONTINGENCY PLAN

Following any crossing construction and during road use, the amount of ice build-up in front of the culverts will be monitored and ice will be removed if necessary. Ice will be removed manually or using steamers or other devices.

SECTION 9.0 - MARINE WILDLIFE

Baseline studies of the marine environment will continue through 2007 and beyond, and will involve a continuation of ringed-seal surveys and open water aerial surveys for marine mammals. Continuation of the ringed seal surveys conducted in 2006 can be used to monitor any change in seal distribution in the immediate area of the Milne Inlet camp that may arise due to camp operations.

In 2007, site-specific investigations of the local marine environment at Milne Inlet will be conducted, including sediment quality, benthos, fisheries and water quality. This information will be used to consider impacts of a potential port facility at this location, as part of the feasibility study being undertaken for the Mary River Project.

9.1 POTENTIAL IMPACTS TO MARINE MAMMALS

The following project components have been identified through which the Project could potentially have an impact on marine mammals:

- Underwater and airborne noise due to construction-related activities and from the operation of ships and barges
- Human interactions with wildlife
- Accidental introduction of hydrocarbons or other deleterious substances into the marine environment

The above potential impacts to marine wildlife are addressed through standard mitigation practices, described below, and specific monitoring is required to address the first two of these effects.

9.1.1 Impacts of Noise

There is a potential for underwater noise generated during project activities to have an effect on marine mammals. The possibility of negative effects due to the addition of human-generated noise on marine mammals is of concern because it could interfere with a marine mammal's ability to detect other, important natural sounds in its environment and cause a behavioural reaction due to noise disturbance (Richardson et al. 2001).

In general, marine mammal responses to noise disturbance vary depending upon many factors, including the magnitude and duration of the disturbance, their ability to detect the noise disturbance, and their tolerance to it, among others. A wide range of behavioural reactions have been documented, including little or no response, alterations in vocalization rate, changes in dive behaviour or feeding activity, or fleeing from the area. Behavioural reactions to repeated or long-term disturbance by individuals can change through either becoming habituated or sensitized to the disturbance. Habituation is said to occur when behavioural responses to a repeated or ongoing noise or other stimulus decline because there is no substantial consequence to the animal. Sensitization is the opposite of

habituation; animals show an increased behavioural response to a particular stimulus through repeated or long-term exposure.

Milne Inlet, Koluktoo Bay, Tremblay Sound, and Eclipse Sound are important summering areas for large aggregations of narwhal and a smaller number of bowhead, as well as providing year-round habitat for ringed seals.

9.1.2 Human-Bear Interactions

Potential Impacts

Construction and operation of the Milne Inlet camp, the tote road camp, and the Mary River Camp may result in human interactions with curious polar bears. Because the sea ice largely melts for a short period in the north Baffin region, polar bears are forced to summer on land. Most bears remain along the coast in areas where sea ice will form soonest in fall, but some bears will move to inland areas or wander along coastlines. In 2006, a polar bear approached the Mary River Camp, indicating some potential for human-bear interactions.

Proposed Mitigation and Monitoring

The primary mitigation for reducing the potential of a human-bear encounter involves maintaining a clean camp and vigilant monitoring so that encounters can be avoided if a bear approaches the camp or site personnel. It will be difficult to deter bears from approaching any of the camps if the bear decides to do so. Bear monitors will supervise work and camps at the coasts as well as isolated field work throughout the region during environmental studies. Defence kills will occur only when all options for avoidance have been exhausted. Defence kills will be promptly reported to the Wildlife Officer at the Department of Environment and the local Hunter and Trappers Organization.

9.2 MITIGATING MEASURES SPECIFIC TO MARINE MAMMALS

The following mitigation measures will be employed during marine shipping associated with the current Project (from Knight Piésold, 2006 and Department of Fisheries and Oceans Canada, 1999):

- Use of large bulk carriers (up to about 55,000 DWT) to reduce the number of ship transits in 2008.
- Routing of ships to maximize distance between the ship and the shoreline, and to remain at least 1.7 miles (2.7 km) from seabird colonies, most notably the thick-billed murres and black-legged kittiwakes at Cape Graham Moore
- Ship power will be reduced when entering Milne Inlet
- Handling of waste onboard ships will conform with the regulations of the *Canada Shipping Act and the Arctic Waters Pollution Prevention Act*
- Oil Pollution Prevention Regulations
- Garbage Pollution Prevention Regulations

- Pollutant Substances Regulations
- Air Pollution Prevention Regulations
- Arctic Shipping Pollution Prevention Regulations
- Oil spill response plans will be in place in accordance with the *Arctic Waters Pollution Prevention Act*
- Fuel will be delivered and off-loaded in accordance with the Arctic Waters Oil Transfer Guidelines
- Notification of shipping dates and avoidance of hunters to the extent possible
- Avoid chasing or disruption of wildlife by auxiliary craft
- Conducting marine wildlife monitoring to understand the response of marine wildlife and in particular narwhal; and implementation of adaptive management strategies to the extent possible over the duration of the project

9.3 MARINE MAMMAL MONITORING

9.3.1 Monitoring Narwhal Response to Shipping in Milne Inlet

A 2007 pilot project monitoring program has been designed as a platform for a more intensive study in 2008, to monitor the response of narwhal to ship traffic, including areas of refuge. The geographic area of study will include Milne Inlet including Koluktoo Bay, and Tremblay Sound with a lower level of monitoring in Eclipse Sound.

The objectives are to:

1. Conduct a pilot study that will determine the distribution of marine mammals in this area during the 2007 open-water season
2. Determine if there is a response to vessel transits to and from a staging site in Milne Inlet
3. Help to design the monitoring plan for 2008 when larger ore carrying vessels will transit through the area to and from the landing site at Milne Inlet. In 2007 vessels transiting the Eclipse Sound to Milne Inlet route will be no larger than vessels frequently used in these waters to supply work camps.

The distribution of narwhals and bowheads in the study area is well documented in previous studies that span the 1970s to the present. It is apparent from these studies that the distribution of narwhals and bowheads across the July to October period is highly variable from one year to the next. This uncertainty, along with the benefit of specific information on reactions to vessels, necessitates aerial surveys during vessel activities planned for this project in 2007. Other approaches, in addition to aerial surveys, may be appropriate in 2008.

The 2007 monitoring program is designed to be a pilot project that will document the distribution and movements of marine mammals (primarily narwhals and bowhead whales) in the study area and determine in a preliminary way responses to ship traffic. Insofar as logistics and weather allow, aerial surveys will be conducted before, during and after the

transits of sealift and other vessels into the base of Milne Inlet to document the changes in distribution of cetaceans potentially caused by these transits Aerial surveys will be conducted for marine mammals within a study area that includes Milne Inlet, Tremblay Sound, Koluktoo Bay, and portions of Eclipse Sound. In addition, other bays/fiords adjacent to this study area may be examined for the presence of marine mammals although at a much reduced level of effort compared to the main study area. The primary study area will not include Pond Inlet or Navy Board Inlet, although some limited coverage of those areas may be necessary if cetaceans are not found in the main study area.

The surveys will be conducted periodically over the period within which shipping activities for the Mary River Iron Mine project are occurring, i.e., for a period spanning before and after the first sealift scheduled for July 31, and for a period spanning early September when additional ships will enter Milne Inlet. Aerial surveys will be conducted using 2 experienced marine mammal observers and a local assistant with appropriate experience, e.g., as a hunter. A twin engine aircraft will fly at an approximate 1000 feet altitude along predetermined transects designed to cover the study area efficiently. Each flight will be approximately 4.5 hours in duration, depending on the endurance of the aircraft used. During these systematic surveys right side and left side observers will record information on marine mammals sighted, and on oceanographic and environmental conditions observed. At the start of each flight a GPS receiver will be initialized and set to track mode to record the entire flight. These track logs will be used as the basis to map the distribution of marine mammal sightings during the analysis and reporting phase.

In particular areas (e.g., Tremblay Sound, Koluktoo Bay) it is anticipated large numbers of congregating narwhals may be sighted. In these instances photographs (vertical or oblique) of these groups may be taken to aid in determining precise numbers of individuals present as well as the age and sex of animals.

To take such photographs it may be necessary to ask the pilots to ascend to a higher altitude where a photograph can be taken that captures as much of the group as possible. Photographs of the bowhead whales will allow for determining if the same individuals are being observed again at similar or different locations during different dates in the study period. This helps determine how some specific animals respond to ships. During the survey period all observer data will be coded and entered into a database for further data processing after the field work is completed.

During the aerial surveys in 2007, appropriate shore-based vantage points will be identified, from which it could be practical and productive to conduct visual monitoring of narwhals (particularly their responses to shipping) in the Milne Inlet area in 2008. In addition, all existing human activities (boat traffic, hunt camps, hunting activities) that could disturb narwhals and bowheads will be documented when they are observed.

At the end of this first year (2007) of study the results will be reviewed and used to assist in the design of next year's (2008) survey program when larger vessels (bulk ore) will transit into the Milne Inlet landing site.

9.3.2 Monitoring Ringed Seals in Milne Inlet

Continuation of the ringed seal surveys conducted in 2006 and 2007 will be used to monitor any change in seal distribution in the immediate area of the Milne Inlet camp that may arise due to camp operations. Aerial and/or snowmobile surveys will be conducted in Milne Inlet using methodologies applied in previous years.

SECTION 10.0 - WATER QUALITY

10.1 OBJECTIVES

The objectives of the water monitoring programs are to:

- Ensure water use is not exceeding quantity restrictions and is being extracted from approved locations without causing adverse effects
- Ensure sewage treatment facilities are meeting effluent quality requirements and that receiving waters are not being negatively influenced
- Ensure that site drainage and runoff are not being adversely affected by site activities

Proposed water quality monitoring is described below. This section incorporates water license requirements as well as aspects of the ESD (Knight Piésold Ref. No. NB102-00181/6-1, Rev. 0), and the "Site Water Management Plan" (Knight Piésold Ref. No. NB102-00181/10-5, Rev. A). The latter document is a requirement of the water license and outlines the surface water management requirements for each work site, as well as a monitoring program that is consistent with the CEMP.

10.2 WATER QUALITY MONITORING PROGRAM

The water quality monitoring program consists of several elements as follows:

- Measurement, recording and reporting of water volumes extracted, as prescribed by the water license
- Sampling, analysis and reporting of water quality, as prescribed by the water license
- Weekly monitoring downstream of exploration drilling activities during periods of open water

Table 10.1 summarizes the water quality monitoring program. This monitoring program is carried out concurrent with ongoing baseline water quality sampling; however, the baseline program is not discussed in the CEMP.

10.2.1 Potable Water

Potable water treatment systems are in place at both the Mary River camp (drawing water from Camp Lake) and for the Milne Inlet camp (drawing water from Phillips Creek in summer and an un-named lake at km 32 of the Milne Inlet tote road in winter). The treatment systems consist of holding tanks, UV disinfection and filtration. There are two main regulatory instruments related to potable water use: Baffinland's water license and the *Public Health Act* and associated regulations.

The water license requires reporting of daily water use, using flow meters as appropriate, at three designated stations, as described in Table 10.1. Daily water use is to be reported in monthly reports to the water board. The total allowable daily water use for camp water supply is 60 m^3.

10.2.2 Sewage Treatment Plant Effluent

Baffinland's water license specifies requirements to measure and report on a monthly basis both the flow (volume) of sewage effluent discharged as well as final effluent quality, to confirm that effluent quality meets the requirements of the Water License, and is acceptable for release into Sheardown Lake or the drainage ditch at Milne Inlet, as appropriate.

- Quantity of sewage treated (continuous)
- Quantity of sludge generated (tabulated)
- Monthly testing of final effluent quality discharged from the WWTFs, as follows:
  - BOD_5 (biological oxygen demand)
  - Total suspended solids (TSS)
  - Faecal coliform
  - pH

In addition, Baffinland proposes to conduct the following additional monitoring, not required by the water license:

- Monthly testing of sewage influent for the following parameters:
  - BOD_5 (biological oxygen demand)
  - Total suspended solids (TSS)
  - Faecal coliform
  - pH
  - Total Kjeldahl Nitrogen (TKN) plus ammonia-nitrogen
  - Total phosphorus
- Monthly testing of final sewage effluent for the following additional parameters not required by the water license:
  - TKN plus ammonia-nitrogen
  - Total phosphorus
- Monthly testing (during periods of open water) of receiving water quality for the following additional parameters not required by the water license:
  - BOD_5 (biological oxygen demand)
  - Total suspended solids (TSS)
  - Faecal coliform
  - pH
  - Total Kjeldahl Nitrogen (TKN) plus ammonia-nitrogen
  - Total phosphorus
  - Dissolved Oxygen (during both open water and ice cover)

Monitoring of effluent and receiving water quality is outlined in detail in Table 10.1. Data will be reported on a monthly basis as required by the water license, and discussed further in Section 14.

10.2.3 Bulk Fuel Storage Facilities

Precipitation will collect in the fuel tank farm containment area. The water license specifies the collection and testing of berm water prior to discharge, at the Mary River bulk fuel storage facility (MRY-6) and the Milne Inlet bulk fuel storage facility (MRY-7). Sampling should be conducted as outlined in Table 10.1.

10.2.4 General Site Drainage and Stormwater

A number of water quality monitoring stations were established throughout the Project area to collect baseline water quality. Many of the sampling sites are within local creeks or drainages both upstream and downstream of drilling, mining, crushing, stockpiling and fuel storage locations. The existing and proposed water quality sampling stations at Mary River and Milne Inlet are shown on Figures 10.1 and 10.2. Several stations are sampled on a weekly basis up and downstream of exploration drilling, while most sites are sampled on a monthly basis during periods of flow.

Runoff monitoring locations in relation to bulk sample pits and ore stockpiles, as required by the water license, is discussed on the following section.

10.2.5 Runoff from Bulk Sample Pits and Ore Stockpiles

Static laboratory geochemical testing was conducted on ore from Deposit No. 1, to evaluate the potential for the ore (including ore generated during in the bulk sampling program) for acid generation (acid rock drainage – ARD) or metal leaching (ML) (Knight Piésold, 2007a and 2007b). Testing in a laboratory environment provides an optimal setting for the generation of ARD or ML. The influence of the local environmental setting (cold and dry) on biogeochemical reaction rates is considerable (MEND, 2006) and thus the potential for ARD and ML is therefore considered to be very low. Monitoring will be implemented to confirm that the objectives of acid rock drainage (ARD) and metal leaching (ML) prevention and control are being achieved.

Several stations are specified in the water license: MRY-8 and MRY-9 will collect seepage from the Hematite and Magnetite bulk sample pits, respectively. MRY-10 is seepage collection at the weathered ore stockpile (which may or may not be generated as an outcome of the bulk sampling program); MRY-12 and MRY-13 is seepage collection from the ore stockpiles at Mary River and Milne Inlet, respectively. Proposed sampling parameters include the following:

- Field parameters (pH and conductivity)
- Metals, including iron, copper, calcium, magnesium, sodium, potassium, aluminum, arsenic, boron, barium, cadmium, chromium, cobalt, lead, manganese, molybdenum, nickel, selenium, silver, strontium, tin, vanadium, and zinc
- General chemistry parameters, including alkalinity as $CaCO_3$, total dissolved solids (COND-CALC), sulphate, turbidity, phenols, chloride, bromide, $N\text{-}NH_3$, $N\text{-}N0_2$, $N\text{-}N0_3$,

$N\text{-}N0_2$ + $N\text{-}N0_3$ as N, Mercury, hardness as $CaCO_3$, total organic carbon (TOC) and dissolved organic carbon (DOC)

Parameters required for reporting by the water license are identified in Table 10.1. If laboratory results indicate that there is some potential for acid generation and/or metal leaching from the ore, contingency mitigation is described in the "Abandonment and Restoration Plan" (Knight Piésold Ref. No. NB102-00181/6-7, Rev. 1). This includes applying dolomitic or calcareous sandstone or overburden to neutralize and attenuate any metals. Further mitigation may be to place a calcareous berm around the stockpile to prevent water from draining retained water.

Snowfall monitoring will be conducted both in the vicinity of open pit activities as well as near the crusher at Mary River and stockpiles at Milne Inlet. This is not a water license requirement but was a commitment made during environmental screening, as it is expected to generate useful information regarding dust generation and characteristics. The objective of the snowfall monitoring is to understand what issues, if any, exist with the crushing of the ore. The proposed sampling program is intended to help answer how much dust is created by the activities, and what is the chemical nature of the crushed ore. Sampling locations will be selected based on field judgment, with consideration to prevailing winds and any obvious signs of dust fallout. Snow samples will be tested for general chemistry parameters (including pH, total suspended solids, sulphur) and metals.

10.2.6 On-site Kinetic Testing

On-site kinetic testing was initiated in 2007 to verify the effects of the environment on reaction rates and therefore the potential for ARD and ML. This work includes the placement of rock into plastic barrels on-site and monitoring of drainage from a tap at the bottom of the barrels.

10.2.7 Water License Discrepancies

Several items were noted upon review of the water license, as follows:

- Part D, Item 9 outlines the criteria that apply to monitoring of runoff/seepage from the two bulk sample pits. The water license refers to Monitoring Stations MRY-5 and MRY-6 but should refer to Monitoring Stations MRY-8 and MRY-9.
- There is no MRY-11 Monitoring Station
- While Monitoring Stations were identified for the monitoring of runoff from stockpiles at Mary River and Milne Inlet (MRY-12 and MRY-13, respectively), no monitoring requirements were identified in the license. To meet the spirit of the water license, it is proposed that MRY-12 and MRY-13 be monitored for the same parameters as MRY-8 and MRY-9

The water monitoring program summarized in Table 10.1 reflects corrections to these discrepancies.

SECTION 11.0 - WASTE MANAGEMENT

11.1 WASTE MANAGEMENT PLAN

Combustible non-hazardous solid waste will be incinerated in manufactured high efficiency diesel-fired incinerator at both Mary River and Milne Inlet. The incinerators have double burners and will burn circulated exhaust.

Disposal of non-hazardous bulky inert wastes, such as steel, plastics and rubber, will be disposed of in the inert landfill. Empty drums will be shipped back to the vendor; damaged ones will be crushed and landfilled. Disposal of hazardous wastes, including waste oil, is discussed in Sub-section 11.2.

The inert landfill will be constructed, once approved by the Nunavut Water Board, and used for disposal of non-combustible, non-hazardous, bulky waste with little to no salvage value. The landfill is considered "inert" because no biodegradable or hazardous wastes are placed in the landfill – only steel, plastics, glass and rubber that has been cleaned of either oily residues or food wastes – so that the wastes do not attract animals and do not generate meaningful volumes of leachate. Ash residue from the incinerators will be placed in the landfill. Existing bulky wastes from the 1960s as well as equipment and materials associated with recent project activities, will be inspected for any hazardous contents and will also be placed into the new landfill.

11.2 HAZARDOUS WASTE MANAGEMENT

Hazardous wastes associated with the project include oils, greases, antifreeze, lead acid batteries, and cleaners. Waste materials (used oil, antifreeze) will be collected in suitable containers, labelled as waste, and stored within lined containment areas until removed from site at the end of the program.

11.3 WASTE MONITORING

Waste monitoring will include visual inspection of three main components of the waste management system (described below) and the measurement and recording of all wastes taken off site. Part I, Item 16 of the water license requires the following to be reported on a monthly basis:

- The quantities in cubic meters of domestic waste, sewage and hazardous waste hauled off-site for disposal
- The location and name of the disposal facility for each waste type
- The date that each was hauled off-site for disposal, for each occasion that these are removed from the site

Prior to construction of the on-site landfill, some non-hazardous solid wastes may be transported to Pond Inlet for disposal in the Hamlet of Pond Inlet landfill, or alternatively waste may be backhauled to Iqaluit for disposal. This waste is to be recorded using the Waste Disposal Log included in Appendix A.

Hazardous wastes must be manifested in accordance with the Transportation of Dangerous Goods Regulations. Copies of the manifests will be forwarded to the Environmental Superintendent for inclusion in the monthly report to the Nunavut Water Board.

Regular visual inspection of waste management facilities will be conducted by the Environmental Superintendent, to ensure proper operation and adequate environmental controls are in place.

Monitoring of the incinerator operation involves ensuring proper operation and that appropriate wastes are incinerated.

Monitoring of the inert landfill involves visual inspections to ensure that only inert wastes are deposited in the landfill, and that adequate cover is provided so that wastes are contained and are not being dispersed by the wind.

Hazardous materials storage areas will be inspected on a regular basis to ensure:

- Proper storage (including proper labelling) and containment
- Evidence of accidental releases, or ongoing leaks, drips or other indications of loss
- Identification of cracks, corrosion, or damage to tanks, protective equipment, or floors
- Conducting periodic inspections of waste storage areas and documenting the findings
- Preparing and implementing spill response and emergency plans, if required

A Waste Disposal Facility Inspection Form is included in Appendix A. This form is to be used by the Environmental Superintendent to inspect these facilities on a regular basis.

SECTION 12.0 - OPERATIONS MONITORING

12.1 DRILLING

A Drill Site Inspection Form is included in Appendix A that allows for the periodic inspection of drill sites for compliance with the approvals issued by Baffinland, incorporated into the Environmental Protection Plan.

12.2 FUEL STORAGE

A Fuel Storage Facility Inspection Form is included in Appendix A that allows for the inspection of the major elements of fuel storage facilities, to ensure integrity of the physical facilities and that fuel transfers are always supervised.

12.3 ENVIRONMENTAL ISSUE IDENTIFICATION

Any personnel acting on behalf of Baffinland may issue an Environmental Issue Report (EIR) in response to poor or inappropriate work methods, equipment selection, maintenance of controls, or in relation to a non-compliance with the EPP or other contractual documentation. An EIR will be issued for deficiencies that are minor in nature however require some form of rectification or preventative system implementation whether immediate or not. Repetitive occurrences of minor deficiencies may be escalated into being issued as a non-conformance. An Environmental Issue Reporting Form is included in Appendix A.

SECTION 13.0 - SOCIO-ECONOMIC COMPONENTS

13.1 ARCHAEOLOGICAL RESOURCES

Archaeologists retained for the Project will be on site conducting detailed surveys at various areas, and will be available for consultation if the location of proposed project facilities deviates from the original plans.

Compliance with the provisions of the Territorial Land Use Regulations and the *Territorial Lands Act* will be enforced as part of the CEMP. Known or suspected archaeological features will be avoided by applying a 30 m buffer, and work will be stopped if archaeological resources are identified.

An operational standard providing guidance to site personnel to ensure that archaeological resources are not impacted during site operations is provided in the companion Environmental Protection Plan.

13.2 EMPLOYMENT AND TRAINING

The current Project will be an opportunity to collect and organize information on employment, such as an inventory of skills and abilities, and the duration of employment of the workforce (i.e., short term versus for the duration of the program). This information will assist Baffinland and its consultants in understanding the "workforce ecology" of the participating communities in the region, provide a basis employee database, and enhance human resource strategies for a future full-scale mining operation. Records of successful completion of training will also be retained.

SECTION 14.0 - DATA MANAGEMENT AND REPORTING

14.1 DOCUMENTATION AND DATA CONTROL

The Environmental Superintendent will coordinate preparation, review and distribution, as appropriate, of environmental documents and reports. During construction, environmental documents will be stored at the main camp office and can be accessed on request. Non-compliance related monitoring, such as scheduled wildlife surveys, ore and waste rock geochemistry monitoring, etc., conducted by Knight Piésold environmental team will be maintained by Knight Piésold and reported to the Environmental Superintendent.

All formalized documents and reports will follow data control procedures, with revision numbers and revision tracking. Documents and data that are to be issued and liable to change will be controlled to ensure that they are approved before issue and that the current issue or revision is known to and available to those requiring them.

14.2 REPORTING

14.2.1 Weekly Reporting

Weekly reports are prepared summarizing the results of the weekly water quality monitoring up and downstream of exploration drilling on the deposits. These reports are prepared by Knight Piésold and are provided to the Environmental Superintendent. The weekly report contains the following:

- A comparison of the sampling results to the Canadian Council of Ministers for the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life
- A summary of any notes and observations made during the monitoring program

The weekly report will be circulated to the appropriate supervisory staff of Baffinland, the drilling contractor and Knight Piésold. It will be available through Baffinland site management to the Water Resource Inspector and other responsible authorities upon request. Any issues of non-compliance with regulatory permits or project related exceedances of CCME guidelines will be reported by the Environmental Superintendent upon identification to the Water Resource Inspector and other regulatory authorities as may be appropriate.

14.2.2 Monthly Reporting

The water license requires reporting on a monthly basis, for the preceding month by the end of the following month (i.e., the August monthly report is due by September 30). Table 10.1 outlines the reporting requirements. Not all monitoring is to be reported as per the water license; some components of the monitoring program are for Baffinland's information only.

14.2.3 Annual Reporting

There are five instruments requiring reporting on an annual basis. The first two are the NIRB Screening Decisions for the Exploration and Geotechnical Drilling, and the Bulk Sampling Program, respectively. The contents of the annual report are summarized below.

NIRB Screening Decision dated March 26, 2007 for the Exploration and Geotechnical Drilling Program - Project-specific Terms and Condition #4

The Proponent shall submit an annual report with copies provided to the NIRB, INAC, the QIA, and EC by January 31 each year that the project is in operation commencing January 31, 2008. The report must contain, but not be limited to, the following information:
a. A summary of activities undertaken for the year, including the amount of drilling;
b. A work plan for the following year;
c. The results of environmental studies undertaken and plans for future studies;
d. Wildlife encounters and actions/mitigation taken;
e. A summary of local hires and initiatives;
f. A summary of community consultations undertaken and the results;
g. A summary of site-visits by inspectors with results and follow-up actions;
h. The number of take-offs & landings from an airstrip with approved flight path with date and location;
i. The number of helicopter touch-downs on the land with date and location (provide unless confidential);
j. Site photos;
k. Progressive reclamation work undertaken; and
l. A summary of how the Proponent has complied with NIRB conditions contained within this Screening Decision, and the conditions associated with all authorizations for the project proposal.

NIRB Screening Decision dated May 4, 2007 for the Bulk Sampling Program - Project-specific Terms and Condition #5

The Proponent shall submit an annual report with copies provided to the NIRB, INAC, the QIA, Environment Canada and Government of Nunavut by January 31 each year that the project is in operation commencing January 31, 2008. The report must contain, but not be limited to, the following information:

a. A summary of activities undertaken for the year, including any progressive reclamation work undertaken, and a work plan for the following year –site photos should be provided where relevant;
b. A summary of how the Proponent has complied with NIRB conditions contained within this Screening Decision.

c. A summary of the results from the Monitoring Program and the Construction Environmental Management Plan, including:

i. An analysis of the impact of the project upon the bio-physical and socioeconomic environments, including the cumulative impacts from other activities within the project area;

ii. An analysis of the effectiveness of mitigation measures;

iii. The identification of any unanticipated environmental impacts (if any) and any follow-up required (if relevant);

iv. Compliance status with applicable regulations and all authorizations associated with the project activities, including any exceedences of CCME-FWAL criteria (as reported to Environment Canada, the Nunavut Water Board, and the Department of Fisheries and Oceans Canada)

v. Any necessary adaptive mitigation strategies employed

vi. Any modifications made to the Monitoring Program

vii. Results of community member involvement in the Monitoring Program; and

viii. Description of the progress made on the development of component-specific thresholds used to determine the necessity for adaptive mitigation and management strategies.

d. A summary of community consultations undertaken and the results; and

e. A summary of site-visits by inspectors with results and follow-up actions.

Water License Annual Report
Part B, Item 5

The Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31st of the year following the calendar year being reported which shall contain the following information:

i. the monthly and annual quantities in cubic metres of all freshwater obtained from Camp Lake at Monitoring Station MRY-1, Phillips Creek at Monitoring Station MRY-2 and km99 Lake at Monitoring Station MRY-3;

ii. the monthly and annual quantities in cubic metres of all freshwater obtained for the purposes of drilling and other associated uses;

iii. the monthly and annual quantities in cubic meters of treated Sewage effluent discharged at Monitoring Station MRY-4, Mary River Camp WWTF and at Monitoring Station MRY-5, Milne Inlet Camp WWTF along with any waters discharged from the respective PWSP's;

iv. the monthly and annual quantities in cubic metres of Sludge removed from the Waste Water Treatment Facilities at Mary River Camp and Milne Inlet Camp and details on the storage and/or disposal;

v. A summary, including photographic records before, during and after construction activities; any modifications and/or major maintenance work carried out on the Water Supply and the Wastewater Treatment Facilities, including all associated structures, and an outline of any work anticipated for the next year;

vi. The geochemical analysis of drill cores as per Part F, Item 3;

vii. Detailed discussion on the performance, installation, and evaluation, including the use of photographic record, of the primary and secondary containment functions used in fuel storage to safeguard impacts to freshwaters;
viii. A list of unauthorized discharges and a summary of follow-up actions taken;
ix. A brief description of follow-up action taken to address concerns presented within inspection and compliance reports prepared by the Inspector;
x. Updates in the form of an addendum or revisions to the Abandonment and Restoration Plan, Emergency Spill Response Plan, Waste Rock and Ore Storage Plan, QA/QC, Landfill Operations and Maintenance Plan, and Landfarm Plan
xi. A description of all progressive and or final reclamation work undertaken, including drill sites, presented with photographic records of site conditions before, during and after completion of operations;
xii. An updated estimate of the current restoration liability required under Part B, Item 2, based upon the results of restoration research, project development monitoring, and any changes or modifications to the Project;
xiii. Tabular summaries of all data generated under the Monitoring Program, Part I;
xiv. A summary of public consultation/participation, describing consultation with local organizations and residents of the nearby communities, if any were conducted;
xv. A summary of any specific studies or reports requested by the Board, and a brief description of any future studies planned or proposed; and
xvi. Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

The requirements of the NIRB annual reports will be met with submission of a single report.

The **DFO authorization (NU-06-0084)** stipulates that *a written report summarizing the above monitoring results shall be submitted to the Iqualuit, NU office of the Department of Fisheries and Oceans - Fish Habitat Management, Eastern Arctic Area on, or before, December 31 of each year, according to the schedule in section 5.2.*

The **QIA Land Use License (No. Q05L2C14)** stipulates that:

11. The Permittee/Licensee shall report all spills immediately in accordance with instructions contained in "Spill Report, NWT 1086(10/79)". The Telephone number for the 24-hour spill line is (867) 920-8130.

21. The Permittee/Licensee shall report any MAN-BEAR interactions to the nearest Wildlife Officer, or contact (867) 975-5908.

31. All archaeological sites and burial grounds are to be avoided. Should such a site be encountered, it is to be flagged, reported to the Qikiqtani Inuit Association and protected from disturbance.

SECTION 15.0 - REFERENCES

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SECTION 16.0 - CERTIFICATION

This report was prepared, reviewed and approved by the undersigned.

Prepared by: FOR _____
Richard Cook, B.Sc.
Senior Scientist

Prepared by: FOR _____
Richard Akoto, M.Sc.
Project Engineer

Reviewed by: _____
Steve Aiken, P.Eng.
Manager Environmental Services

Approved by: FOR _____
Ken D. Embree, P.Eng.
Managing Director

Knight Piésold CONSULTING

TABLE 2.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

LIST OF COMMITMENTS AND PERMIT REQUIREMENTS

ITEM	DELIVERABLE	STATUS	PHASE
NIRB Screening Decision - NIRB Recommendations and Recommended Conditions			
1. Indian and Northern Affairs Canada (INAC) impose similar mitigation measures and/or conditions pursuant to the Federal Land Use Permit to those which were imposed upon Baffinland Iron Mines Corporation (the Proponent) on June 29, 2004, in regard to: a. Location and Area; b. Time c. Equipment d. Methods and Techniques e. Type, Location, Capacity and Operation of Facilities f. Control or Prevention of Flooding, Erosion and Subsidence of Land g. Use, Storage, Handling and Disposal of Chemical or Toxic Material h. Wildlife and Fisheries Habitat i. Objects and Places of Recreational, Scenic and Ecological Value j. Petroleum Fuel Storage k. Matters Not Consistent with the Regulations	INAC Land Use Permit N2006C0036)	Completed by INAC	D
2. The Qikiqtani Inuit Association (QIA) impose mitigation measures and/or conditions pursuant to the Inuit Owned Lands License upon the Proponent in regard to: a. General Standards b. Fuel and Chemical Storage c. Drilling d. Campsites e. Fisheries f. Ground Disturbance g. Other General h. Any other conditions recommended by the appropriate Community Lands and Resource Committee	QIA Land Use License Q05L2C14	Completed by QIA	D
3. The QIA require the Proponent to follow the QIA Code of Conduct for Land Users.	QIA Land Use License Q05L2C14	Completed by QIA	D
NIRB Recommended Project-Specific Terms and Conditions			
1. Baffinland Iron Mines Corporation (the Proponent) shall maintain a copy of this Screening Decision at the site of operation at all times.		Compliant	D/ BS
2. The Proponent shall forward copies to NIRB of all permits obtained and required for this project prior to the commencement of the project.	Letter to NIRB dated June 8, 2007	Complete	D/ BS
3. The Proponent shall operate in accordance with commitments stated in Appendix A and all documentation provided to NIRB, INAC, the QIA and the Nunavut NWB. Where information in the documentation conflicts with Appendix A, Appendix A shall prevail.	None	Ongoing	D
4. The Proponent shall submit an annual report with copies provided to the NIRB, INAC, the QIA, and EC by January 31 each year that the project is in operation commencing January 31, 2008.The report must contain, but not be limited to, the following information: a. A summary of activities undertaken for the year, including the amount of drilling; b. A work plan for the following year; c. The results of environmental studies undertaken and plans for future studies; d. Wildlife encounters and actions/mitigation taken; e. A summary of local hires and initiatives; f. A summary of community consultations undertaken and the results; g. A summary of site-visits by inspectors with results and follow-up actions ; h. The number of take-offs & landings from an airstrip with approved flight path with date and location; i. The number of helicopter touch-downs on the land with date and location (provide unless confidential); j. Site photos; k. Progressive reclamation work undertaken; and l. A summary of how the Proponent has complied with NIRB conditions contained within this Screening Decision, and the conditions associated with all authorizations for the project proposal	Annual Report	Due 2008	D
5. Immediately upon clarification regarding the commitment of the Proponent to participate in a Government of Nunavut Department of Environment (GN-DOE) caribou collaring initiative with the GN-DOE, the Proponent shall submit to NIRB relevant documentation providing evidence of the commitments of the Proponent and the GN-DOE in this regard.	Memorandum of Understanding	Pending	D
6. On or before May 31, 2007, the Proponent shall submit to NIRB, the NWB, the QIA and the Department of Fisheries and Oceans Canada (DFO) a report describing all possible locations where water-taking may result in a water body being drawn down. This report must include: a. Effects analysis of water draw-down in these locations; b. Proposed mitigation/abatement measures for potential adverse effects; and c. Monitoring and follow-up strategies regarding water draw down effects.	Site Water Management Plan (Knight Piésold Ref. No. NB102-00181/7-3, Rev.0, May 17, 2007)	Complete	D
7. On or before May 31, 2007, the Proponent shall submit to NIRB, Environment Canada (EC), the QIA and the NWB a comprehensive Water Quality Monitoring and Management Program. ThisWater Quality Monitoring and Management Program may include the elements of the *Site Water Management Plan* (dated February 20, 2007 – to be submitted to the NWB ninety (90) days following the issuance of the water license) and any monitoring requirements included in the NWB water license and must also include: a. Details of the weekly monitoring program, such as monitoring locations, frequency of sampling, and parameters monitored; b. Guidelines used in the monitoring program, such as Canadian Council of Ministers for the Environment guidelines for the protection of freshwater aquatic life (CCME-FWAL),and any site-specific criteria established by the NWB; c. Operational procedures intended to mitigate the potential adverse effects to water quality, including those from drill wastes; d. Anticipated adaptive management strategies to deal with adverse impacts identified from the 2007 and 2008 monitoring program, including: i. Description of alternative methods of containment for waste deposition which may be considered by the ii. Criteria the Proponent will use when considering the requirement for adaptive management. e. The requirement to report any exceedences of CCME-FWAL to Environment Canada, NWB, and DFO	Site Water Management Plan (Knight Piésold Ref. No. NB102-00181/7-3, Rev.0, May 17, 2007)	Complete	D
8. The Proponent shall ensure that the Wastewater Treatment Plan Design and Operations/Maintenance (O/M) Report to be submitted to the NWB for approval, must address design criteria such as: a. Identification of control parameters (COD/BOD5, TSS, heavy metals); b. Corresponding discharge limits; c. Emergency/O&M failure measures; d. Identification of the water bodies where effluent will be discharged; and e. Potential impacts to aquatic life from effluent discharge.	Sewage Works Design Report BH Martin Consultants (BHM # 06-090, May 2007)	Complete	D
9. The Proponent shall consult Transport Canada's Canadian Aviation Regulations to ensure compliance where appropriate.	Aeronautical Obstruction Clearance Form Land Use Proposal Submission Form	Complete	D
10. Prior to any ground disturbance activities, the Proponent shall submit an Archaeological Assessment Report to NIRB and the Government of Nunavut Department of Culture, Language, Elders and Youth (GN-CLEY). Any subsequent direction provided by the GN-CLEY the Archaeological Plan must be forwarded to NIRB.	Archaeology Assessment Report (Knight Piésold Ref. No. NB07-00348, dated April 30, 2007)	Complete	D
11. The Proponent shall adhere to conditions stated in attached Appendix B *Archaeological and Palaeontological Resources – Terms and Conditions for Land Use Permit Holders.*		On-going	D / BS
12. On or before May 31, 2007, the Proponent shall submit a report describing all ongoing baseline research activities to NIRB, GN-DOE and the QIA, which must include: a. Summary of the activities in the 2007 Environmental Baseline Program; and b. Protocols to be followed by researchers to reduce unnecessary impacts to the environment from research activities.	Summary Report on Baseline Activities (Knight Piésold Ref. No. NB07-00484, dated June 8, 2007)	Complete	D

TABLE 2.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

LIST OF COMMITMENTS AND PERMIT REQUIREMENTS

ITEM	DELIVERABLE	STATUS	PHASE
13. On or before May 31, 2007, the Proponent shall submit a Wildlife Mitigation and Monitoring Plan to NIRB, the GN-DOE, and the QIA, which must include: a. All relevant baseline terrestrial data collected by the Proponent from previous baseline research activities; b. Predicted impacts to wildlife from project activities (wildlife assessment report); c. Proposed site-specific measures to reduce anticipated adverse impacts to wildlife, including adaptive management measures and all relevant Proponent commitments in Appendix A; d. Proposed measures for wildlife monitoring; and e. Incorporation, where possible, of data collected by the Pisikik Inuit Qaujimajatuqangit Working Group into the wildlife assessment report, measures to reduce adverse impacts to wildlife and proposed measures for wildlife monitoring. Any subsequent direction provided by the Government of Nunavut regarding the Wildlife Mitigation and Monitoring Plan must be forwarded to NIRB.	Wildlife Monitoring and Mitigation Plan (Knight Piésold Ref. No. NB102-00181/7, Rev.0, dated 8-June-2007)	Complete	D
14. The Proponent shall submit its updated Spill Contingency Plan and Abandonment and Restoration Plan to NIRB, INAC, QIA and the NWB immediately.	Spill Contingency Plan - Revised May 2007 Abandonment and Restoration Plan (Knight Piésold Ref. No. NB102-00181/4-2, Rev.1, dated 12-April-2007)	Complete	D
15. The Proponent shall ensure that the disposal of combustible camp wastes comply with the *Canadian Wide Standards for Dioxins and Furans* , and the *Canadian Wide Standards for Mercury* . Efforts made to achieve compliance shall be reported to the NIRB as part of the annual report.	Annual Report	Ongoing	D
16. The Proponent shall not conduct any activity associated with the land use operation if critical periods of wildlife cycles are observed (e.g. caribou migration, calving, fish spawning, raptor nesting, polar bear movement).		Ongoing	D
NIRB Screening Decision - Appendix A Proponent Commitments			
1. Submission of an Archaeological Assessment Report to Government of Nunavut Department of Culture, Language, Elders and Youth	Archaeology Assessment Report (Knight Piésold Ref. No. NB07-00348, 30-Apri-2007)	Complete	D
2. Continue collecting and compiling wildlife baseline data, and identify critical habitat and avoid impacts based on current knowledge		Ongoing	D
3. Support a Government of Nunavut initiated caribou collaring program and a peregrine falcon research project, in addition to Baffinland's baseline studies		Ongoing	D
4. Conduct a wildlife assessment report for submission to DOE for mid-April 2007	Wildlife Assessment (Knight Piésold Ref. No. NB07-00412, 5-May-2007)	Complete	D
5. Comply with caribou protection measures		Ongoing	D
6. Contact local HTO and Wildlife Officer in the event of a defense polar bear kill.		Ongoing	D
7. Initiate discussions with the Mittimatalik Hunters and Trappers Organization and Igloolik Hunters and Trappers Association regarding compensation for any future defense kills of polar bear		Pending	D
8. Undertake the following with respect to air traffic: a. Minimize the number of flights b. Implement a 610 m flight altitude minimum and 1,000 m flight altitude minimum near concentrations of birds with exceptions where required; c. Avoid caribou calving grounds between May 15 and July 15. After July 15, post-calving areas known to have aggregations of caribou will be avoided d. Avoid a large concentration of wildlife, (i.e., Migratory Bird Sanctuaries, breeding colonies and caribou calving grounds), and take alternate routes e. Plan routes that are likely to have least occurrences of wildlife f. Use small aircraft rather than large aircraft whenever possible g. Hovering or circling may greatly increase disturbances and must be avoided h. Use fixed-wing aircraft rather than helicopters whenever possible i. Inform pilots of the wildlife sensitive areas j. Pilots to report caribou movements and locations during calving and post-calving periods, so that these areas can be avoided		Ongoing	D
9. Seek NWB approval prior to drilling within 30m of a water body		Ongoing	D
10. Management plan of drill wastes to be submitted to the NWB for approval	Site Water Management Plan (Knight Piésold Ref. No. NB102-00181/7-3, Rev.0, May 17, 2007)	Complete	D
11. Return drill cuttings at surface to the drill hole, at all land-based drilling locations		Ongoing	D
12. Drilling through sea ice at potential port locations will be undertaken using drums, or equivalent, to collect and re-circulate all drill water and no drill water will be released from the casing into the water		Ongoing	D
13. Drill additives will not be used during on-ice drilling, and final disposal of drill water will be within a snow berm on land more than 30m from a water body		Ongoing	D
14. Improve drilling practices through use of in-ground sumps and/or alternative methods of containment will be identified and employed		Ongoing	D
15. Installation of a new incinerator to replace current incinerator at Mary River site and completion of stack test in early season to determine compliance with the *Canada-wide Standards for Dioxins and Furans*	Incineration Installation and Stack Test	Installation complete; stack test pending	D
16. Discussions with Government of Nunavut Department of Environment regarding waste oil disposal options		Completed	D
17. Compliance with Nunavut requirements as outlined in the *Environmental Guideline for the General Management of Hazardous Waste*		Ongoing	D
18. Filing of updated Spill Contingency Plan with the Nunavut Water Board	Spill Contingency Plan - Revised May 2007	Complete	D
19. Filing of updated Abandonment and Restoration Plan with the Nunavut Water Board	Abandonment and Restoration Plan (Knight Piésold Ref. No. NB102-00181/4-2, Rev.1, dated 12-April-2007)	Complete	D
20. Review of bird survey methodologies and study findings with Canadian Wildlife Service		Complete	D
21. Develop and expand site orientation program	Site Orientation	Initial orientation complete; operational statements under development	D
22. Establishment of an on-going bird monitoring program consistent with precautions outlined by Government of Nunavut Department of Environment		Ongoing	D
23. On-going monitoring of polar bears with appropriate plans implemented as needed		Ongoing	D
24. Continuation of weekly water quality monitoring program		Ongoing	D
25. Seek approval from NWB regarding sewage treatment plant and enlargement of sumps, if required	Sewage Works Design Report BH Martin Consultants (BHM # 06-090, May 2007)	Application submitted; approval pending	D
QIA Inuit Land Use License			
General Standards			
1. The Permittee/Licensee shall not conduct this land use operation on any lands not designated in the permit/license, unless otherwise authorized in writing by the Qikiqtani Inuit Association.		Ongoing	D
2. The Permittee/Licensee shall contact the Qikiqtani Inuit Association at least 48 hours prior to commencement of any land use activity.		Ongoing	D
3. The Permittee/Licensee shall not use any equipment except of the type, size and number, and shall conduct operations with the crew and methods, that are listed in the accepted application for the permit/license.		Compliant	D
4. The Permittee/Licensee shall locate all camps on gravel, sand or other durable land.		Ongoing	D
5. The Permittee/Licensee shall burn all combustible garbage and debris in a suitable container daily.		Ongoing	D
6. The Permittee/Licensee shall keep all combustible garbage and debris in a covered metal container until disposed of.		Ongoing	D
Fuel and Chemical Storage			
8. The Permittee/Licensee shall not place any petroleum storage containers within twelve (12) metres of the normal high water mark of any water body.		Ongoing	D
9. The Permittee/Licensee shall not allow any petroleum or chemical products to spread to surrounding lands or into water bodies.		Ongoing	D
10. All petroleum containers shall be marked with the Permittee's/Licensee's name.		Compliant	D
11. The Permittee/Licensee shall report all spills immediately in accordance with instructions contained in "Spill Report, NWT 1086(10/79)". The telephone number for the 24-hour spill line is (867) 920-8130.		Ongoing	D
12. The Permittee/Licensee shall dispose of all combustible waste products by incineration or removal.		Ongoing	D
Drilling			
13. All drill fluids must be disposed of into a properly constructed sump, or a naturally occurring, contained depression, and drill fluids should be recycled wherever possible.		Ongoing	D
14. Drill sumps may not be located within 30 metres of any water body unless otherwise authorized by the Qikiqtani Inuit Association.		Ongoing	D

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15. All constructed drill sumps must be restored to the natural surrounding contours of the land, prior to the expiry of this license.		Ongoing	D
16. Disturbance of vegetation from deposit of drill fluids/cuttings shall be restricted to the area of the sump, and the ground prepared for revegetation upon abandonment.		Ongoing	D
Campsites		Ongoing	
17. All sewage shall be deposited into a sump, or removed from the site.		Ongoing	D
18. All non-combustible garbage and debris shall be removed from the site to disposal location approved by the Qikiqtani Inuit Association.		On-going	D
19. The Permittee/Licensee shall not bury any metals wastes.		Ongoing	D
20. The Permittee/Licensee shall keep the campsite clean of garbage and debris at all times.		Ongoing	D
21. The Permittee/Licensee shall report any MAN-BEAR interactions to the nearest Wildlife Officer, or contact (867) 975-5908.		Ongoing	D
Fisheries			
22. The Permittee/Licensee shall not deposit any deleterious substance into any water body.		Ongoing	D
23. The Permittee/Licensee shall not cause any obstruction of any stream.		Ongoing	D
24. Winter stream crossings shall be removed prior to the expiry of this Permit/License, or break-up whichever occurs first.		Ongoing	D
Ground Disturbance			
25. All operations shall be carried out so as to minimize surface disturbance.		Ongoing	D
26. All disturbed areas must be restored in a manner acceptable to the Qikiqtani Inuit Association.		Ongoing	D
27. The Permittee/Licensee shall not use surface vehicles to move drill rigs or other equipment or supplies, without the prior authorization of the Qikiqtani Inuit Association. The use of any vehicles off approved routes is prohibited.		Ongoing	D
Other General			
28. The Permittee/Licensee shall display this Permit/License and conditions in a conspicuous place in each campsite established to carry out this land use operation.		Ongoing	D
29. The Permittee/Licensee shall give to the Qikiqtani Inuit Association a final plan within 60 days of the expiry of this permit/license, showing all lands occupied and used during this land use operation.		Ongoing	D
30. At the completion of this land use operation or termination of the Permit/License whichever is the earlier, the Permittee/Licensee shall remove all equipment and materials unless otherwise authorized by the Qikiqtani Inuit Association.		Ongoing	D
31. All archaeological sites and burial grounds are to be avoided. Should such a site be encountered, it is to be flagged, reported to the Qikiqtani Inuit Association and protected from disturbance.		Ongoing	D
Code of Conduct for Land Users			
1. The landscape of each camp and other land use sites will be restored to its original condition to the greatest degree possible. Water quality will be preserved and no substances that will impair water quality will be dumped in water bodies. When possible, and feasible, old sites will be restored to the natural state.		Ongoing	D
2. All land users shall assist communities and government(s) in identifying and protecting archaeological sites and carving stone sites.		Ongoing	D
3. As a general rule, low-level flights by private aircraft at less than 300 metres should not occur where they will disturb wildlife or people. Where possible scheduled low-level flights will only take place after consultation with the appropriate communities. All land users are responsible for reporting to the appropriate authorities any illegal or questionable low level flight.		Ongoing	D
4. All activities on the land will be conducted in such a fashion that the renewable resources of the area in question are conserved.		Ongoing	D
5. Whenever practicable, and consistent with sound procurement management, non-resident land users will follow the practice of local purchase of supplies and services.		Ongoing	D
6. Non-resident land users will establish working relationships with local communities and respect their traditional use of the land.		Ongoing	D
7. During the caribou calving, post-calving, and migrating season, land use activities should be restricted to avoid disturbing caribou, in general, and more specifically will be governed by caribou protection measures.		Ongoing	D
8. Artifacts must be left where they are found. All land users are responsible for reporting to the appropriate authorities the location of, or any removal or disturbance of artifacts.		Ongoing	D
NIRB Screening Decision - Bulk Sampling Program			
Recommended Terms and Conditions, pursuant to 12.4.4(a) of the NLCA			
1. Baffinland Iron Mines Corporation (the Proponent) shall otherwise operate in accordance with all commitments stated in all documentation provided to NIRB, namely:			BS
a. Correspondence dated April 20, 2007 from Derek Chubb to Carolanne Inglis-McQuay, including the table addressing Parties' concerns			BS
The bulk sample pits are designed to be self draining to remove the potential for snow and rain precipitation to accumulate, thereby further reducing the potential for acid generation and metal leaching by removing pit wall contact with standing water. (response to Hamlet of Pond Inlet PI-1, Table 1, pg 5)(response to QIA-1, Table 2, pg 14) (response to GN-3, Table 3, pg 27) (response to GN-10, Table 3, pg 33)(response to EC-2, Table 4, pg 46) (response to INAC-3, Table 7, pg 56)			BS
In the unlikely event that laboratory or field tests results suggest otherwise (ie. ore is likely to be acid generating or metal leaching to a significant level) , Baffinland will further mitigate this risk by implementing additional engineering contingency plans. Contingency plans would require incorporating calcareous materials (sandstone, sands and gravel with buffering capacity) into the design of the small weathered ore stockpiles and test pits developed to extract the bulk sample. The costing in the Abandonment and Restoration Plan (A&R Plan) will be updated to include contingency costs associated with these contingency plans, and the revised A&R Plan will be submitted to the Nunavut Water Board in the near future. Test results will be available in advance of the collection of the actual bulk sample. (response to Hamlet of Pond Inlet, Table 1, pg 5)(response to QIA-1, Table 2, pg 14)(response to GN-3, Table 3, pg 27) (response to GN-10, Table 3, pg 33)(response to EC-2, Table 4, pg 46) (response to INAC-3, Table 7, pg 56)			BS
Baffinland will upgrade the proposed sewage treatment plant at the Mary River camp to meet tertiary treatment levels by including nutrient removal in its design (response to Hamlet of Pond Inlet PI-1, Table 1, pg 6) (response to GN-4, Table 3, pg 28)(response to INAC-1, Table 7, pg 54)			BS
In addition, a polishing pond up gradient of Sheardown Lake is being considered as a discharge point for treated sewage from the seasonal exploration camp (subject to Nunavut Water Board approval under the exploration project water license). The polishing pond, which will be lined and located near to Sheardown Lake, would be available to receive sewage from the Rotating Biological Contractor (RBC) system as a contingency measure in the event of RBC malfunction. Discharge to a pond system would provide an opportunity for biological and physical treatment prior to discharge to Sheardown Lake. (response to Hamlet of Pond Inlet PI-1, Table 1, pg 6)(response to GN-4, Table 3, pg 28)(response to INAC-1, Table 7, pg 54)			BS
Nevertheless, snow sampling is proposed in the vicinity of the bulk sample pits, to detect any residual ammonia, as part of the monitoring program (ESD Section 8.6.4). (response to Hamlet of Pond Inlet PI-1, Table 1, pg 7)			BS
Baffinland has committed to modify minimum flight altitudes from 300 m as previously specified in land use permits to 610 m for project-related air traffic. Exceptions remain for wildlife surveys and the movement of drills by helicopters, which necessitate lower flight altitudes. This commitment will also be applied to the bulk sample program. (response to Hamlet of Pond Inlet PI-2, Table 1, pg 7)			BS
The Construction Environmental Monitoring Plan (CEMP) will establish operating policies and procedures to minimize the potential for human/wildlife interaction and disruption due to site activities. All employees will be encouraged as part of the CEMP to report any observed response of wildlife to site activities. (response to Hamlet of Pond Inlet PI-2, Table 1, pg 7)	CEMP		BS
The CEMP will include a Human-Polar Bear Conflict Management Plan. Polar bear safety training and general wildlife awareness training will be provided to all workers and visitors to site as part of the mandatory site orientation. (response to Hamlet of Pond Inlet PI-2, Table 1, pg 7)	Human-Bear Conflict Management Plan (CEMP)		BS
Independent of the bulk sample program, Baffinland is continuing with robust baseline studies designed to support a potential future full-scale mining application. Caribou is recognized as a species of critical importance to the community, and is a key focus in the baseline studies (response to Hamlet of Pond Inlet PI-2, Table 1, pg 8)			BS
Baffinland expects that community representatives will be involved in marine wildlife monitoring activities as with other baseline wildlife programs, and is prepared to arrange for community representatives to accompany one of the ships from Pond Inlet into Milne Inlet during the course of the program. (response to Hamlet of Pond Inlet PI-3, Table 1, pg 8)			BS
The bulk sampling program will have no ice breaking and no project activities in the vicinity of the floe edge. (response to Hamlet of Pond Inlet PI-3, Table 1, pg 8)			BS
Peregrine falcon nests have been identified throughout the area, and these nests are subject to ongoing monitoring as part of baseline studies. Site activities, including rock quarrying, have been designed to avoid these nests (Figures 2.27 to 2.29). (response to Hamlet of Pond Inlet PI-4, Table 1, pg 9)			BS

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Sea containers used in the development of temporary crossings of these water courses will be designed and engineered for that purpose. Designs will be approved by a professional engineer and made available at the direction of the Board. The water crossings will require approval and/or advice from the Department of Fisheries and Oceans to address potential risks to fish and fish habitat. (response to Hamlet of Pond Inlet PI-5, Table 1, pg 9)			BS
Efforts will be made to minimize disturbance to hunters and land users during the course of the program. Measures to minimize disturbance will be articulated in the Construction Environmental Monitoring Plan (CEMP), and will include community radio updates on project activities and a reporting checkpoint at Milne Inlet for hunters to notify the project of their intended travel routes inland so these areas can be avoided to the extent possible. (response to Hamlet of Pond Inlet PI-6, Table 1, pg 10)	CEMP		BS
Baffinland will continue to meet with community hunters and proposes to document observed hunting activities in the area over the course of the bulk sampling program. Baffinland will respond to any input provided by local hunters as it relates to site activities and its interaction with hunting activity. (response to Hamlet of Pond Inlet PI-7, Table 1, pg 10)			BS
Operational plans will be developed that further consider ways to minimize local disturbances (to Inuit harvesting activities).(response to Hamlet of Pond Inlet PI-7, Table 1, pg 10)	Operational Plans		BS
Baffinland has been and remains committed to maximizing local benefits to the community of Pond Inlet. Local expenditures (wages, goods and services) reached $2.5 million in 2006, and approximately 34 seasonal positions were filled by people of Pond Inlet. The bulk sample program will provide even more opportunities for local benefits. With an increased level of activity associated with the bulk sample program, Baffinland expects hiring to extend to other communities as well.(response to Hamlet of Pond Inlet PI-9, Table 1, pg 11)(response to QIA-16, Table 2, pg 22)			BS
additional socio-economic monitoring will be carried out during the course of the bulk sampling program to track training, experience and skills of workers. This data, respecting privacy requirements, can be provided to the Hamlet.(response to Hamlet of Pond Inlet PI-9, Table 1, pg 11)			BS
The same approach will be taken for tourism activities as it will be for hunting activities. Observed tourism activities will be documented and Baffinland will respond to any input provided by tourism operators and others. Baffinland will communicate with known stakeholders regarding shipping activities and schedules so that any concerns can be proactively addressed.(response to Hamlet of Pond Inlet PI-10, Table 1, pg 12)			BS
the project-related ship traffic is quite modest with 2 shipments planned in 2007 and 5 shipments in 2008 (response to Hamlet of Pond Inlet PI-10, Table 1, pg 12)			BS
The shipping traffic associated with Baffinland's bulk sampling program includes 2 ships in August 2007, and five ships spanning August-September 2008. (response to Hamlet of Pond Inlet PI-10, Table 1, pg 12)			BS
Mitigating measures are integrated into the design of the bulk sample program and adaptive management will be practiced in response to field results. Activities and interaction with the environment will be carefully managed through the implementation of a comprehensive CEMP to which was committed to in the ESD. The CEMP will address all phases of the Bulk Sample Program and include reporting mechanisms to the community and other stakeholders. Baffinland will continue its commitment to open communication and seek input from the community on a regular basis throughout the course of the project (response to Hamlet of Pond Inlet PI-11, Table 1, pg 12)	CEMP		BS
The ore will be coarsely crushed and then screened into two fractions; one -31.5+6.3mm in size and the second – 6.3mm or the size of small pebbles and through this process, very little fines are expected to be generated. As a result, dust is not anticipated to be generated in quantities that warrant suppression. This prediction will be validated through snow sampling downwind of the crusher as part of the monitoring program (Section 8.6.4). The crusher will operate for a very short period, in the order of 3-4 months. (response to QIA-2, Table 2, pg 15) (response to GN-7, Table 3, pg 30) (response to EC-4, Table 4, pg 47)			BS
The CEMP is an operational plan that will outline best management practices, environmental sensitivities, responsibilities, and action plans to address potential environmental effects. Baffinland will share a draft of the CEMP with the QIA and submit the plan to the QIA 30 days prior to the start of construction activities.(response to QIA-3, Table 2, pg 15)	CEMP	submit to QIA 30 days prior to start of construction activities	BS
The Qikiqtaaluk Corporation, as a contractor on the project, will be one of the companies responsible for the implementation of the CEMP. (response to QIA-3, Table 2, pg 16)	CEMP implementation		BS
There will be full-time presence of senior operations managers during the course of the bulk sampling program, to ensure the implementation of the CEMP. (response to QIA-3, Table 2, pg 16)	CEMP implementation		BS
The CEMP will include environmental best management practices, as indicated in the draft table of contents in Appendix I of the CEMP. (response to QIA-4, Table 2, pg 16)	CEMP		BS
Section 6.2.4.2 indicates that a Fish Habitat Mitigation, Compensation and Monitoring Plan will be developed to the satisfaction of the Department of Fisheries and Oceans (DFO), pending feedback from the regulatory process and completion of the detailed design for the road. This plan will articulate the ways that Baffinland will meet DFO's policy for the protection of fish and fish habitat (response to QIA-5, Table 2, pg 16)	Fish Habitat Mitigation, Compensation and Monitoring Plan		BS
Monitoring of narwhal responses to ship traffic is proposed as part of the bulk sampling program, and thus the bulk sampling program presents an opportunity to collect real response data that can be used in consideration for a potential future full-scale mining operation. (response to QIA-6, Table 2, pg 17)			BS
Baffinland is working with the Government of Nunavut and others in undertaking caribou surveys and is assembling habitat mapping to better understand caribou ecology and distribution in the Region. (response to QIA-7, Table 2, pg 17)			BS
The CEMP is under development and will address the interaction of the project/humans with wildlife that may be in the area. All employees will be encouraged as part of the CEMP to report any observed response of wildlife to site activities and activities will be responsive to any concerns that may arise. (response to QIA-7, Table 2, pg 17)	CEMP		BS
The removal of hazardous wastes to a licensed disposal facility will take place in 2008 as well as at final abandonment in 2009.(response to QIA-9, Table 2, pg 18)			BS
The landfill will receive only inert, non-combustible and non-hazardous wastes. Construction and closure of the landfill is described in Sections 2.19.1 and 2.19.2. Monitoring includes quality assurance during construction and closure of the landfill. Regular monitoring of the materials placed in the landfill, to ensure they are both non-combustible and nonhazardous, will be carried out according to an operational procedure to ensure that only inert wastes are placed in the landfill and that the waste is regularly covered to minimize the potential for debris to scatter.(response to QIA-9, Table 2, pg 18)			BS
Section 2.19 notes that incinerator ash will be placed into the landfill. This is bottom ash, which will be inert, and no fly ash will be generated given the technology to be used. (response to QIA-10, Table 2, pg 18)			BS
With respect to work around fish bearing waters, this work will be conducted in accordance with authorizations obtained under the Fisheries Act, and will include full-time supervision of in-water work by an environmental monitor. The environmental monitor may be Inuit, as Inuit have been involved in various aspects of the baseline studies.(response to QIA-10, Table 2, pg 18)			BS
Baffinland activities in the Mary River area will include the Bulk Sample Program along with ongoing exploration drilling and baseline environmental and geotechnical programs for which required approvals are currently in place. (response to QIA-11, Table 2, pg 19) (response to GN-9, Table 3, p32)(response to INAC-5,Tabe 7, pg 57)			BS
In 2007, environmental and geotechnical programs will be carried out at potential port sites at Milne and Steensby Inlets as well as potential transportation corridors between these locations and the main ore deposit. (response to QIA-11, Table 2, pg 19) (response to GN-9, Table 3, p32)(response to INAC-5,Tabe 7, pg 57)			BS
Measures are being undertaken in 2007 to improve drill water management practices associated with the geotechnical drilling program for 2007 that was approved through separate application. There is no diamond drilling associated with the bulk sample program and hence no use of drilling salt. (response to QIA-11, Table 2, pg 19)			BS
Baffinland retained a licensed archaeologist to conduct surveys in 2006, and this archaeologist (and other archaeologists) will be conducting further surveys in 2007. Baffinland intends to work with the QIA in 2007 to involve Inuit archaeology students in the surveys. (response to QIA-12, Table 2, pg 19)			BS
The Milne Inlet tote road will be abandoned in a condition that will be stable in the long-term. Sea container crossings will be removed as they are not designed for long-term use, and any culverts which are deemed not stable in the long term will also be removed (response to QIA-13, Table 2, pg 19)			BS
Contingency costs will be included in an updated A&R Plan (response to QIA-13, Table 2, pg 20)	Updated Abandonment and Restoration Plan		BS
The A&R Plan will be revised to reflect post-closure monitoring for a period of 5-years, with the option to cease monitoring earlier if conditions warrant (response to QIA-13, Table 2, pg 20)			BS
The A&R Plan remains a conceptual document for the purposes of the screening process. As an operational plan for execution, an updated A&R Plan will be submitted to the Nunavut Water Board for approval during the permitting phase (response to QIA-13, Table 2, pg 20)			BS
It is Baffinland's objective to execute it's A&R Plan upon completion of the program, and ensure that environmental liabilities do not remain. (response to QIA-14, Table 2, pg 20)			BS
The Qikiqtaaluk Corporation has been contracted as part of the bulk sample program and will provide manpower from the region as well as construction services. (response to QIA-16, Table 2, pg 22)			BS

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As one element of study, Baffinland has committed to provide both financial and in-kind support to the GN in the implementation of a caribou collaring program in the North Baffin Region. A draft Memorandum of Understanding has been developed and is currently being finalized. (response to GN-1, Table 3, pg 24)			BS
Baffinland has committed to adherence to the Caribou Protection Measures as required for conformance with the North Baffin Regional Land Use Plan (Section 6.2.2.2). (response to GN-1, Table 3, pg 24)			BS
On-site wildlife biologists as well as pilots will be monitoring caribou movements during the sensitive period set out in the Caribou Protection Measures of May 15 to July 15, and biologists will be responsible for assessing situations in which caribou are observed near to project activities. (response to GN-1, Table 3, pg 24)			BS
Additional mitigation (such as minimum flight altitudes, hunting restrictions and a traffic management plan) is outlined in Section 6.2.2.2 and will also be outlined in a Wildlife Monitoring and Mitigation Plan that will be used as an operational plan for the site. (response to GN-1, Table 3, pg 24)	Wildlife Monitoring and Mitigation Plan		BS
Responding to recommendations from the GN in the recent screening of the drilling program, Baffinland committed to a new minimum flight altitude of 610 m, rather than the previous 300 m specified in land use permit/licenses. (response to GN-1, Table 3, pg 24)			BS
As mentioned in Section 6.3.4.2, Baffinland is working with the shipping companies and regulators in the planning of a mock arctic fuel spill response training exercise in conjunction with the bulk sample program, which will provide added environmental protection in the unlikely instance of a fuel release. (response to GN-2, Table 3, pg 25)			BS
The 8 million litres (ML) of fuel to be shipped during the bulk sampling program will occur against the backdrop of annual fuel deliveries to 13 Baffin region communities in the order of 110 ML per year (AMEC, 2004). As outlined in Section 2.13, fuel delivery will be undertaken using an experienced arctic shipping company using conventional fuel transfer methods, in compliance with the Canada Shipping Act and Arctic Waters Pollution Prevention Act, and associated regulations and guidelines identified in Section 6.3.4.2. These regulations and guidelines require ships to have an Canadian Coast Guard approved Emergency Response Plan and must maintain an arrangement with a certified response organization such as the Eastern Canada Response Corporation. (response to GN-2, Table 3, pg 25)	Canadian Coast Guard approved Emergency Response Plan and agreement with a certified response organization		BS
The Milne Inlet camp will have a capacity of 30 persons, and the package sewage treatment plant will treat to secondary treatment levels (BOD=40 mg/L and TSS=60 mg/L). The NWT Water Board guidelines (1992) for sewage discharge to the marine environment in a bay or fiord is BOD=120 mg/L and TSS=180 mg/L. NWT Guidelines have been used in guiding the design basis for the treatment system in the absence of similar guidelines for Nunavut. (response to GN-4, Table 3, pg 28)(response to INAC-1, Table 7, pg 54)			BS
Baffinland accepts this recommendation (that an appropriate methodology for detecting exceedances of the approved water quality guideline be developed and submitted to NIRB during the environmental screening process). (response to GN-5, Table 3, pg 29)			BS
Future metals analyses will be forwarded to ALS Laboratories in Vancouver, as this laboratory can achieve the necessary detection limit. (response to GN-5, Table 3, pg 29)			BS
The risks associated with runoff from roads, borrow areas and airstrips relate to the potential for sediment to enter nearby fish-bearing watercourses, with the potential to harm aquatic organisms and reduce biological productivity. This is a minor and manageable risk when addressed using standard sediment control measures and construction mitigation methods (Section 6.1.5.2). The details will be articulated in the Construction Environmental Monitoring Plan (CEMP) and will be required to support applications for fisheries authorizations. (response to GN-6, Table 3, pg 29)	CEMP		BS
Baffinland will be using modern equipment designed to minimize emissions from combustion. (response to GN-7, Table 3, pg 30)			BS
Air and noise emissions will be localized and addressed through operational practices, in compliance with Northwest Territories and Nunavut Mine Health and Safety Act and Regulations which govern worker exposure to noise, dust and all other matters related to health and safety. Appropriate personal protective equipment (PPE) will also be provided for all workers. This legislation is enforced through the Workers' Compensation Board (WCB), and Mine Inspectors approve Baffinland's health and safety plans and engineering plans prior to the start of work programs. (response to GN-7, Table 3, pg 30) (response to GN-8, Table 3, pg 31) (response to HC-1, Table 6, pg 51)			BS
The incinerator will be of dual-chambered design intended to meet the Canada-wide Standards for Dioxins and Furans. The efficacy of this equipment will also limit the potential for the release of particulate matter. Confirmatory stack testing will be completed during the bulk sampling program. Air quality from crushing and mining activities is addressed in Section 6.1.1.1 (response to GN-7, Table 3, pg 30) (response to EC-1, Table 4, pg 47)			BS
With respect to proposed upgrades beginning in March, this would have involved the positioning of culverts and equipment at key locations prior to spring break-up, operating within the existing footprint of the road and airstrips. This schedule has now changed since the writing of the ESD, and the current schedule (subject to receiving a NIRB notice of decision and subsequent approvals) will involve positioning of culverts as early as May (operating within the existing road footprint) and beginning to develop borrow sources in early June, once clearance has been provided by the archaeologist. (response to GN-11, Table 3, pg 35)			BS
Baffinland management is continuing to work with government and stakeholders on the development of its human resources, training and employment programs in support of current and future plans. Our management team has seen the addition of a Director of Human Resources and a Business Development Manager located in Iqaluit. Community Liaison Officers are planned for other Baffin communities. Presentations will be delivered very shortly at the community level to discuss the activities of the Company and what to expect to work at Baffinland. Classroom and on the job training programs are being developed and will include such areas as workplace safety, orientation, heavy equipment operation, and cultural diversity. (response to GN-12, Table 3, pg 36)			BS
With respect to the number of additional employees required for the bulk sampling program who will be hired locally, Baffinland will be using the Qikiqtaaluk Corporation (QC) to provide manpower to the project and is encouraging other contractors to work with the QC to maximize local benefits. (response to GN-12, Table 3, pg 36)			BS
Efforts will be made to minimize disturbance to hunters and land users during the course of the program. Measures to minimize disturbance will be articulated in the CEMP, and will include community radio updates on project activities and a reporting checkpoint at Milne Inlet for hunters to notify the project of their intended travel routes inland so these areas can be avoided to the extent possible. Baffinland is committed to discussing the details of how this will be done with various stakeholders. (response to GN-13, Table 3, pg 37)	CEMP		BS
The road will therefore be upgraded at a time when the Mary River is of heightened importance to the community due to availability of caribou. (response to GN-13, Table 3, pg 37)			BS
Baffinland will construct fuel storage facilities to meet the appropriate codes. Baffinland will consider the many useful comments provided in an updated Emergency and Spill Response Plan. Recommendations	Updated Emergency and Spill Response Plan		BS
While the drilling program was noted in the ESD, separate permits have been issued for the drilling program and Baffinland will adhere to the terms and conditions of the permits and commitments made during the screening of the drilling program. Geotechnical and exploratory drilling requiring the use of water is not an element of the bulk sample program. (response to GN-15, Table 3, pg 39)			BS
Baffinland will seek approval from the department (GN_DOE) for the use of EK35. (response to GN-16, Table 3, pg 40)			BS
The incinerator to be used at the Mary River camp is dual chamber with controlled air flow. Baffinland proposes to conduct a stack test to verify compliance with the Canada-Wide Standards during a visit by its air and noise quality consultant for baseline monitoring work. The incinerator to be used at Milne Inlet is also dual chamber but with forced air flow. (response to GN-17, Table 3, pg 40)			BS
Baffinland will make efforts to reduce greenhouse gas emissions in the context of the short-term nature of the bulk sampling program through the efficient use of energy. As part of ongoing work related to the potential for a full-scale mining operation, Baffinland is collecting the information necessary to evaluate the viability of renewable energy options including wind and hydro. (response to GN-18, Table 3, pg 40)			BS
Baffinland will have full-time medical care at site in accordance with the Northwest Territories and Nunavut Mine Health and Safety Act and Regulations. The applicable regulations referenced by Health and Social Services regarding camp sanitation and water supply will be adhered to. The comment regarding separation of sleeping quarters and the kitchen has been taken under advisement. (response to GN-20, Table 3, pg 42)			BS
Baffinland remains committed to the basic principles of sustainable development, and creating both local employment and business opportunities. (response to GN-22, Table 3, pg 43)			BS
With respect to open stockpiling of ore, only the weathered ore stockpile will remain at the conclusion of the 15-month program; all other ore will have been removed from site. The weathered ore stockpile will consist of blasted weathered ore placed on the weathered ore of Deposit No. 1. Weathered oxide ore does not have the potential to generate any appreciable acid draining or metal leaching. (response to EC-2, Table 4, pg 46) (response to INAC-3, Table 7, pg 56)			BS
Drilling activities, while considered as a concurrent activity in the bulk sample proposal, has been evaluated in a separate screening and drilling operations will be subject to the terms and conditions of the permits issued for that activity. Diamond drilling is not an activity proposed as part of the bulk sample program. (response to EC-2, Table 4, pg 47)			BS

TABLE 2.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

LIST OF COMMITMENTS AND PERMIT REQUIREMENTS

ITEM	DELIVERABLE	STATUS	PHASE
Baffinland proposes to utilize an experienced arctic shipper of fuel, and to utilize common fuel unloading methods used by nearly every community in Nunavut. (response to EC-3, Table 4, pg 47)			BS
The QC is already working with Baffinland to advance the Spill Management Plan presented with the ESD and order the required spill response materials for the bulk sample program (response to EC-3, Table 4, pg 47)			BS
Drilling and blasting is an activity required as part of any open pit operation. Pit design and development will follow industry accepted practice to manage potential environmental, health and safety risks. (response to EC-5, Table 4, pg 48)			BS
Drilling and blasting activities for the bulk sample will take place in the winter over a 2-3 month period further reducing potential risks to the environment. (response to EC-5, Table 4, pg 48)			BS
The bulk sampling program has been designed to maximize use of the existing disturbed footprint, such that very little new habitat loss will occur. The program is 15-months in duration and all materials will be removed from site in accordance with an approved A&R Plan. (response to EC-6, Table 4, pg 48)			BS
The Construction Environmental Monitoring Plan and related Monitoring and Mitigation plans will be the tools Baffinland will use to ensure effective implementation, and the terms and conditions of environmental permits will ensure Baffinland complies with these commitments and conditions. The program is 15-months in duration and all materials will be removed from site in accordance with an approved A&R Plan. (response to EC-8, Table 4, pg 49)	CEMP		BS
We acknowledge that fisheries authorizations may be required for the above listed activities, and look forward to discussing the details with DFO as part of the licensing phase of the application process. (response to DFO-1, Table 5, pg 50)		Complete	BS
Baffinland is working on a comprehensive worker orientation and training program required for all contractors and employees that addresses personal protective equipment and all other requirements of the legislation that pertain personally to the worker. (response to HC-2. Table 6, pg 51)	Comprehensive Worker Orientation and Training Program	Complete; implementation ongoing	BS
Visitors to the Mary River or Milne Inlet sites will be required to sign in and acknowledge the health and safety risks of being within an operational site. Baffinland will comply with all requirements for water use and waste disposal as outlined in its approvals/licenses. (response to HC-3. Table 6, pg 52)		Ongoing	BS
Treated sewage effluent will be discharged into Milne Inlet, near to the camp but removed from Phillip's Creek (response to HC-3. Table 6, pg 52)			BS
Drinking water for the camp (and possibly for community uses) will be obtained from Philip's Creek, upstream of the effluent discharge point.(response to HC-3. Table 6, pg 53)			BS
Specific activities, such as ore crushing, stockpiling or ship loading, will each occur over the span of several months. With the exception of the weathered ore stockpile (which will be stockpiled on existing weathered ore on the deposit), all materials will be removed from site at the conclusion of the bulk sampling program. (response to HC-4. Table 6, pg 53)			BS
monitoring of fall-out from air emissions is proposed at the crushing, roadside and Milne Inlet ore stockpiling and loading operations, and site runoff will be monitored in the vicinity of the same areas, to monitor any deposition that occurs over the short time frame of the project, the potential loading that may occur over the long-term with a full-scale mining operation (response to HC-4. Table 6, pg 53)			BS
Aquatic monitoring of the receiving environment will be a component of the Construction Environmental Monitoring Plan (CEMP). (response to INAC-1, Table 7, pg 54)	CEMP		BS
Nevertheless, snow sampling is proposed in the vicinity of the bulk sample pits, to detect any residual ammonia, as part of the monitoring program (Section 8.6.4). (response to INAC-2, Table 7, pg 55)			BS
The proposed landfill will contain only inert wastes such as metals, plastics and rubber, and no food waste or other biodegradable or hazardous wastes. (response to INAC-4, Table 7, pg 57)			BS
Run-off water quality from the proposed will be monitored as a part of the bulk sample program. (response to INAC-4, Table 7, pg 57)			BS
no fishing will be permitted by workers on the project. (response to INAC-5, Table 7, pg 58)			BS
Baffinland will seek the requisite permit (explosives magazine license under the Explosives Use Act from the territorial government) as part of the licensing phase of this application. (response to NRCan-2, Table 8, pg 59)			BS
Notification will be made to local stakeholders regarding the ship schedule for the bulk sampling program (Section 6.4.2.2). (response to PC-2, Table 9, pg 60)			BS
The shipping traffic associated with Baffinland's bulk sampling program includes 2 ships in August 2007, and five ships spanning August- September 2008. (response to PC-3, Table 9, pg 60)			BS
Baffinland will comply with appropriate legislation (Aeronautics Act, The Canadian Aviation Regulations, CARS 301 and TC312) (response to TC-2, Table 10, pg 61)			BS
b. Memorandum dated April 20, 2007 entitled *Establishing Significance of Residual Impacts of the Bulk Sampling Program*	N/A		BS
c. Memorandum dated April 17, 2007 entitled *Calculation of Estimated Ammonia Runoff from Bulk Sample Pits*	N/A		BS
d. Correspondence dated March 16, 2007 from Knight Piesold to Rod Cooper regarding Preliminary Results of Phase 1 Geochemical Characterization Program	N/A		BS
e. Correspondence dated January 8, 2007 from Rod Cooper to Carolanne Inglis-McQuay	N/A		BS
f. Indian and Northern Affairs Application for Land Use Permit	N/A		BS
g. Indian and Northern Affiars Application for Quarrying Permit	N/A		BS
h. Qikiqtani Inuit Association Application for Access to Inuit Owned Land	N/A		BS
i. Baffinland Iron Mines Corporation Mary River Project, Bulk Sampling Program - Environmental Screening Document Volume I Report and Volume II Appendices (Knight Piesold Report NB102-00181/6-1, Rev. 0, dated November 20, 2007	N/A		BS
2. The proponent shall maintain a copy of the Screening Decision at the site of operation at all times.		Copies are onsite	D / BS
3. The proponent shall forward copies to NIRB of all authorizations obtained and required for this project prior to the commencement of the project.		Complete	D / BS
4. The proponent shall operate the project in accordance with all applicable Federal and Territorial Acts, Regulations and Guidelines.			BS
5. The proponent shall submit and annual report with copies provided to the NIRB, INAC, the QIA, Environment Canada and Government of Nunavut by January 31 each year that the project is in operation commencing January 31, 2008. The report must contain, but not be limited to, the following information:			BS
a. A summary of activities undertaken for the year, including any progressive reclamation work undertaken, and a work plan for the following year - site photos should be provided where relevant;			BS
b. A summary of how the Proponent has complied with NIRB conditions contained within this Screening Decision.			BS
c. A summary of the results from the Monitoring Program and the Construction Environmental Management Plan, including:			BS
i. An analysis of the impact of the project upon the bio-physical and socio-economic environments, including the cumulative impacts from other activities within the project area;			BS
ii. An alaysis of the effectiveness of mitigation measures;			BS
iii. The identification of any unanticipated environmental impacts (if any) and any follow-up required (if relevant);			BS
iv. Compliance status with applicable regulations and all authorizations associated with the project activities, including any exceedences of CCME-FWAL criteria (as reported to Environment Canada, the Nunavut Water Board, and the Department of Fisheries and Oceans Canada)			BS
v. Any necessary adaptive mitigation strategies employed			BS
vi. Any modifications made to the Monitoring Program;			BS
vii. Results of community member involvement in the Monitoring Program; and			BS
viii. Description of the progress made on the development of component-specific thresholds used to determine the necessity for adaptive mitigation and management strategies.			BS
d. A summary of community consultations undertaken and the results; and			BS
e. A summary of site visits by inspectors with results and follow-up actions.			BS
6. Monitoring Program			BS
a. Prior to commencement of the Bulk Sample project proposal activities, the Proponent shall develop a comprehensive monitoring program for the project. The monitoring program must be developed for all stages of the project activities, including construction, operation, closure, and post-closure. The monitoring program should be developed in accordance with the objectives outlined in Section 8 of the Proponent's Environmental Screening Document, namely:			BS
i. Detection of unanticipated environmental impacts (if any)			BS
ii. Assessment of the effectiveness of proposed mitigation and the need to modify the measures or implement contingency plans			BS
iii. Compliance with applicable regulations and requirements of environmental permits			BS
iv. Ongoing collection of baseline environmental data			BS
b. The monitoring program must monitor the components outlined in Section 8 of the Environmental Screening Document, but also must be updated to include monitoring for those components included in the significance assessment provided by the Proponent (on April 20, 2007), namely;			BS
i. Air quality			BS
ii. Noise			BS
iii. Unique or fragile landscapes			BS

TABLE 2.1

BAFFINLAND IRON MINES CORPORATION
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LIST OF COMMITMENTS AND PERMIT REQUIREMENTS

ITEM	DELIVERABLE	STATUS	PHASE
iv. Water quality including sewage effluent, ARD and ammonia run-off			BS
v. Caribou			BS
vi. Carnivores			BS
vii. Marine Wildlife			BS
c. The Proponent shall make efforts to monitor potential impacts from the project proposal on Inuit harvesting activities, particularly along the Milne Inlet Tote Road.			BS
d. The monitoring program may utilize the same monitoring activities as the Construction Environmental Management Plan, but must be a stand-alone program.			BS
e. The monitoring program must incorporate data collected by the Pisikik Inuit Qaujimajatuqangit Working Group, particularly in the determination of monitoring methodology and the identification of suitable indicators.			BS
f. Baffinland must make all reasonable efforts to involve the community members from the Hamlet of Pond Inlet and Qikiqtani Inuit Association representatives in the development and implementation of the monitoring program.			BS
g. The marine wildlife monitoring component of the monitoring program should be developed in conjunction with Department of Fisheries and Oceans and must consider the use of local community members as marine wildlife monitors.			BS
h. The monitoring program must identify component-specific thresholds that will be used to determine the necessity for adaptive mitigation and management strategies.			BS
7. The Proponent must ensure that shipping contractors do not incinerate any wastes or deposit any sewage or bilge water in Milne Inlet.			BS
8. The Proponent must ensure that shipping contractors travel at a speed less than 25 km/hr, or otherwise directed by the Department of Fisheries and Oceans and/or Transport Canada.			BS
9. The Proponent shall submit an updated Emergency and Spill Response Plan immediately to NIRB and the Nunavut Water Board. Furthermore, the Proponent must ensure that there is sufficient spill response equipment at Milne Inlet to adequately respond to a fuel spill of, at a minimum, 9,520L.			BS
10. The Proponent shall ensure that all hazardous material is managed, removed from site and disposed in accordance with the *Environmental Protection Act (EPA)* , the Nunavut Territorial Regulations and Guidelines, and the Nunavut Hazardous Waste Disposal Manual.			BS
11. If a formal Approval is required under the Navigable Waters Protection Act (NWPA) regarding works along the Milne Inlet Tote Road potentially interfering with navigation, the Proponent shall make all reasonable efforts to communicate this information to the community of Pond Inlet.			BS
12. The Proponent must provide the community of Pond Inlet, Parks Canada and Nunavut Tourism with advance notice regarding the timing of the project shipping activities for 2007 and 2008.			BS
13. In accordance with GN procedures where stated and sections 5.6.52 and 5.6.55 of the Nunavut Land Claims Agreement, the Proponent shall contact the nearest Government of Nunavut Wildlife Office in the event of a defence kill of a Polar Bear.			BS
14. Aircraft take-offs and landings are prohibited if caribou monitoring indicates presence within of caribou within 1km of the airstrips and/or helipads.			BS
15. The Proponent shall adhere to conditions stated in attached Appendix A *Archaeological and Palaeontological Resources - Terms and Conditions for Land Use Permit Holders.*			SEE LINE 38
16. In advance of any ground disturbance, the Proponent must conduct archaeological surveys in any areas which have not been previously surveyed by a qualified archaeologist (i.e. borrow-source areas, Milne Inlet). Following the surveys, the Proponent must submit an Archaeological Assessment Report to NIRB and the Government of Nunavut Department of Culture, Language, Elders and Youth (GN-CLEY). Any susequent direction provided by the GN-CLEY the Archaeological Plan must be forwarded to NIRB. The Proponent shall continue its efforts to involve Inuit in the planning of field work, conducting field work and the interpretation of findings.			BS
17. If snow sampling activities indicate adverse environmental impacts resulting from dust deposition from project activities, the Proponent must employ dust supression methods approved by the Government of Nunavut - Department of Environment.			BS
Appendix A - Terms and Conditions			
1. The permittee shall not operate any vehicle over a known or suspected archaeological or palaeontological site.			SEE LINE 172
2. The permittee shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontolotical site.			SEE LINE 173
3. The permittee shall immediately contact the Department of Culture, Language, Elders and Youth (867) 934-2046 or (867) 975-5500 or 1 (866) 934-2035 should an archaeological site or specimen, or a palaeontological site or fossil be encountered or disturbed by any land use activity.			SEE LINE 174
4. The permittee shall immediately cease any activity that disturbs an archaeological or palaeontological site during the course of a land use operation, until permitted to proceed with the authorization of the Department of Culture, Language, Elders and Youth, Government of Nunavut.			SEE LINE 175
5. The permittee shall follow the direction of the Department of Culture, Language, Elders and Youth and DIAND in restoring disturbed archaeological or palaeontological sites to an acceptable condition.			SEE LINE 176
6. The permittee shall provide all information requested by the Department of Culture, Language, Elders and Youth concerning all archaeological sites or artifacts and all paleontological sites and fossils encountered in the course of any land use activity.			SEE LINE 177
7. The permittee shall make best efforts to ensure that all persons working under authority of the permit are aware of these conditions concerning archaeological sites and artifacts, and palaeontological sites and fossils.			SEE LINE 178
8. The permittee shall avoid the known archaeological and/or palaeontological sites listed in Attachment 1.			SEE LINE 179
9. The permittee shall have an archaeologist or palaeontologist perform the following functions, as required by the Department of Culture, Language, Elders and Youth:			SEE LINE 180
a. survey			SEE LINE 180
b. inventory and documentation of the archaeological or palaeontological resources of the land use area			SEE LINE 180
c. assessment of potential for damage to archaeological or palaeontological sites			SEE LINE 180
d. mitigation			SEE LINE 180
e. marking boundaries of archaeological or palaeontological sites			SEE LINE 180
f. site restoration			SEE LINE 180
The Department of Culture, Language, Elders and Youth shall authorize by way of a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit, all procedures subsumed under the above operations.			SEE LINE 180
INAC Land Use Permit N2007F0004			
31 (1) (A) LOCATION AND AREA			
1. The Permittee shall not conduct this land use operation on any lands not designated in the accepted application, unless otherwise authorized in writing by the Engineer			SEE LINE 119
2. The Permittees shall remove from Territorial Lands, all scrap metal, discarded machinery and parts, barrels and kegs, buildings and building material			SEE LINE 120
3. The Permittee shall not construct an adit or drillsiite within 31 meters of the normal high water mark of a stream unless approval in writing is obtained from the Engineer			SEE LINE 121
31(1)(B) TIME			
4. The Permittee's Field Supervisor shall contact or meet with a Land Use Inspector at the Iqaluit office of the Department of Indian Affairs and Northern Development, phone number (867) 975-4296, at least 48 hours prior to the commencement of this land use operation.			SEE LINE 124
5. The Permittee shall advise a Land Use Inspector at least 10 days prior to the completion of the land use operation of,			SEE LINE 126
a) his plans for removal or storage of equipment nd materials			SEE LINE 126
b) when final clean-up and restoration of the lands used will be completed			SEE LINE 126
6. The Permittee shall complete all clean-up and restoration of the lands used prior to the expiry date of this permit.			SEE LINE 125
7. The Engineer reserved the right to impose closure of any area to the Permittee in periods when dangers to natural resources are severe			BS
31 (1) (c) EQUIPMENT			
8. The Permittee shall not use any equipment except of the type, size, and number that is listed in the accepted application, unless otherwise authorized in writing by the Land Use Inspector			SEE LINE 128
9. The Permittee shall keep all garbage and debris in a covered metal container until disposed of.			SEE LINE 130
31 (1) (D) - METHODS AND TECHNIQUES			
10. The Permittee shall slope the sides of excavations and embankments except in solid rock to a horizontal/vertical ratio of 2 1 unless otherwise authorized in writing by the Land Use Inspector			BS
31 (1) (E) - TYPE, LOCATION, CAPACITY AND OPERATION OF FACILITIES			
11. The Permittee shall ensure that the land use area is kept clean and tidy at all times			SEE LINE 137
31 (1) (F) - CONTROL OR PREVENTION OF FLOODING, EROSION, AND SUBSIDENCE OF LAND			
12. The Permittee shall remove any obsrtuction to natural drainage caused by any part of this land use operation			BS
13. The Permittee shall not cut any stream bank unless authorized in writing by a Land Use Inspector			BS

TABLE 2.1

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ITEM	DELIVERABLE	STATUS	PHASE
14. The Permittee shall install erosion control structures as the land use operation progresses unless otherwise authorized by a Land Use Inspector			SEE LINE 140
15. The Permittee shall prepare the site in such a manner as to prevent rutting of the ground surface.			SEE LINE 141
31 (1) (G) USE, STORAGE, HANDLING AND DISPOSAL OF CHEMICAL OR TOXIC MATERIAL			
16. The Permittee shall not use chemicals in connection with the land use operation without the prior approval of the Engineer			BS
17. The Permittee shall remove all non-combustible garbage and debris from the land use area to a disposal site approved in writing by a Land Use Inspector			SEE LINE 148
18. The Permittee shall dispose of all combustible waste petroleum products by incineration or removal			SEE LINE 149
19. The Permittee shall report all spills immediately in accordance with instructions contained in "Spill Report" form NWT 1752(05/93) Twenty four (24) hour spill report line (867)920-8130			SEE LINE 151
31 (1) (H) WILDLIFE AND FISHERIES HABITAT			
20. The Permittee shall not detonate explosives within fifteen (15) meters of any body of water which is not completely frozen to the bottom.			BS
21. Aircraft take-offs and landings are prohibited if caribou monitoring indicates presence of caribou within 1 km of the airstrips and/or helipads.			BS
31 (1) (K) PETROLEUM FUEL STORAGE			
22. The Permittee shall report in writing to a Land Use Inspector the location and quantity of all petroleum fuel caches within ten (10) days after the establishment	Report to Land Use Inspector	10 days after establishment	BS
23. The Permittee shall not place any petroleum fuel storage containers within thirty-one (31) meters of the normal high water mark of any stream			SEE LINE 158
24. The Permittee shall not allow petroleum products to spread to surrounding lands or into water bodies			SEE LINE 159
25. The Permittee shall construct a dyke around each stationary fuel container or group of stationary fuel containers where any one container has a capacity exceeding 4,000 litres.			BS
31 (1) (M) MATTERS NOT CONSISTENT WITH THE REGULATIONS			
26. The Permittee shall not remove any material from below the ordinary high water mark of any stream without first obtaining written permission from a Land Use Inspector			SEE LINE 165
27. The Permittee shall keep on hand, at all times during this land use operation, a copy of the Land Use Permit and a copy of the NIRB Screening Decision.			BS
28. The Permittee shall submit to the Engineer, NIRB, and the Nunavut Water Board an updated Emergency and Spill Resposne Plan, for chemical and petroleum spills, for use during the construction and operation of the winter road. The Permittee must ensure that there is sufficient spill response equipment at Milne Inlet to adequately respond to a fuel spill of, at a minimum, 9,520 L.	updated Emergency and Spill Response Plan		BS
29. The Proponent shall submit an annual report with copies to the NIRB, INAC, the QIA, Environment Canada and Government of Nunavut by January 31 st of each year that the project is in operation commencing January 31, 2008. The report must contain information as per number 5 of the NIRB screening decision report.			BS
30. The Permittee shall abide by and comply with all applicable lawful rules, acts, regulations, and by-laws of Canada, Nunavut, any Municipality or regulatory body or authority having jurisdiction, the Nunavut Land Claim Agreement, and all other agreements, permits, licenses, and other instruments whatsoever related to the project			BS
31 (a) Prior to commencement of the Bulk Sample project proposal activites, the Proponent shall develop a comprehensive monitoring program for the project. The monitoring program must be developed for all stages of the project activities, including construction, operation, closure and post-closure. The monitoring program should be developed in accordance with the objectives outlined in Section 8 of the Proponent's Environmental Screening Document as per number 6 of the NIRB Screening Report.			BS
31 (b) he monitoring program must monitor the components outlined in Section 8 of the Environmental Screening Document, but also must be updated to include monitoring for those components included in the significance assessment provided by the Proponent (on April 20, 2007), as per number 6 of the NIRB Screening Report			BS
31 (c) The Proponent shall make efforts to monitor potential impacts from the project proposal on Inuit harvesting activities, particularly along the Milne Inlet Tote Road.			BS
31 (d) The monitoring program may utilize the same monitoring activities as the Construction Environmental Management Plan, but must be a stand-alone program.			BS
31 (e) The monitoring program must incorporate data collected by the Pisikik Inuit Qaujimajatuqangit Working Group, particularly in the determination of monitoring methodology and the identification of suitable indicators.			BS
31 (f) Baffinland must make all reasonable efforts to involve the community members from the Hamlet of Pond Inlet and Qikiqtani Inuit Association representatives in the development and implementation of the monitoring program.			BS
31 (g) The marine wildlife monitoring component of the monitoring program should be developed in conjunction with Department of Fisheries and Oceans and must consider the use of local community members as marine wildlife monitors.			BS
31 (h) The monitoring program must identify component-specific thresholds that will be used to determine the necessity for adaptive mitigation and management strategies.			BS
32. The Proponent must ensure that shipping contractors do not incinerate any wastes or deposit any sewage or bilge water in Milne Inlet.			BS
33. The Proponent must ensure that shipping contractors travel at a speed less than 25 km/hr, or otherwise directed by the Department of Fisheries and Oceans and/or Transport Canada.			BS
WATER LICENSE 2BB-MRY0710			
PART A: SCOPE, DEFINITIONS AND ENFORCEMENT			
1. Scope			
This Licence allows for the use of water and the disposal of waste for an undertaking classified as Mining and Milling as per Schedule II of the Regulations. This Licence allows for exploration and bulk sampling operations, all-weather road construction, camp operations, domestic waste treatment and/or disposal, fuel containment, and all associated uses at the Mary River Exploration and Bulk Sampling Project located in the Qikiqtani Region, Nunavut.		Information	D / BS
(i) This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the Nunavut Waters and Nunavut Surface Rights Tribunal Act, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be subject to such requirements; and;		Information	D / BS
(ii) Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.		Information	D / BS
2. Definitions			
"Act" means the Nunavut Waters and Nunavut Surface Rights Tribunal Act;		Information	D / BS
"Amendment" means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence;		Information	D / BS
"Appurtenant Undertaking" means an undertaking in relation to which a use of water or a deposit of waste is permitted by a licence issued by the Board;		Information	D / BS
"Board" means the Nunavut Water Board established under the Nunavut Land Claims Agreement and the Nunavut Waters and Nunavut Surface Rights Tribunal Act;		Information	D / BS
"Bulk Sample Project" means the activities, in addition to those of the Licence renewal, as described in the application for amendment received December 4, 2006.		Information	D / BS
"Engineer" means a professional engineer registered to practice in Nunavut in accordance with the Engineering, Geological and Geophysical Act (Nunavut) S.N.W.T. 1998, c.38, s.5;		Information	D / BS
"Greywater" means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;		Information	D / BS
"Infrastructure" means all construction necessary for mining, such as watercourse crossings, piping, sewage and water systems, reservoirs, and roads;		Information	D / BS
"Inspector" means an Inspector designated by the Minister under Section 85 (1) of the Act;		Information	D / BS
"Licensee" means the holder of this Licence;		Information	D / BS
"Minewater" means groundwater or any water used in mining, which is pumped or flows out of any underground workings or open pit;		Information	D / BS
"Modification" means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;		Information	D / BS
"Nunavut Land Claims Agreement" (NLCA) means the "Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada", including its preamble and schedules, and any amendments to that agreement made pursuant to it;		Information	D / BS
"Polishing/Waste Stabilization Ponds" (PWSP) means the containment ponds designed as interim and/or contingency containment of sewage at the Mary River and Milne Inlet Camps;		Information	D / BS
"Regulations" means the Northwest Territories Water Regulations sor/93-303 8th June, 1993, omitting Section 5, Water Use or Waste Deposit Without a Licence;		Information	D / BS

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ITEM	DELIVERABLE	STATUS	PHASE
"Sewage" means all toilet wastes and greywater;		Information	D / BS
"Spill Contingency Plan" means a Plan developed to deal with unforeseen petroleum and chemical events that may occur during the operations conducted under the Licence;		Information	D / BS
"Sump" means an excavation in impermeable soil for the purpose of catching or storing water or waste;		Information	D / BS
"Toilet Wastes" means all human excreta and associated products, but does not include greywater;		Information	D / BS
"Waste" means, as defined in S.4 of the Act, any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means.		Information	D / BS
"Waste Water Treatment Facilities" (WWTF) means the treatment facilities and/or associated contingency infrastructure used for the treatment of sewage at the Mary River Camp(s) and the Milne Inlet Camp.		Information	D / BS
3. Enforcement			
(i) Failure to comply with this Licence will be a violation of the Act, subjecting the Licensee to the enforcement measures and the penalties provided for in the Act		Information	D / BS
(ii) All inspection and enforcement services regarding this Licence will be provided by Inspectors appointed under the Act; and		Information	D / BS
(iii) For the purpose of enforcing this Licence and with respect to the use of water and deposit or discharge of waste by the licensee, Inspectors appointed under the Act, hold all powers, privileges and protections that are conferred upon them by the Act or by other applicable law		Information	D / BS
PART B: GENERAL CONDITIONS			
1. The water use fee of $30, payable to the Receiver General for Canada, shall be sent to the Board annually in advance of any use in accordance with Section 9 of the Regulations.	Payment	Baffinland has a positive balance with the NWB	D / BS
2. The Licensee shall submit to the Board for approval within ninety (90) days of the effective date of the amended licence, an assessment of current restoration liability using the most recent version of RECLAIM or other equivalent method as approved by the Board	Assessment of Current Restoration Liability	due October 14, 2007	D / BS
3. The Licensee shall furnish and maintain security with the Minister as required by the Board in a form and amount acceptable to the Minister	Security with the Minister. Amount?		D / BS
4. The security deposit shall be maintained until such time as the Minister is satisfied that the Licensee has complied with all provisions of the approved Abandonment and Restoration Plan. This clause shall survive the expiry of this Licence or renewals thereof.			D / BS
5. The Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31st of the year following the calendar year being reported which shall contain the following information:	Annual Report	due March 31, 2008	D / BS
(i) the monthly and annual quantities in cubic metres of all freshwater obtained from Camp Lake at Monitoring Station MRY-1, Phillips Creek at Monitoring Station MRY-2 and km99 Lake at Monitoring Station MRY-3;			D / BS
(ii) the monthly and annual quantities in cubic metres of all freshwater obtained for the purposes of drilling and other associated uses;			D / BS
(iii) the monthly and annual quantities in cubic meters of treated Sewage effluent discharged at Monitoring Station MRY-4, Mary River Camp WWTF and at Monitoring Station MRY-5, Milne Inlet Camp WWTF along with any waters discharged from the respective PWSP's;			D / BS
(iv) the monthly and annual quantities in cubic metres of Sludge removed from the Waste Water Treatment Facilities at Mary River Camp and Milne Inlet Camp and details on the storage and/or disposal;			D / BS
(v) A summary, including photographic records before, during and after construction activities; any modifications and/or major maintenance work carried out on the Water Supply and the wastewater Treatment Facilities, including all associated structures, and an outline of any work anticipated for the next year;			D / BS
(vi) The geochemical analysis of drill cores as per Part F, Item 3;			D / BS
(vii) Detailed discussion on the performance, installation, and evaluation, including the use of photographic record, of the primary and secondary containment functions used in fuel storage to safeguard impacts to freshwaters;			D / BS
(viii) A list of unauthorized discharges and a summary of follow-up actions taken;			D / BS
(ix) A brief description of follow-up action taken to address concerns presented within inspection and compliance reports prepared by the Inspector;			D / BS
(x) Updates in the form of an addendum or revisions to the Abandonment and Restoration Plan, Emergency Spill Response Plan, Waste Rock and Ore Storage Plan, QA/QC, Landfill Operations and Maintenance Plan, and Landfarm Plan			D / BS
(xi) A description of all progressive and or final reclamation work undertaken, including drill sites, presented with photographic records of site conditions before, during and after completion of operations;			D / BS
(xii) An updated estimate of the current restoration liability required under Part B, Item 2, based upon the results of restoration research, project development monitoring, and any changes or modifications to the Project;			D / BS
(xiii) Tabular summaries of all data generated under the Monitoring Program, Part I;			D / BS
(xiv) A summary of public consultation/participation, describing consultation with local organizations and residents of the nearby communities, if any were conducted;			D / BS
(xv) A summary of any specific studies or reports requested by the Board, and a brief description of any future studies planned or proposed; and			D / BS
(xvi) Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.			D / BS
6. The Licensee shall submit to the Board a Site Water Management Plan, within ninety (90) days following the issuance of the licence, for Board approval, that includes but is not limited to the following:	Site Water Management Plan (Knight Piésold Ref. No. NB102-00181/7-3, Rev.0, May 17, 2007)	Completed	D / BS
(i) A description of the quantity and direction of surface water flow from the road, over the surrounding landscape, and the overall site, along with topographic maps that effectively delineate the movement of waters on site;			D / BS
(ii) A detailed description of the location and capacity of water retention areas that would allow for the management of surface water runoff from the road and other Infrastructure;			D / BS
(iii) A detailed description of the sampling locations along the access road and the overall site where the water procured would provide the most representative analytical results, as determined by an appropriately qualified Engineer through a clear disclaimer outlining any limitations to judgment made by the Engineer, of surface water quality draining from the road surface and any other Infrastructure; and			D / BS
(iv) Any further information that a qualified Engineer believes to be pertinent to describe the movement and quality of surface water draining from the access road and any other Infrastructure.			D / BS
7. The Licensee shall submit to the Board for approval, within ninety (90) days of the effective date this license, a revised Site Water Management Plan referred to in Part B, Item 6 to reflect changes in operation and infrastructure as a result of the amendment application for the Bulk Sampling Project. The revised Plan shall consider water management associated with all infrastructure components of the undertaking, including , but not be limited to:	Revised Site Water Management Plan	due October 14, 2007	D / BS
(i) Bulk Sample Open Pit operations;			D / BS
(ii) Weathered ore/waste storage piles;			D / BS
(iii) Temporary ore storage at Mary River and Milne Inlet;			D / BS
(iv) Bulk fuel storage areas;			D / BS
(v) Ore processing area;			D / BS
(vi) Access roads;			D / BS
(vii) All weather road; and			D / BS
(viii) Associated construction material quarry operations			D / BS
8. If the Board does not approve the Plan referred to in Part B, Item 7, the Licensee shall revise the Plan and resubmit to the Board for approval within two (2) months of receiving notification of the Board's decision	Revise the Revised Site Water Management Plan	within 2 months of any pending Board decision to resubmit revised Site Water Management Plan	D / BS
9. The Licensee shall implement the Plans specified in this Part as and when approved by the Board.	Site Water Management Plan implementation	Pending Board approval	D / BS
10. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.		Ongoing	D / BS
11. The Licensee shall install and maintain flow meters or other such devices, or implement suitable methods required for the measuring of water and waste volumes, to be operated and maintained to the satisfaction of an Inspector.		Ongoing	D / BS
12. The Licensee shall post signs in the appropriate areas to identify the location of Monitoring Stations designated under Part I. All signs shall be located and maintained to the satisfaction of an Inspector			D / BS

TABLE 2.1

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LIST OF COMMITMENTS AND PERMIT REQUIREMENTS

ITEM	DELIVERABLE	STATUS	PHASE
13. The Licensee shall ensure a copy of this Licence is maintained at the site of operations at all times. Any communication with respect to this Licence shall be made in writing to the attention of:		Compliant	D / BS
(i) Manager of Licensing: Nunavut Water Board P.O. Box 119 Gjoa Haven, NU X0B 1J0 Telephone: (867) 360-6338 Fax: (867) 360-6369			D / BS
(ii) Inspector Contact: Water Resources Officer, INAC Nunavut District, Nunavut Region P.O. Box 100 Iqaluit, NU X0A 0H0 Telephone: (867) 975-4295 Fax: (867) 979-6445			D / BS
14. The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.		Ongoing	D / BS
15. The Licensee is responsible to ensure that any documents or correspondence submitted by the Licensee to the Board have been received and acknowledged by the Manager of Licensing.		Ongoing	D / BS
16. This Licence is not assignable except as provided in Section 44 of the Act.		Ongoing	D / BS
17. The expiry or cancellation of this Licence does not relieve the holder from any obligations imposed by the Licence as per Section 46 of the Act.		Ongoing	D / BS
PART C: CONDITIONS APPLYING TO WATER USE			D / BS
1. The Licensee shall obtain all water for domestic purposes from Camp Lake at Monitoring Station MRY-1, Philips Creek at Monitoring Station MRY-2 and Km 99 Lake at Monitoring Station MRY-3. Total water use for domestic purposes shall not exceed sixty (60) cubic metres per day. Water for the purposes of drilling and other associated uses, shall be obtained from sources adjacent to drill targets or as otherwise approved by the Board and is not to exceed four hundred and fifty five (455) cubic metres per day.			D / BS
2. The Licensee shall maintain the Water Supply Facilities to the satisfaction of the Inspector.			D / BS
3. Streams cannot be used as a water source unless authorized and approved by the Board.		Ongoing	D / BS
4. If the Licensee requires water in sufficient volume that the source water body may be drawn down the Licensee shall, at least 30 days prior to commencement of use of water, submit to the Board for approval the following: volume required, hydrological overview of the water body, details of impacts, and proposed mitigation measures.		Ongoing	D / BS
5. The Licensee shall equip all water intake hoses with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen.		Ongoing	D / BS
6. The Licensee shall not remove any material from below the ordinary high water mark of any water body unless authorized.		Ongoing	D / BS
7. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.		Ongoing	D / BS
8. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.		Ongoing	D / BS
PART D : CONDITIONS APPLYING TO WASTE DISPOSAL			
1. The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty (30) metres from the ordinary high water mark of any water body such that the quality, quantity or flow of water is not impaired, unless otherwise authorized by the Board.		Ongoing	D / BS
2. Unless otherwise approved by the Board, the Licensee shall not practice open burning or on-site land filling of domestic waste.		Ongoing	D / BS
3. The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator.			D / BS
4. The Licensee shall submit to the Board and the Inspector, thirty (30) days prior to the removal and transfer of waste, a declaration of authorization from the Hamlet of Pond Inlet, which clearly indicates the authorization to allow the deposit of solid waste by the Licensee, in the Hamlet's NWB licensed solid waste facility.	Letter from the Hamlet of Pond Inlet		D / BS
5. The Licensee shall backhaul and dispose of all hazardous wastes generated through the course of the operation in an approved waste disposal site.		Ongoing	D / BS
6. The Licensee shall maintain records of all waste backhauled and records of confirmation of proper disposal of backhauled waste. These records shall be made available to an Inspector upon request.	Waste backhaul and disposal records		D / BS
7. The Licensee shall notify an Inspector at least ten (10) days prior to any discharge from the facilities in this Part.			D / BS
8. All Minewater and surface drainage from the weathered ore stockpiles shall be directed to a discharge location that will allow monitoring.			D / BS
9. All discharge from the two Bulk Sample open pits at Monitoring Stations MRY-5 and MRY-6 shall not exceed the following limits			D / BS
Parameter / Max Avg Conc (mg/L) / Max Conc of any Grab Sample (mg/L)			D / BS
Total Arsenic / 0.5 / 1.00			D / BS
Total Copper / 0.30 / 0.60			D / BS
Total Lead / 0.20 / 0.40			D / BS
Total Nickel / 0.50 / 1.00			D / BS
Total Zinc / 0.50 / 1.00			D / BS
Total Suspended Solids / 15.0 / 50.0			D / BS
Oil and Grease no visible sheen			D / BS
The Waste discharged shall have a pH of between 6.0 and 9.5			D / BS
10. All Sewage discharged from the Waste Water Treatment Facility, at Monitoring Station MRY 4 and MRY-4a shall not exceed the following quality standards:			D / BS
Parameter : Max Avg Concentration			D / BS
BOD5 : 30 mg/L			D / BS
Total Suspended Solids : 35 mg/L			D / BS
Faecal Coliform : 1,000 CFU/100 mL			D / BS
Oil and Grease : no visible sheen			D / BS
pH : between 6.0 and 9.5			D / BS
11. All Sewage discharged from the Waste Water Treatment Facility, at Monitoring Station MRY 5 and MRY-5a shall not exceed the following quality standards:			D / BS
Parameter : Max Avg Concentration			D / BS
BOD5 : 100 mg/L			D / BS
Total Suspended Solids : 120 mg/L			D / BS
Faecal Coliform : 10,000 CFU/100 mL			D / BS
Oil and Grease : no visible sheen			D / BS
pH : between 6.0 and 9.5			D / BS
12. The licensee shall ensure that effluent discharged from monitoring station MRY-4 and MRY-4a, and MRY-5 and MRY-5a, are demonstrated to be non-acutely toxic through testing in accordance with Part I, Item 5.			D / BS
13. The Licensee shall submit to the Board for approval, within thirty(30) days following the commissioning of the Waste Water Treatment Facilities, a Waste Water Management Plan which includes provision for Operation and Maintenance in accordance with the "Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories, 1996". The plan shall include options for treatment and disposal of sludge.	Sewage Works Design Report BH Martin Consultants (BHM # 06-090, May 2007) Waste Water Management Plan incl. O&M	Complete 30 days following WWTF commissioning	D / BS
14. All PWSP discharges shall be released in such a manner to minimize surface erosion.			D / BS
15. The Licensee shall ensure that PWSP's are designed and bermed in such a way to ensure there is no seepage. A report on seepage shall be included as part of the Annual Report required under Part B, Item 5.	Report on Seepage as part of annual report	Annual report due March 31, 2008	D / BS
16. An inspection of the earthworks, geological regime, and the hydrological regime of the Project is to be carried out during the summer of 2008, by a Geotechnical Engineer. The Geotechnical Engineer's report shall be submitted to the Board within sixty (60) days of the inspection, with a covering letter from the Licensee outlining an implementation plan to respond to the Engineer's recommendations.	Geotechnical Engineer's Inspection Report and Licensee's Implementation Plan	Inspection Summer 2008 : report within 60 days of inspection	D / BS
17. All effluent being discharged from the Bulk Fuel Storage Facilities at Monitoring Stations MRY – 6 and MRY – 7, shall meet the following effluent quality standards:			D / BS
Parameter : Maximum Average Concentration (ug/L)			D / BS
Benzene : 370			D / BS
Toluene : 2			D / BS
Ethylbenzene : 90			D / BS
Lead : 1			D / BS
Oil & Grease : 15,000 and no visible sheen			D / BS
18. The Licensee shall maintain all constructed facilities, including the fresh water intakes, Waste Water Treatment Facilities, Bulk Fuel Storage Facilities and the Polishing/Waste Stabilization Ponds (PWSP) to the satisfaction of an Inspector.			D / BS

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ITEM	DELIVERABLE	STATUS	PHASE
19. The Licensee shall submit to the Board for approval, at least ninety (90) days prior to construction of a proposed landfill, a final engineered design report, stamped by a professional Engineer registered in Nunavut. The report shall include, but not be limited to, an Operation and Maintenance Plan for the proposed facility, prepared in accordance with the "Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories, 1996".	Engineered Landfill Design Report incl. O&M Plan	90 days prior to construction	D / BS
20. The Licensee shall submit to the Board for approval, within ninety (90) days of the issuance of the amendment, a Bulk Sampling Management Plan which addresses Acid Rock Drainage and Metal Leaching potential through the verification of Kinetic testing, Waste Rock Storage and Ore Storage management.	Bulk Sampling Management Plan	due October 14, 2007'	D / BS
21. The Licensee may incinerate all food waste, paper waste and wood products in an incinerator capable of meeting the emission limits established under the Canadawide Standards for Dioxins and Furans the Canada-wide Standards for Mercury Emissions. In such case, the Licensee shall insure that the waste is burned in a device that promotes efficient combustion and reduction of emissions, and shall as much as possible reduce the amount of waste to be incinerated. The use of appropriate waste incineration technology shall be combined with a comprehensive waste management strategy, especially waste segregation, that is designed to reduce and control the volumes of wastes produced, transported, and disposed of.		New incinerator installed	D / BS
22. The Licensee shall backhaul and dispose of all hazardous wastes, waste oil and non-combustible waste generated through the course of the operation in an approved waste disposal site.		Ongoing	D / BS
23. The Licensee shall contain all greywater, not directed to the WWTF, in a sump located at a distance of at least thirty (30) metres above the ordinary high water mark of any water body, at a site where direct flow into a water body is not possible and no additional impacts are created, unless otherwise approved by the Board.		Ongoing	D / BS
24. The Licensee shall dispose of all Sewage to the Waste Water Treatment Facilities or as otherwise approved by the Board.			D / BS
25. The Licensee shall contain all other toilet wastes with disposal by incineration, Latrines for this use shall be located at a distance of at least thirty (30) metres above the ordinary high water mark of any water body.		Ongoing	D / BS
26. If the Board does not approve the Plan(s) referred to in this Part, the Licensee shall revise this Plan(s) and resubmit it to the Board for approval within two (2) months of receiving notification of the Board's decision.	Revise Plans (Waste Water Management Plan, Geotech Eng Implementation Plan, Landfill O&M Plan, Bulk Sampling Management Plan)	within 2 months of any pending Board decision to resubmit Plan(s)	D / BS
27. The Licensee shall implement the Plan(s) specified in this Part as and when approved by the Board.	Implement Plans	Pending Board approval	D / BS
PART E : CONDITIONS FOR CAMPS. ACCESS INFRASTRUCTURES AND OPERATIONS			
1. The Licensee shall not erect camps or store material on the surface of frozen streams or lakes including immediate banks except what is for immediate use. Camps shall be located such as to minimize impacts on surface drainage.		Ongoing	D / BS
2. All activities shall be conducted in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake any corrective measures in the event of any impacts on surface drainage.		Ongoing	D / BS
3. Winter lake and stream crossings, including ice bridges, shall be constructed entirely of water, ice or snow. The Licensee should minimize disturbance by locating ice bridges at an area that requires the minimum approach grading and the shortest crossing route. Stream crossings shall be removed or the ice notched prior to spring break-up.		Ongoing	D / BS
4. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty (30) metres from the ordinary high water mark in such a fashion that they do not enter the water. The Licensee shall ensure that any chemicals, fuel or wastes associated with the undertaking do not enter any water body.		Ongoing	D / BS
5. The Licensee shall not cut any stream bank or remove any material from below the ordinary high water mark of any water body.			D / BS
6. The Licensee shall not do anything that will cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.			D / BS
7. Sediment and erosion control measures shall be implemented prior to and maintained during construction and operation to prevent entry of sediment into water.			D / BS
8. The Licensee shall undertake appropriate corrective measures to mitigate impacts on surface drainage resulting from the Licensee's operations.			D / BS
9. The Licensee shall limit any in-stream activity to low water periods. In-stream activity is prohibited during fish migration.			D / BS
10. The Licensee shall locate stream crossings to minimize approach grades. Approaches shall be stabilized during construction and upon completion of the project, to control runoff, erosion and subsequent siltation to any water body.			D / BS
11. Machinery is not permitted to travel up the stream bed and fording of any water body is to be kept to a minimum and limited to one area and a one-time event. Equipment used should be well cleaned and free of oil and grease and maintained free of fluid leaks.			D / BS
12. The Licensee shall ensure that pollutants from machinery fording the crossings do not enter water.			D / BS
13. The Licensee shall ensure that all fill material used during construction is from an approved source and shall be free of contaminants.			D / BS
14. To minimize impacts on surface drainage, the Licensee shall prepare all sites in such manner as to prevent rutting of the ground surface.			D / BS
15. Equipment storage holding areas should be located on gravel, sand or other durable land, a distance of at least thirty (30) metres above the ordinary high water mark of any water body in order to minimize impacts on surface drainage and water quality.			D / BS
16. The Licensee shall designate an area for the deposition of excavated and stockpiled materials that is at least thirty (30) metres above the ordinary high water mark of any water body.			D / BS
17. The Licensee shall not utilize any equipment or vehicles in the course of this undertaking unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles shall cease if rutting occurs.			D / BS
PART F : CONDITIONS APPLYING TO DRILLIING OPERATIONS			
1. The Licensee shall not conduct any land based drilling within thirty (30) metres of the ordinary high water mark of any water body, unless otherwise approved by the Board.	Application if required	Ongoing	D / BS
2. The Licensee shall delineate through an appropriately scaled site map, include approximate GPS coordinates, and any mitigation measures in place to protect waters if filing a request to the Board to drill within thirty (30) metres of the ordinary high water mark of any water body.	Application if required	Ongoing	D / BS
3. The Licensee shall analyze the geochemical constituents of drill cores as follows:			D / BS
(i) That reflects actuality and is truly representative of the drilling program for all constituents that may impact waters as determined, and clearly qualified, by a Geochemist registered in Nunavut;	Geochemistry Report	Pending	D / BS
(ii) All assumptions, and any limitation to each assumption, in determining a representative sampling population reflecting actuality and the geochemical testing methods employed;			D / BS
(iii) Includes all raw data and an accompanying summary table of the geochemical analysis;			D / BS
(iv) Define clear conclusions on the results of the geochemical analysis; and			D / BS
(v) Present the geochemical analysis in the Annual Report as required by Part B, Item 2.			D / BS
4. The Licensee shall ensure that all drill waste, including water, chips, muds and salts (CaCl2) in any quantity or concentration, from land-based drilling, shall be disposed of in a properly constructed sump or an appropriate natural depression located at a distance of at least thirty (30) metres from the ordinary high water mark of any adjacent water body, where direct flow into a water body is not possible and no additional impacts are created.		Ongoing	D / BS
5. On-ice drilling has not been authorized within this Licence.			D / BS
6. If artesian flow is encountered, drill holes shall be immediately sealed and permanently capped to prevent induced contamination of groundwater or salinization of surface waters. All artesian flows, including location (GPS), should be reported in the annual report to the NWB.		Ongoing	D / BS
7. If the bottom of the permanently frozen ground, or permafrost, is broken through by the drill, the depth of the bottom of permafrost and location should be reported in the annual report to the Board for data management purposes.		Ongoing	D / BS
PART G: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING			
1. The Licensee shall submit within ninety (90) days of issuance of the Licence, a revised Spill Contingency Plan that is specific to the scope of this Licence and prepared in accordance with the Spill Contingency Planning and Reporting Regulations developed under Section 34 of the Environmental Protection Act. The Licensee shall update the Plan by referring to, but not be limited by, the comments received by interested parties during the review of the application and include updated emergency contact information and updated material safety data sheets to be included as an Appendix.	revised Spill Contingency Plan	due October 14, 2007	D / BS
2. If the Board does not approve the Plan referred to in this Part, the Licensee shall revise this Plan and resubmit it to the Board for approval within two (2) months of receiving notification of the Board's decision.	Revise and resubmit revised Spill Contingency Plan	within 2 months of any pending Board decision to resubmit Plan(s)	D / BS
3. The Licensee shall implement the Plan specified in this Part as and when approved by the Board	Implement Spill Contingency Plan	pending Board approval	D / BS

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ITEM	DELIVERABLE	STATUS	PHASE
4. The Licensee shall annually review the Plan referred to in this Part and if needed, modify it to reflect changes in operation and/or technology. The Plan and/or any revisions shall be submitted with the Annual Report.	Spill Contingency Plan revised May 2007	Complete	D / BS
5. The Licensee shall provide a report, to be approved by the Board, within ninety (90) days of issuance of the licence, appropriately qualified by an Engineer registered in Nunavut, which clearly details that the requirements of the CCME guidance document "Aboveground Storage Tank Systems for Petroleum and Allied Petroleum Products (2003)" have been met by the Licensee.	Baffinland April 13, 2007 Letter, accompanied by Knight Piesold Letter Ref. No. NB07-00341, 13-April-2007)	Complete	D / BS
6. The Licensee shall ensure that any chemicals, petroleum products or wastes associated with the project do not enter water. All sumps and fuel caches shall be located at a distance of at least thirty (30) metres from the ordinary high water mark of any adjacent water body and inspected on a regular basis.		Ongoing	D / BS
7. The Licensee shall ensure that any equipment maintenance and servicing be conducted only in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.		Ongoing	D / BS
8. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:		Ongoing	D / BS
(i) Employ the Spill Contingency Plan;			D / BS
(ii) Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and			D / BS
(iii) For each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site.			D / BS
PART H : CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION			
1. The Licensee shall implement the "Bulk Sample Program Abandonment and Restoration Plan" dated June 2007, as and when approved by the Board.	Implement Bulk Sample Program Abandonment and Restoration Plan	pending Board approval	D / BS
2. If the Plan referred to in Part H, Item 1 is not approved, the Licensee shall make the necessary revisions and resubmit the Plan(s) within thirty (30) days following notification from the Board.	revise Bulk Sample Program Abandonment and Restoration Plan	within 30 days of any pending Board decision	D / BS
3. The Licensee shall review the Plan(s) referred to in this Part as required by changes in operation and/or technology and modify the Plan(s) accordingly. Revisions to the Plan(s) are to be submitted in the form of an Addendum to be included within the Annual Report unless directed otherwise by an Inspector.			D / BS
4. The Licensee shall complete all restoration work prior to the expiry of this Licence.		Applies to Closure	D / BS
5. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.		Applies to Closure	D / BS
6. When possible to do so, the Licensee shall backfill and restore, to the satisfaction of an Inspector, all sumps to the pre-existing natural contours of the land.		Applies to Closure	D / BS
7. The Licensee shall remove from the site Infrastructures and site material, including but not limited to, all fuel caches, drums, barrels, buildings and contents, docks, water pumps and lines, all bulky wastes, material and equipment before the expiry of this License.		Applies to Closure	D / BS
8. All roads and airstrip, if any, shall be re-graded to match natural contour to reduce erosion.		Applies to Closure	D / BS
9. All culverts shall be removed and the drainage opened up to match the natural channel. Measures shall be implemented to minimize erosion and sedimentation.		Applies to Closure	D / BS
10. In order to promote 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.		Applies to Closure	D / BS
11. Areas that have been contaminated by hydrocarbons from normal fuel transfer procedures shall be reclaimed to the satisfaction of an Inspector. The use of reclaimed soils for the purpose of back fill or general site grading may be carried out only upon approval by an Inspector.		Applies to Closure	D / BS
12. Drill holes and disturbed areas will be restored to natural conditions immediately upon completion of the drilling. The reclamation of drill holes must include the removal of any drill casing materials and the capping of holes with a permanent seal.		Ongoing	D / BS
13. The Licensee may store drill core produced by the appurtenant undertaking in an appropriate manner and location at least thirty (30) 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, or as directed by an Inspector.		Applies to Closure	D / BS
14. All disturbed areas shall be contoured and stabilized upon completion of work and restored to a pre-disturbed state.		Ongoing	D / BS
PART I : CONDITIONS APPLYING TO THE MONITORING PROGRAM			
1. The Licensee shall submit to the Board for approval within (90) days of issuance of the licence an Environmental Monitoring Plan which addresses but is not limited to the following:	Environmental Monitoring Plan	due October 14, 2007	D / BS
(i) Establishment of alternative treatment and disposal or discharge parameters for effluent discharged from the Bulk Fuel Storage Facilities(s);			
(ii) Monitoring requirements that may be required under the Bulk Sampling Management Plan; and			
(iii) Address recommendations of interested parties.			
2. The Licensee shall, at a minimum, maintain Monitoring Stations at the following locations:			D / BS
Monitoring Program Station Number / Description / Status			D / BS
MRY – 1 / Water supply for the Mary River Camp at Camp Lake / Active-Volume			D / BS
MRY – 2 / Summer water supply for the Milne Inlet Camp at Phillips Creek / Active-Volume			D / BS
MRY – 3 / Winter water supply for the Milne Inlet Camp at the Km 99 lake / Active Volume			D / BS
MRY – 4 / Mary River Camp sewage discharge at the WWTF / Active			D / BS
MRY – 4a / Mary River Camp sewage discharge from the PWSP			D / BS
MRY – 5 / Milne Inlet Camp sewage discharge at the WWTF / Active			D / BS
MRY – 5a / Milne Inlet Camp sewage discharge from the PWSP			D / BS
MRY – 6 / Water collected within the Bulk Fuel Storage Facility at Mary River prior to release			D / BS
MRY – 7 / Water collected within the Bulk Fuel Storage Facility at Milne Inlet prior to release			D / BS
MRY – 8 / Minewater and surface drainage either pumped or released from the Hematite Open Pit / Active			D / BS
MRY – 9 / Minewater and surface drainage either pumped or released from the Magnetite Open Pit / Active			D / BS
MRY – 10 / Surface discharge from the weathered ore stockpile			D / BS
MRY – 12 / Surface discharge from the lump ore and fine ore stockpiles at the processing area			D / BS
MRY – 13 / Surface discharge from the lump ore and fine ore stockpiles at Milne Inlet			D / BS
3. The Licensee shall sample at Monitoring Program Stations MRY 4, and MRY 5 every four (4) weeks during discharge and at Monitoring Stations MRY-4a and MRY-5a once prior to discharge and every four (4) weeks thereafter. Samples shall be analyzed for the following parameters:			D / BS
Biochemical Oxygen Demand - BOD			
Total Suspended Solids			
pH			
Faecal Coliforms			
Oil and Grease (visual)			
4. The Licensee shall conduct toxicity testing on treated sewage effluent at the final discharge points at the Monitoring Station(s) MRY-4 and/or MRY – 4a; and MRY 5 and/or MRY – 5a, once annually during open water season in accordance with the following test procedures:			D / BS
(i) Acute lethality to Rainbow Trout, Oncorhynchus mykiss (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/13); and			
(ii) Acute lethality to Daphnia magna (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/14).			
5. The Licensee shall sample at Monitoring Program Stations MRY -6 and MRY - 7 monthly during removal of water from the facilities as required by Part D, Item 20.			D / BS
6. The Monitoring Program and compliance dates specified in the Licence may be modified at the discretion of the Chief Administrative Officer.			D / BS
7. The Licensee shall measure and record, in cubic metres, the daily quantities of water utilized for camp, drilling and other purposes.	Annual report	Ongoing	D / BS
8. An Inspector may impose additional monitoring requirements.		Ongoing	D / BS
9. The Licensee shall submit a Quality Assurance/Quality Control Plan, prepared in accordance with the INAC document "Quality Assurance (QA) and Quality Control (QC) Guidelines for use by Class "B" Licensees in Collecting Representative Water Samples in the Field, 1996" to an Analyst for approval within ninety (90) days of the issuance of the licence (amendment). The plan shall include analysis of field blanks and certified reference material, and replicate sampling in order to assess accuracy, precision and field contamination.	Quality Assurance/ Quality Control Plan	due October 14, 2007	D / BS
10. If the Board does not approve the Plan referred to in this Part, the Licensee shall revise this Plan and resubmit it to the Board for approval within two (2) months of receiving notification of the Board's decision.	revise Quality Assurance/ Quality Control Plan	within 2 months of any pending Board decision	D / BS
11. The Licensee shall implement the Plan specified in this Part as and when approved by the Board.	Implement QA/QC Plan	pending Board approval	D / BS
12. The Licensee shall annually review the approved Quality Assurance/Quality Control plan and modify it as necessary. Proposed modifications shall be submitted to an Analyst for approval.			D / BS
13. The approved Quality Assurance/Quality Control Plan shall be submitted to the Board for review and implemented as approved by an Analyst.			D / BS

TABLE 2.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

LIST OF COMMITMENTS AND PERMIT REQUIREMENTS

ITEM	DELIVERABLE	STATUS	PHASE
14. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of Standard Methods for the Examination of Water and Wastewater, or by such other methods approved by the Board.		Ongoing	D / BS
15. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.		Ongoing	D / BS
16. The Licensee shall measure and record the following:		Ongoing	D / BS
(i) the quantities, in cubic metres, of domestic waste, sewage, and hazardous waste hauled off-site for disposal;			D / BS
(ii) the location and name of the disposal facility for each waste type noted above; and			D / BS
(iii) the date that each was hauled off-site for disposal, for each occasion that these are removed from the site.			D / BS
17. The Licensee shall provide the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where sources of water are utilized for all purposes. The Licensee shall report these co-ordinates to the Inspector prior to utilizing waters.	Water taking records	Ongoing	D / BS
18. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations of temporary and permanent storage areas where wastes associated with camp, drilling and Infrastructure operations are deposited. The Licensee shall report these co-ordinates to the Inspector prior to depositing wastes.		Ongoing	D / BS
19. A Monitoring Program summary report shall be submitted to the Board for review within thirty (30) days following the month being reported. This summary shall include, at a minimum, all the monitoring requirement under this Part.	Monitoring Program Summary Report	within 30 days following the month being reported	D / BS
20. The Licensee shall include in the Annual Report required under Part B, Item 5 all data and information required under this Part.	Annual Report	31-Mar-08	D / BS
PART J : CONDITIONS APPLYING TO CONSTRUCTION AND MODIFICATION			
1. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facilities and Waste Disposal Facilities provided that such Modifications are consistent with the terms of this License and the following requirements are met:	Application for modifications	not currently required	D / BS
(i) The Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;			
(ii) Such Modifications do not place the Licensee in contravention of the License or the Act;			
(iii) The Board has not, during the sixty (60) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and			
(iv) The Board has not rejected the proposed Modifications.			
2. Modifications for which all of the conditions referred to in Part F, Item 1 have not been met can be carried out only with written approval from the Board.		Information	D / BS
3. The Licensee shall provide as-built plans and drawings of any construction and Modifications referred to in this License within ninety (90) days of completion of the construction or Modification. These plans and drawings shall be signed and sealed by an Engineer.			D / BS
4. The Licensee shall provide as-built plans and drawings, stamped and sealed by a professional Engineer registered in Nunavut, within ninety (90) days of completion of all construction works, including but not limited to the following:	As-built plans and drawings	within 90 days of completion of all construction works	D / BS
(i) Road alignment and all stream crossing installations;			
(ii) Waste Water Treatment Facilities;			
(iii) Bulk Storage of fuel Facilities; and			
(iv) Landfill.			
DFO AUTHORIZATION FOR THE HARMFUL ALTERATION, DISRUPTION OR DESTRUCTION OF FISH HABITAT			
1. The conditions of this Auhtorization notwithstanding, should the above works or undertakings, due to weather conditions, different soil or other natural conditions, or for any other reason, appear, in the opinion of the Department of Fisheries and Oceans ("DFO") likely to cause greater impacts than the parties previously contemplated, then DFO may direct Baffinland Iron Mines Corporation (hereafter referred to the "Proponent"), and its agents, and contractors, to suspend or alter works and activities associated with the project, to avoid or mitigate adverse impacts to fisheries resources. DFO may also direct the Proponent and its agents, and contractors, to carry out at the Proponent's expense any works or activities deemed necessary by DFO to avoid or mitigate further adverse impacts to fisheries resources. In circumstances where DFO is of the view that greater impacts may occur than were contemplated by the parties, DFO may also modify or rescind this authorization. If the authorization is to be changed the Proponent will be given an opportunity to discuss any proposed modifications or rescission.			
2. Conditions that relate to the Proponent plan:			
2.1 The Proponent confirms that all plans and specifications relating to this authorization have been duly prepared and reviewed by appropriate professionals working on behalf of the Proponent. The Proponent acknowledges that they are solely responsible for all design, safety, and workmanship aspects of all the works associated with this Authorization			
2.2 The installation of crossing structures at nine (9) navigable watercrossing sites (four (4) extra large crossing sites and five (5) large crossing sites), eight (8) large watercrossing sites and eight (8) medium watercrossing sites comply with those criteria as identified within this Authorization. Harmful alteration, disruption or destruction of fish habitat other than that specifically identified within this Authorization is prohibited.			
2.3 Works and undertakings shall be conducted in accordance with the practices outlined in the following reports and as approved by DFO:			
2.3.1 Email regarding coordinates and spawning mitigation, prepared by Derek Chubb (Baffinland Iron Mines Corporation), dated July 31, 2007			
2.3.2 Memorandum regarding Mary River Project Bulk Sampling Program - Fish Habitat Compensation Updated Footprint Calculations and Compensation Area Proposed, signed by Maret Tae (Knight Piesold Consulting) and approved by Steve Aiken (Knight Piesold Consulting), dated July 23, 2007.			
2.3.3 Memorandum regarding Mary River Project Bulk Sampling Program - Fish and Fish Habitat Monitoring Plan for DFO, signed by Maret Tae (Knight Piesold Consulting) dated July 23, 2007			
2.3.4 Memorandum regarding the response to DFO Engineer's 2007-05-10 Questions, approved by Steven Aiken (Knight Piesold Consulting) dated June 6, 2007			
2.3.5 Letter regarding the Mary River Project Bulk Sampling Program interaction with Fish and Fish Habitat, addressed to Derek Chubb (Baffinland Iron Mines Corporation), prepared by Maret Tae and Steven Aiken (Knight Piesold Consulting), dated May 25, 2007			
2.3.6 Baffinland Iron Mines Corporation Mary River Project - Information Package for DFO Meeting - Ottawa May 2 and 3, 2007, prepared by Knight Piesold Consulting, dated May 2, 2007			
2.3.7 Application for Authorization for Works or Undertakings Affecting Fish Habitat, signed by Rodney Cooper (Baffinland Iron Mines Corporation) dated December 20, 2006			
2.3.8 The above documents and drawings are hereafter referred to as the "Plan". Where contradictions exist, the most recent version shall apply.			
3. Conditions that relate to the mitigation of potential harmful alteration, disruption or destruction ("HADD") of fish habitat. The following measures shall be implemented to avoid the unauthorized HADD of fish habitat:			
3.1 Following the mitigations measures provided below as well as the mitigation measures provided in the Plan, the in-water work is allowed to occur within the restricted timing window from the September 1, 2007 to June 30, 2008			
3.1.1 An environmental monitor shall be on-site to assess the crossings prior to the onset of construction to confirm the absence or presence of spawning sites at least 20 meters upstream or downstream of the crossing location, and whether spawning Arctic char are present in the vicinity			
3.1.2 Machinery fording shall occur at least 20 meters upstream or downstream of location where fish and/or spawning sites are noted.			
3.2 A qualified biologist or environmental inspector shall be on site during all in-water construction, compensation and restoration works to ensure implementation of the designs as intended in the Plan and conditions of this authorization			
3.3 Machinery fording the watercourse to bring equipment required for construction to the opposite side of the watercourse shall be limited to a one-time event (over and back) and occur only if an existing crossing at another location cannot be used. If the stream bed and banks are highly erodible (e.g. dominated by organic materials and silts) and erosion and degradation is likely to occur as a result of equipment crossing, then a temporary crossing structure or other practices shall be used to protect these areas			
3.4 All materials and equipment used for the purpose of all work phases shall be operated and stored in a manner that prevents any deleterious substances (e.g. petroleum products, silt, debris, etc.) from entering the water.			
3.4.1 Any stockpiled materials shall be stored and stabilized above the ordinary high water mark of any water body			
3.4.2 Vehicle and equipment re-fueling and maintenance shall be conducted above the ordinary high water mark of any water body			
3.4.3 Any part of equipment entering the water shall be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substances from entering the water			
3.5 Only clean, compentent, certified non-acid generating rock and material free of fine particulate matter shall be placed in the water.			
3.6 Material used for habitat compensation features shall not be taken from below the ordinary high water mark or shoreline of any water body			

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TABLE 2.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

LIST OF COMMITMENTS AND PERMIT REQUIREMENTS

ITEM	DELIVERABLE	STATUS	PHASE
3.7 Sediment and erosion control measures shall be implemented prior to work, and maintained during the work phases, including decommissioning and restoration phases, to prevent entry of sediment into the water or the movement of re-suspended sediment			
3.7.1 All disturbed areas shall be stabilized upon completion of work and restored to a pre-disturbed state or better			
3.7.2 Sediment and erosion control measures shall be left in place and maintained until all disturbed areas have been stabilized			
4. Conditions that relate to the compensation for the loss of 8551 square meters of fish habitat are defined in the Plan,			
4.1 The specific locations of the fourteen (14) fish habitat compensation areas are located at:			
UTM Zone 17 at CV 183 (UTM Easting 504683, UTM Northing 7976414),			
CV181 (UTM Easting 504133, UTM Northing 7976217),			
CV152 (UTM Easting 508201, UTM Northing 7969684),			
CV157 (UTM Easting 507374, UTM Northing 7970538),			
CV166 (UTM Easting 505538, UTM Northing 7972370),			
CV170 (UTM Easting 505015, UTM Northing 7972932),			
CV001 (UTM Easting 553782, UTM Northing 7914922),			
CV154 (UTM Easting 507620, UTM Northing 7970076),			
CV159 (UTM Easting 506902.82, UTM Northing 7970829.97),			
CV188 (UTM Easting 562392.8, UTM Northing 7912843.07),			
CV113 (UTM Easting 520747, UTM Northing 7955659),			
CV176 (UTM Easting 503834, UTM Northing 7975057),			
CV156 (UTM Easting 507580, UTM Northing 7970389),			
BG16 (UTM Easting 550742, UTM Northing 7917611),			
4.2 The Proponent shall prepare a comprehensive No Net Loss Plan, including a detailed description of the works at the fourteen (14) fish habitat compensation sites, detailed plans, construction methods, timelines for construction and a monitoring program	Comprehensive No Net Loss Plan	due August 30 2007	
4.2.1 The No Net Loss Plan shall be submitted for DFO review and approval on or before **August 30, 2007**			
4.3 In addition, the Proponent shall prepare and submit for DFO review and approval on or before **August 30, 2007**, a construction plan including timing of the road enhancement activities, monitoring schedule for sediment and erosion control measures, and restoration details of how the four extra-large crossing sites and their respective floodplains shall be returned to pre-construction condition by restoring the natural hydrology, topography, and riparian vegetation.	Construction Plan	due August 30 2007	
5. Conditions that relate to monitoring			
5.1 A detailed Monitoring Plan shall be developed by the Proponent and submitted on or before **August 30, 2007** to DFO for review and approval.	Monitoring Plan	due August 30 2007	
5.2 The approved Monitoring Plan shall be implemented annually from the first year of upgrading the Milne Inlet tote road (i.e. 2007) to two years post-construction (2008-2009). The detailed Monitoring Plan shall include but not be limited to:			
5.2.1 Monitoring to assess if the installation of crossing structures has adversely affected upstream and downstream fish migration according to the schedule in section 5.2 above.			
5.2.2 Monitoring of fish habitat compensation sites to ensure that the works are functioning as intended, according to the schedule in section 5.2 above.			
5.2.3 If at any time during the monitoring period, compensation features are not functioning as intended, measured shall be identified to reduce the risk of future failure and additional compensation shall be created to meet the No Net Loss guiding principles using an adaptive management approach.			
5.3 A photographic record of before, during and after construction, showing that all works and undertakings have been completed according to the approved Plan and conditions of this authorization, shall be submitted to the Iqaluit, NU office of the Department of Fisheries and Oceans, FIsh Habitat Management, Eastern Arctic Area on or before December 31 of each year, according to the schedule in 5.2 above	Photographic record	on or before December 31 of each year (2007-2009)	
5.3.1 The photographic record shall include, but not be limited to, a record of the sediment and erosion control measures, compensation measures and upstream and downstream views of the crossings			
5.3.2 The photographs for each pre-construction, during construction, post-construction time periods shall be taken from the same vantage point(s) and direction.			
5.3.3 All photographs shall be clearly labelled as to date and vantage points. The photographic vantage points and viewing directions shall be indicated, and clearly indexed to the photographs, on a plan view drawing of the construction site(s).			
6. A written report summarizing the above monitoring results shall be submitted to the Iqaluit, NU office of the Department of Fisheries and Oceans - Fish Habitat Management, Eastern Arctic Area on, or before, December 31 of each year, according to the schedule in 5.2	Written report summarizing monitoring results	on or before December 31 of each year (2007-2009)	
7. Any deviation from the approved plans, the construction schedule, mitigation, compensation and/or monitoring measures stated above must be discussed with, and approved in writing by the Iqaluit, NU office of the Department of Fisheries and Oceans, Fish Habitat Management, Eastern Arctic Area prior to implementing			
8. All mitigation, compensation, and monitorng measures shall be implemented to the satisfaction of the Iqaluit, NU of the Department of Fisheries and Oceans, Habitat Management Eastern Arctic Area.			
9. Written notification of the commencement of works or undertakings shall be provided to the Iqaluit, NU Department of Fisheries and Oceans, Habitat Management, Eastern Arctic Area, by e-mail to NunavutHabitat@dfo-mpo.gc.ca or fax (867) 979-8039 not less than 10 days prior to the initiation of said works or undertakings	Written notification of commencement of works or undertakings	not less than 10 days prior to the initiation of works or undertakings	

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Note:
1. Status: D = a condition of drilling program permits; BS = condition of bulk sampling program permits; D / BS = condition of.

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TABLE 2.2

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

APPLICABLE LEGISLATION AND GUIDELINES

Act	Regulation	Responsible Agency	Guideline	Project Interaction
FEDERAL				
Aeronautics Act, [R.S. 1985, c. A-2]	Canadian Aviation Regulations, [SOR/96-433]	TC-Civil Aviation		
Arctic Waters Pollution Prevention Act, [R.S.C. 1985, c. A-12]	Arctic Waters Pollution Prevention Regulations [C.R.C., c.345]	TC-Marine Safety	Guidelines for the Operation of Tankers and Barges in Canadian Arctic Waters (Interim	
	Arctic Shipping Pollution Prevention Regulations		Arctic Ice Regime Shipping System Standards	
			Arctic Waters Oil Transfer Guidelines	
Canada Shipping Act, 2001, [2001, c.26]	Ballast Water Control and Management Regulations SOR/2006-129	TC-Marine Safety	A Guide to Canada's Ballast Water Control and Management Regulations	
	Anchorage Regulations SOR/88-101			
	Oil Polluition Prevention Regulatio			
	Response Organization and Oil Handling Facilities Regulatio			
Canada Transportation Act, [1996, c. 10]	Handling of Carloads of Explosives on Railway Trackage Regulations SOR/79-15	TC		
	Railway Employee Qualification Standards Regulations SOR/87-150			
	Railway Prevention of Electric Sparks Regulations SOR/82-101			
	Railway Third Party Liability Insurance Coverage Regulations SOR/96-33			
	Railway Traffic Liability Regulations			
	Railway Service Equipment Cars Regulations SOR/86-922			
Canada Marine Act 1998, c. 10	Natural and Man-made Harbour Navigation and Use Regulations SOR/2005-7	TC		
	Port Authorities Management Regulation			
	Port Authorities Operations Regulations SOR/2000-5			
	Seaway Property Regulations SOR/2003-105			
Canada Water Act, [R.S.C. 1985, c. C-11		EC		
Canada Wildlife Act (R.S., 1985, c. W-9	Wildlife Area Regulations (C.R.C., c. 1609	EC		
Canadian Environmental Protection Act, [1999, [1999, c.33]	Environmental Emergency Regulations [SOR/2003-307]	EC	CCME Canada Wide Standards for Dioxins and Furans	
	Federal Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands or Aboriginal Lands Regulations (SOR/97-10		CCME Canada Wide Standards for Mercury Emissions	
	Fuels Information Regulations, No. 1 (SOR/C.R.C., c. 407)		Health Canada Federal Contaminated Sites Guidance on Human Health Risk Assessment in Canada	
	Interprovincial Movement of Hazardous Waste Regulations (SOR/2002-301)			
	Sulphur in Diesel Fuel Regulations (SOR/2002-25			
	Sulphur in Gasoline Regulations (SOR/99-236)			
	Proposed - Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations			
	Proposed - Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations			
	Proposed - Regulations Amending the Environmental Emergency Regulations		http://www.ec.gc.ca/CEPARegistry/guidelines/	
Explosives Act, [R.S.C. 1985, c. E-17]	Ammonia Nitrate and Fuel Order, [C.R.C., c. 598]	NRCan		
	Explosives Regulations [C.R.C., c. 599			
Fisheries Act, [R.S.C. c. F-14]	Metal Mining Effluent Regulations, [SOR/ 2002-2222]	DFO	Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters	
			DFO - Freshwater Intake End-of-Pipe Fish Screen Guideline	
			DFO-Habitat Conservation and Protection Guidelines 199	
			Various DFO Operational Statements	
			DFO Policy for the Management of Fish Habitat	
Migratory Birds Convention Act, 1994, [1994, c.22]	Migratory Bird Sanctuary Regulations, [C.R.C., c.1036	EC		
	Migratory Birds Regulations, [C.R.C., c.1035			
Navigable Waters Protection Act, [R.S. 1985, c. N-22]	Navigable Waters Bridges Regulations (C.R.C., c. 1231	TC - NWPP		
	Navigable Waters Works Regulations (C.R.C., c. 1232			
Nunavut Act, [1993, c. 28]	Nunavut Archaeological and Palaeontological Sites Regulations, [SOR/2001-220]	GN-CLEY		
Nunavut Land Claims Agreement		NTI	A Guide to Mineral Exploration and Development on Inuit Owned Lands in Nunavu	
NLCA Article 12-Development Impact		NIRB		
NLCA Article 13-Water Management		NWB		
NLCA Article 26-Inuit Impact Benefit Agreement		DIO		
NLCA Article 6-Wildlife Compensation				
NLCA Article 20-Inuit Water Rights		NWB/DIO		
NLCA Article 21-Entry and Access Part 4				
Nunavut Waters and Nunavut Surface Rights Tribunal Act, [2002, c.10	Application of Regulations made under paragraph 33(1)(m) or (n) of the Northwest Territories Waters Act in Nunavut Order	INAC		
Species At Risk Act, [2002, c.29]		EC	Species at Risk Act: A Guide	
Territorial Lands Act, [R.S. 1985, c. T-7]	Canada Mining Regulations, [C.R.C., c. 1516]	INAC	INAC Mine Site Reclamation Policy for Nunavut	
	Territorial Land Use Regulations, [C.R.C., c. 1524]			
	Territorial Quarrying Operations, [C.R.C., c. 1527]			
	Northwest Territories Mining District and Nunavut Mining District Order			
Transportation of Dangerous Goods Act, [1992, c.34]	Transportation of Dangerous Goods Regulations	TC		
TERRITORIAL				
Commissioner's Land Act (Nunavut), [R.S.N.W.T. 1988, c. C-11]	Commissioner's Airport Lands Regulations, N.W.T. Reg. 067-97			
	Commissioner's Land Regulations, R.R.N.W.T. 1990 c. C-1			
Environmental Protection Act (Nunavut), [R.S.N.W.T. 1988, c. E-7]	Spill Contingency Planning and Reporting Regulations, N.W.T. Reg. 068-93		Spill Contingency planning and reporting in Nunavut A Guide to the new regulation	
	Asphalt Paving Industry Emission Regulations, R.R.N.W.T. 1990 c. E-23		Government of Nunavut Environmental Guideline for Site Remediation	
			Government of Nunavut Guideline for Management of Waste Lead and Lead Pain	
			Government of Nunavut Environmental Guideline for Air Quality Sulphur Dioxide and Suspended Particulates	
			Government of Nunavut Guideline for Dust Suppression	
			Government of Nunavut Environmental Guideline for General Management of Hazardous Waste	
			Government of Nunavut Environmental Guideline for Industrial Waste Discharges	
			Government of Nunavut Environmental Guideline for Waste Antifreeze	
			Government of Nunavut Environmental Guideline for Waste Asbestos	
			Government of Nunavut Environmental Guideline for Waste Batteries	
			Government of Nunavut Environmental Guideline for Waste Paints	
			Government of Nunavut Environmental Guideline for Waste Solvents	
Explosives Use Act, R.S.W.N.T. 1988, c.E-10	Explosives Regulations, R.R.N.W.T. 1990 c. E-27			
Fire Prevention Act, R.S.N.W.T. 1988, c. F-6	Fire Prevention Regulations, R.R.N.W.T. 1990 c. F-12			
	Propane Cylinder Storage Regulations, N.W.T. Reg. 094-91			
Mine Health and Safety Act, [S.N.W.T 1994, c.25	Mine Health and Safety Regulations, [R-125-95			
	Mine Health and Safety Regulations, amendment, Nu. Reg. 016-2003			
Public Health Act, R.S.N.W.T. 1988, c. P-12	Camp Sanitation Regulations, R.R.N.W.T. 1990 c. P-12			
	General Sanitation Regulations, R.R.N.W.T. 1990 c. P-16			
	Public Water Supply Regulations, R.R.N.W.T. 1990 c. P-23			
	Public Sewerage Systems Regulations, R.R.N.W.T. 1990 c. P-22			
Safety Act, R.S.N.W.T. 1988, c. S-1	Asbestos Safety Regulations, N.W.T. Reg. 016-92			
	General Safety Regulations, R.R.N.W.T. 1990 c. S-1			
	General Safety Regulations, amendment, Nu. Reg. 021-2000			
	Safety Forms Regulations, N.W.T. Reg. 102-91			
	Silica Sandblasting Safety Regulations, N.W.T. Reg. 015-92			
	Work Site Hazardous Materials Information System Regulations, R.R.N.W.T. 1990 c. S-2			
Scientists Act, [R.S.N.W.T. 1988, c. S-4]	Scientists Act Administration Regulations, N.W.T. Reg. 174-96			
Transportation of Dangerous Goods Act, [R.S.N.W.T. 1988, c. 81 (Supp.)]	Transportation of Dangerous Goods Regulations, 1991, N.W.T. Reg. 095-91			
Wildlife Act, [R.S.N.W.T. 1988, c. W-4]	Wildlife General Regulations, N.W.T. Reg. 026-92			
	Critical Wildlife Areas Regulations, R.R.N.W.T. 1990 c. W-3			
	Polar Bear Defence Kill Regulations, N.W.T. Reg. 037-93			
	Wildlife Management Barren-Ground Caribou Areas Regulations, N.W.T. Reg. 099-98			
	Wildlife Management Grizzly Bear Areas Regulations, N.W.T. Reg. 155-9			
	Wildlife Management Muskox Areas Regulations, R.R.N.W.T. 1990 c. W-1			
	Wildlife Management Polar Bear Areas Regulations, R.R.N.W.T. 1990 c. W-1			
	Wildlife Sanctuaries Regulations, R.R.N.W.T. 1990 c. W-2			
	Wildlife Preserves Regulations, R.R.N.W.T. 1990 c. W-1			
Workers' Compensation Act, R.S.N.W.T. 1988, c. W-6	Workers' Compensation General Regulations, R.R.N.W.T. 1990 c. W-21			

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TABLE 3.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

ROLES AND RESPONSIBILITIES

Position	Responsibility
Vice President, Operations	- Liaise with Operations Manager and Vice President, Sustainable Development, providing overall direction of corporate resources - Communicate with stakeholders and government agencies - Provide media relations, if required
Vice President, Sustainable Development	- Support the implementation of the CEMP and EPP to facilitate compliance with these documents and environmental permits, regulations and best practices - Transmit management and regulatory decisions to Environmental and Project managers - Liaise with stakeholders, regulatory agencies and communities - Provide media relations, if required
Operations Manager	- Manage site activities including ensuring implementation of the CEMP and EPP - Accountable for compliance with applicable legislation, permit terms and conditions and field level commitments made by Baffinland - Report to the Vice President, Operations and Vice President, Sustainable Development on environmental incidents, response measures and outcomes - Document the cause of environmental incidents and effectiveness of response, and implement the appropriate measures to prevent a recurrence - Ensure that the situations are resolved and all follow-up communication and reports are filed with the necessary regulatory authorities (including spill reports)
Site Managers	Site Managers are located on site and have responsibility for day-to-day activities on the project. In relation to environmental management, the Site Manager's responsibilities include: - Ensure environmental considerations are integrated into decision-making for all construction activities - Liaise with Environmental Superintendent, Site Engineers and Operations Manager to ensure the environmental controls and procedures in the EPP are implemented - Conduct regular site checks to ensure environmental controls such as silt fences are functioning properly
Site Engineers	Site Engineers will be located at site to oversee key construction activities. The responsibilities of the Site Engineers include the following: - Ensure environmental considerations are integrated into decision-making for all construction activities - Direct field work in accordance with the CEMP and EPP - Conduct regular site checks to ensure environmental controls such as silt fences are functioning properly - Liaise with Site Managers, Operations Manager and Environmental Superintendent to ensure that the environmental controls and EPP
Environmental Superintendent	The Environmental Superintendent will report to Baffinland's Vice-President, Sustainable Development and will maintain day-to-day contact and support to the Operations Manager and Site Managers. The principal role of the Environmental Superintendent is to support line management (Operations Manager, Site Managers and Site Engineers) in the satisfactory implementation of the CEMP and EPP, and to monitor environmental compliance. To achieve this, the Environmental Superintendent will periodically conduct site visits to monitor environmental performance of the Project. Further, at the discretion of the Vice President Sustainable Development their responsibilities may include: - Endorse the CEMP and EPP - Maintain, assess and monitor the implementation of the CEMP and EPP - Confirm that all project environmental obligations are met, through the CEMP and EPP, and otherwise - Provide input and advice to engineers on work method statements - Assist in the preparation of environmental induction and training materials - Coordinate site visits by government inspectors - Ensure procedures are in place to respond to environmental incidents - Solicit the advise or input of environmental consultants - Coordinate environmental documents - Ensure adequate system environmental audits are undertaken - Review and endorse reports on environmental compliance - Assist in ways necessary to ensure monitoring of environmental controls, and the monitoring of the subcontractor environmental performance is undertaken The Environmental Superintendent will maintain copies of regulatory licenses and permits and the CEMP at site. He/she will also maintain records of all inspection reports, environmental field monitoring data and results, employee induction and training records, environmental checklists, environmental accidents/incidents/emergency reports, a complaints register, non-conformance reports, and annual reports required by approvals. The Environmental Superintendent will coordinate the preparation, review and distribution, as appropriate, of these documents.
Environmental Consultants	- Provide specialist advice and input on environmental matters, reporting to the Vice President, Sustainable Development and supporting the On-site Environmental Superintendent - Conduct environmental baseline and monitoring program - Conduct audits of operations, if requested - Prepare environmental reports
Contractors/Sub-contractors	All contracted project personnel are considered equivalent to Baffinland staff in all aspects of environmental management and control and their responsibilities in this respect mirrors those of Baffinland personnel. Contractor personnel will be included in the on-site induction process. The responsibilities of the Contractors include but are not limited to the following: - Comply in full with the requirements of the EPP The responsibilities of the Contractor Foremen include the following: - Conduct regular site checks to ensure that regular maintenance is undertaken to minimize environmental impacts - Provide personnel with appropriate environmental toolbox/tailgate meetings and training

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TABLE 3.2

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

MONITORING AND INSPECTION RESPONSIBILITIES

Component	Task	Responsibility	Timeline
AIR AND NOISE			
Air Quality	Representative air quality monitoring at Mary River and Milne Inlet	Alain Carriere (RWDI)	September 2007 (Milne) March 2007 (Mary River)
	Stack testing during the summer of 2007	Alain Carriere (RWDI)	July 2007 (Completed)
	Snow quality sampling	Troy Yeomans (Knight Piesold)	March-May 2008
	Vegetation sampling along tote road	Maret Tae (Knight Piesold)	July-August 2008
Noise	Monitor summer noise levels at Milne Inlet	Alain Carriere (RWDI)	August 2007 (Completed)
	Monitor winter noise levels at Mary River/road	Alain Carriere (RWDI)	March-May 2008
PHYSICAL ENVIRONMENT			
Physical Stability	Inspect bulk sample pits and weathered ore stockpile	Rob Mercer (Knight Piesold)	May 2008
	Inspect road, borrow areas and quarries for physical stability and sediment and erosion control measures	Andy Phillips (Knight Piesold)	Ongoing
Re-vegetation	Salvage topsoil for one or more re-vegetation plots	Andy Phillips (Knight Piesold)	August 2007
TERRESTRIAL WILDLIFE			
Caribou	Aerial surveys focused on the road and identified high-value habitats	Vivian Banci (Knight Piesold)	Each season
Carnivores	Wolf denning activity will be monitored over the long term, to determine if the number of active dens in the project location increases. Identified dens or homesites will be monitored on the ground	Vivian Banci (Knight Piesold)	Spring/Summer
BIRDS			
Raptors	Raptor behaviour and breeding success in relation to project activities	Matt Evans (Knight Piesold)	Spring/Summer/Fall
Loons, ducks and geese	Behaviour and breeding success of loons in relation to disturbance from project activities	Matt Evans (Knight Piesold)	Spring/Summer/Fall
Songbirds and shorebirds	Behaviour and breeding success in relation to disturbance from project activities	Matt Evans (Knight Piesold)	Spring/Summer/Fall
Seabirds	Monitor the effects of disturbance from the bulk sampling program	Matt Evans (Knight Piesold)	Spring/Summer/Fall
FISHERIES AND AQUATICS			
Fish Habitat	Full-time road construction supervision for overall QA/QC of the implementation of environmental protection measures and compliance with permit requirements.	Andy Phillips (Knight Piesold)	During Road Construction
	Inspect HADD crossings to confirm presence or absence of spawning sites within 20 m upstream and downstream.	Andy Phillips (Knight Piesold)	During Periods of Flow
	Monitor construction activities and turbidity at HADD crossings and compensation sites by an environmental inspector during and post construction.	Andy Phillips (Knight Piesold)	During and Following Road Construction
	Maintain a photographic record of all HADD authorized crossings and fish habitat compensation works before, during and after construction. Submit photographic record to the Iqaluit, NU office of the Department of Fisheries and Oceans, Fish Habitat Management, Eastern Arctic Area.	Andy Phillips (Knight Piesold)	Before, During and Following Construction
	Monitor fish habitat compensation works to ensure that the works are functioning as intended.	North South (Knight Piesold)	Following Construction
	Monitor construction of water intake and sewage outfalls at Camp Lake and Sheardown Lake.	North South (Knight Piesold)	During Installation
	Monitor amount of ice build-up in front of the culverts and remove if necessary.	Nuna Logistics	Spring, prior to break-up
Fish Migration	Measure flow depth at all HADD authorized crossings during the low flow period to ensure fish passage in the embedded culvert.	Andy Phillips (Knight Piesold)	August
	Monitor water flow velocity at the four box culvert crossingsto ensure crossing installation does not adversely affect upstream or downstream fish migration.	Andy Phillips (Knight Piesold)	During Construction and Periods of Flow

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TABLE 3.2

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

MONITORING AND INSPECTION RESPONSIBILITIES

Component	Task	Responsibility	Timeline
MARINE WILDLIFE			
Polar Bears	Bear monitors will supervise work and camps at the coasts as well as isolated field work	HTO Representatives	Spring/Summer/Fall
Whales	Behavioural responses of narwhal and bowhead whales to sealift traffic	John Richardson (LGL)	August-September (2007 and 2008)
Ringed seal	Ringed seal responses to construction activity and noise in the Milne Inlet area	Warren Bernhardt (North/South)	April-May (annually)
WATER QUALITY			
Water Supply	Sampling and testing (field and laboratory) of potable water supply sources	Cheryl Wray (Baffinland)	See Table 10.1
Sewage Effluent	Sampling of final effluent from the Waste Water Treatment Facilities (WWTFs) and Polishing/Waste Stabilization Ponds (PWSPs)	Cheryl Wray (Baffinland)	See Table 10.1
Site Runoff	Sampling water quality runoff from bulk fuel storage berms, bulk sample pits, and ore stockpiles	Cheryl Wray (Baffinland)	See Table 10.1
Baseline Water Quality	Regional water quality monitoring as part of baseline program; includes site runoff stations in addition to those prescribed by the water license in Table 10.1	Beth Staben (Knight Piesold)	Spring/Summer/Fall
Kinetic Testing of Ore	On-site kinetic testing of ore and waste rock samples	Quentin Hamilton (Knight Piesold)	Ongoing
WASTE MANAGEMENT			
Off-site Waste Disposal	Non-hazardous solid wastes taken off site for disposal (i.e., to Pond Inlet's landfill) to be logged; TDG waste manifests for hazardous wastes taken off site to be provided to Environmental Superintendent.	Cheryl Wray (Baffinland)	Continuously
On-site Waste Disposal Facilities	Regular visual inspection of waste disposal facilities	Cheryl Wray (Baffinland)	Regular Inspection
OPERATIONS MONITORING			
Drilling Operations	Regular inspection of drill operations	Cheryl Wray (Baffinland)	Ongoing
Fuel Storage	Regular inspection of fuel storage facilities and operations	Cheryl Wray (Baffinland)	Ongoing
Environmental Issue Identification	A process to identify any environmental issues of concern, such as non-conformance to the Environmental Protection Plan, or the requirement for a new environmental control.	Cheryl Wray (Baffinland)	Ongoing
ARCHAEOLOGY			
Archaeological Resources	Archaeology surveys where ground disturbance activities are proposed, prior to work being conducted	Gabriella Prager (Points West)	As Required
EDUCATION AND TRAINING			
Human Resources	Employment duration, turn-over, etc.	Len Kutchaw (Baffinland)	Ongoing
Skills Inventory of Staff	Education and skill sets of existing site personnel from local communities	Len Kutchaw (Baffinland)	Ongoing
Training	Record all training conducted on and off site for the project	Len Kutchaw (Baffinland)	Ongoing
REPORTING			
NIRB Annual Reports	Prepare an annual report that meets the information requirements of the NIRB Screening Decisions for Drilling (March 26, 2007) and the Bulk Sampling Program (May 4, 2007)	Cheryl Wray (Baffinland)	January 31
Water License Annual Report	Prepare an annual report in accordance with Part B, Item 5 of the water license	Cheryl Wray (Baffinland)	March 31

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TABLE 8.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

DRAINAGE CROSSINGS WITH NO FISH HABITAT

Crossing ID	Road Chainage (km)	Size Category	Fish Habitat Ranking	Crossing ID	Road Chainage (km)	Size Category	Fish Habitat Ranking	Crossing ID	Road Chainage (km)	Size Category	Fish Habitat Ranking
CV087	46.225	M	N	CV037	73.105	ES	M	CV139	12.679	ES	N
CV091	42.962	M	N	CV038	72.943	ES	M	CV140	12.501	ES	N
CV092	42.949	M	N	CV039	72.845	ES	M	CV141	12.453	ES	N
CV098	38.525	M	N	CV041	69.369	ES	N	CV142	12.266	ES	N
CV075	53.336	S	N	CV042	69.294	ES	N	CV143	12.236	ES	N
CV165	7.038	S	N	CV044	67.036	ES	N	CV144	12.205	ES	N
BG030	84.636	S	N	CV045	66.873	ES	N	CV145	11.832	ES	N
CV023	83.169	S	N	CV050	62.495	ES	N	CV147	11.208	ES	N
CV043	67.472	S	N	CV051	62.390	ES	N	CV148	11.180	ES	N
CV047	66.427	S	N	CV052	62.332	ES	N	CV149	10.954	ES	N
CV083	47.644	S	N	CV053	62.117	ES	N	CV150	10.507	ES	N
CV085	46.424	S	N	CV054	62.018	ES	N	CV155	9.328	ES	N
CV090	44.832	S	N	CV055	61.904	ES	N	CV156	9.223	ES	N
CV093	42.215	S	N	CV056	61.810	ES	N	CV158	8.648	ES	M
CV117	27.074	S	N	CV061	57.761	ES	M	CV161	8.230	ES	M
CV146	11.347	S	N	CV062	55.692	ES	N	CV162	7.922	ES	N
CV215	79.575	S	N	CV063	55.524	ES	M	CV163	7.832	ES	N
BG002	96.041	ES	N	CV064	55.469	ES	N	CV164	7.299	ES	N
BG003	95.735	ES	N	CV065	55.401	ES	N	CV168	5.882	ES	N
BG007	93.123	ES	N	CV066	55.383	ES	N	CV169	5.427	ES	N
BG008	92.514	ES	N	CV067	55.197	ES	N	CV171	4.867	ES	N
BG009	91.890	ES	N	CV068	54.861	ES	N	CV172	4.722	ES	N
BG010	91.705	ES	N	CV069	54.669	ES	N	CV174	3.734	ES	N
BG011	91.601	ES	N	CV070	54.173	ES	N	CV175	2.867	ES	M
BG012	91.394	ES	N	CV071	54.144	ES	N	CV177	2.427	ES	N
BG013	90.995	ES	M	CV073	53.842	ES	M	CV178	1.776	ES	N
BG014	90.389	ES	N	CV074	53.764	ES	M	CV179	1.507	ES	M
BG015	90.331	ES	N	CV077	52.091	ES	N	CV180	0.796	ES	M
BG016	90.218	ES	N	CV080	49.929	ES	N	CV182	0.480	ES	N
BG018	90.092	ES	N	CV081	49.792	ES	M	CV184	101.557	ES	N
BG019	89.815	ES	N	CV084	47.045	ES	N	CV185	101.764	ES	N
BG020	89.512	ES	N	CV088	45.991	ES	M	CV186	102.812	ES	N
BG021	89.415	ES	N	CV089	45.016	ES	N	CV188	104.5	ES	N
BG022	89.275	ES	N	CV095	43.871	ES	N	CV189	105.342	ES	M
BG023	87.784	ES	N	CV096	40.967	ES	N	CV190	105.454	ES	N
BG025	87.054	ES	N	CV097	39.028	ES	M	CV191	106.047	ES	N
BG026	86.978	ES	N	CV100	37.052	ES	N	CV192	106.189	ES	N
BG028	86.263	ES	N	CV101	36.954	ES	M	CV193	106.216	ES	N
BG031	82.076	ES	N	CV103	35.885	ES	M	CV194	106.430	ES	N
BG033	77.025	ES	M	CV105	33.307	ES	M	CV195	15.008	ES	N
CV002	93.199	ES	N	CV107	33.091	ES	M	CV196	15.839	ES	N
CV003	92.908	ES	N	CV108	32.513	ES	N	CV197	25.633	ES	N
CV004	92.660	ES	N	CV109	32.441	ES	N	CV198	26.444	ES	M
CV005	91.513	ES	N	CV110	32.220	ES	N	CV199	26.658	ES	M
CV006	91.092	ES	M	CV116	27.388	ES	M	CV200	28.938	ES	M
CV007	90.670	ES	N	CV118	25.878	ES	M	CV201	30.483	ES	M
CV008	89.696	ES	N	CV121	23.199	ES	N	CV204	35.154	ES	M
CV009	88.896	ES	N	CV122	21.949	ES	N	CV205	43.871	ES	N
CV010	88.316	ES	N	CV123	21.399	ES	N	CV206	49.031	ES	N
CV011	88.232	ES	N	CV124	20.626	ES	M	CV207	50.762	ES	N
CV012	88.171	ES	N	CV126	19.243	ES	M	CV208	64.672	ES	N
CV013	86.934	ES	N	CV127	18.279	ES	M	CV209	64.847	ES	N
CV014	86.834	ES	N	CV130	15.202	ES	M	CV210	71.871	ES	N
CV015	86.765	ES	N	CV131	14.709	ES	M	CV211	73.779	ES	N
CV016	86.434	ES	N	CV132	14.625	ES	N	CV212	74.410	ES	N
CV017	85.891	ES	N	CV133	14.201	ES	N	CV213	78.401	ES	N
CV018	85.813	ES	N	CV134	14.014	ES	N	CV214	78.877	ES	N
CV019	85.763	ES	N	CV135	13.675	ES	N	CV218	87.617	ES	N
CV020	85.614	ES	N	CV136	13.425	ES	N	CV219	92.093	ES	N
CV021	85.079	ES	N	CV137	13.042	ES	N	CV220	92.207	ES	N
CV022	85.062	ES	N	CV138	12.784	ES	N	CV221	92.288	ES	N
CV031	77.219	ES	N					CV222	95.216	ES	N
CV032	77.343	ES	N								
CV033	75.783	ES	N								
CV036	73.351	ES	M								

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Notes:
1. ES = extra small, S = small, M = medium.
2. N = None, M = Marginal.

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TABLE 8.2

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

TOTE ROAD CROSSINGS WITH FISH HABITAT

						Fish Habitat Assessment							
Location Code	Road Chainage (km)	Easting	Northing	Catchment Area Size Reference	Catchment Area (m^2)		Fish Habitat[1]				Habitat Classification		
						Habitat Sampled	Spawning	Migration	Sum. Rearing	Overwintering	Critical	Important	Marginal
BG050	62.836	529,334	7,926,846	Extra Large	197,800,000	x	P	P	Y	N		X	
CV128	17.683	513,545	7,965,895	Extra Large	473,400,000	x	P	P	Y	U		X	
CV217	79.824	542,219	7,922,158	Extra Large	194,100,000	x	U	Y	P	P		X	
CV223	97.230	555,818	7,914,691	Extra Large	244,100,000	x	P	P	Y	N		X	
BG017	90.168	550,703	7,917,643	Large	13,766,712	x	N	P	P	N		X	
BG032	78.163	540,706	7,921,622	Large	11,470,152		N	N	Y	N		X	
CV040	72.263	535,175	7,920,305	Large	12,020,780	x	U	U	P	N			X
CV048	64.312	530,415	7,925,875	Large	8,542,258		U	U	Y	N		X	
CV049	63.303	529,677	7,926,542	Large	11,983,534	x	P	P	P	N		X	
CV072	53.878	526,897	7,934,576	Large	13,495,782		U	U	Y	N		X	
CV078	51.172	525,852	7,936,787	Large	19,439,928	x	P	P	Y	N		X	
CV079	50.599	525,562	7,937,276	Large	13,497,190		U	U	Y	N		X	
CV094	41.613	522,805	7,945,397	Large	10,006,204		U	U	Y	N			X
CV099	37.840	521,811	7,948,820	Large	28,559,286	x	P	P	Y	N		X	
CV129	15.651	512,381	7,966,783	Large	10,622,786		U	U	Y	N		X	
CV216	80.647	542,774	7,921,700	Large	13,318,478	x	U	U	Y	N			X
CV225	99.033	557,407	7,915,138	Large	12,179,754	x	U	U	Y	N		X	
BG001	99.676	557,991	7,914,919	Medium	5,611,782	x	U	U	Y	N		X	
BG004	94.148	553,250	7,915,113	Medium	6,847,505		U	U	Y	N		X	
BG24	87.710	548,766	7,918,878	Medium	5,505,790	x	U	U	Y	N		X	
CV060	58.853	527,622	7,930,342	Medium	5,256,834	x	U	U	Y	N		X	
CV104	33.794	521,732	7,952,788	Medium	5,198,489	x	U	U	U	U			X
CV111	31.991	521,355	7,954,524	Medium	3,115,619		N	N	Y	N		X	
CV114	29.648	520,278	7,956,528	Medium	3,144,617	x	U	U	U	U			X
CV224	97.758	556,238	7,915,044	Medium	2,834,518	x	U	U	U	N		X	
BG027	86.606	547,876	7,919,342	Small	552,935	x	U	U	Y	N			X
BG29	84.805	546,229	7,919,877	Small	976,757		N	N	U	N			X
CV001	94.728	553,782	7,914,922	Small	1,637,753		N	N	U	N		X	
CV030	77.503	540,123	7,921,310	Small	1,265,589		N	N	U	N			X
CV046	66.489	531,686	7,924,265	Small	2,286,224		N	N	U	N			X
CV057	60.714	528,379	7,928,657	Small	562,839	x	U	U	Y	N		X	
CV058	60.523	528,322	7,928,839	Small	2,424,180		N	N	U	N			X
CV059	59.960	528,102	7,929,356	Small	749,651		N	N	U	N			X
CV076	53.028	526,617	7,935,335	Small	1,187,687		N	N	U	N			X
CV082	49.656	525,254	7,938,131	Small	530,673		N	N	U	N			X
CV086	46.300	523,746	7,940,983	Small	591,709		N	N	U	N			X
CV102	36.029	521,934	7,950,591	Small	1,932,365		N	N	U	N		X	
CV106	33.170	521,663	7,953,392	Small	752,112		N	N	Y	N			X
CV112	31.446	521,033	7,954,935	Small	2,279,159		N	N	Y	N			X
CV113	30.656	520,747	7,955,659	Small	771,664		N	N	U	N			X
CV115	27.686	519,222	7,958,135	Small	1,414,903		N	N	Y	N		X	
CV119	24.264	517,762	7,961,153	Small	1,168,163		N	N	U	N			X
CV120	23.510	517,294	7,961,707	Small	1,893,702		N	N	U	N			X
CV125	20.448	515,296	7,963,841	Small	1,189,650		N	N	U	N			X
CV151	10.460	508,341	7,969,584	Small	586,477		N	N	U	N			X
CV152	10.282	508,201	7,969,684	Small	1,045,843		N	N	U	N			X
CV153	10.219	508,152	7,969,718	Small	1,060,947		N	N	U	N			X
CV154	9.570	507,620	7,970,076	Small	1,360,439		N	N	U	N		X	
CV157	8.960	507,374	7,970,538	Small	1,467,596		N	N	U	N			X
CV166	6.055	505,538	7,972,370	Small	818,859		N	N	U	N			X
CV170	5.268	505,015	7,972,923	Small	523,156		N	N	U	N			X
CV176	2.637	503,834	7,975,057	Small	522,093		N	N	U	N			X
CV186	102.812	560,705	7,913,498	Small	1,550,999		N	N	U	N		X	
CV187	103.078	560,957	7,913,414	Small	906,835	x	N	N	Y	N		X	
CV202	32.825	521,603	7,953,731	Small	673,298		N	N	U	N		X	
CV203	34.150	521,782	7,952,435	Small	649,588		N	N	U	N		X	
CV159	8.407	506,909	7,970,830	Extra Small								X	
CV167	5.960	505,519	7,972,462	Extra Small								X	
CV173	4.425	504,465	7,973,535	Extra Small								X	

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Note:
1. U = unlikely; P = possible; Y = yes; N = None.

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TABLE 8.3

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

FISH HABITAT COMPENSATION SITES

Location Code	Compensation Type	Road Chainage (km)	Easting	Northing	Catchment Area Size Reference	Area of Compensation (m^2)	Comments
CV001	RH	94.728	553,782	7,914,922	S	100	remove debris
CV154	RH	9.570	507,620	7,970,076	S	100	remove culvert remnants - clean up
CV159	RH	8.407	506,909	7,970,830	ES	20	fix culvert crossing
CV181	RH	0.145	504,133	7,976,216	M	300	clean up old culvert
CV183	RH	0.145	504,696	7,976,417	XL	900	clean up old culverts
CV187	RH	103.078	560,957	7,913,414	S	114	replace fuel drum culvert
CV113	RA	30.656	520,747	7,955,659	S	3798	remove gravel -install culvert for fish passage
CV152	RA	10.282	508,201	7,969,684	S	17721	restore stream channel, redirect water to channel, eliminate barrier to fish passage
CV157	RA	8.960	507,374	7,970,538	S	18256	perched culvert, restore fish passage
CV166	RA	6.055	505,538	7,972,370	S	9236	perched culvert - fish passage - stabilize
CV170	RA	5.268	505,015	7,972,923	S	13374	perched - fish passage
BG016	HE	90.218	550,742	7,917,611	ES	500	remove leaching barrels - BG 17 is DS fish habitat
CV176	HE	2.637	503,834	7,975,057	S	500	erosion control - reduce downstream sediment load
Total:						**64919**	

I:\102-00181-10\Assignment\Report\Report 3, Rev. 0 - CEMP\Tables\[Tables 8.1 to 8.3.xls]Table 8.3
4-Oct-07

Notes:
1. Compensation Type - RH=Restore Habitat, RA=Restore Access, HE = Habitat Enhancement.
2. ES = extra small; S = small; M = medium; XL=extra large.
3. Area of Compensation Restoring Habitat is estimated as area of crossing footprint.
4. Area of Compensation for Restoring Access is calculated based on upstream fish habitat.
5. Area of Compensation for Habitat Enhancement is estimated based on downstream habitat affected.

Knight Piésold CONSULTING

TABLE 10.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

MONITORING STATIONS

Monitoring Station	Description	Easting (NAD 83)	Northing (NAD 83)	Parameters	Maximum Average Concentration	Maximum Grab Concentration	Sampling Frequency	Reporting Requirement	Reporting Frequency
MRY-1	Water Supply for the Mary River Camp at Camp Lake	557682	7914693	Daily Volume	< 60 m^3/d (combined total for MRY-1 and MRY-2/3)	N/A	Daily	Water License Part I, Item 2	Daily Volume Requirement for monthly reporting
MRY-2	Summer Water Supply for the Milne Inlet Camp at Phillips Creek	502746	7975556	Daily Volume	< 60 m^3/d (combined total for MRY-1 and MRY-2/3)	N/A	Daily	Water License Part I, Item 2	Daily Volume Requirement for monthly reporting
MRY-3	Winter water supply for the Milne Inlet Camp at Km 32 Lake	TBD	TBD	Daily Volume	< 60 m^3/d (combined total for MRY-1 and MRY-2/3)	N/A	Daily	Water License Part I, Item 2	Daily Volume Requirement for monthly reporting
No Station	Sewage Influent - WWTF at Milne Inlet Camp	Primary Chamber		BOD_5 Total suspended solids (TSS) Faecal coliforms pH Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus	N/A	N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
Milne-RC1	Receiving waters of Milne Inlet, adjacent drainage ditch	TBD	TBD	BOD_5 Total suspended solids (TSS) Faecal coliforms pH Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus	N/A	N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
No Station	Sewage Influent - WWTF at Mary River Camp	Primary Chamber		BOD_5 Total suspended solids (TSS) Faecal coliforms pH Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus	N/A	N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
Shear-RC1	Sheardown Lake in the vicinity of the sewage outfall	TBD	TBD	BOD_5 Total suspended solids (TSS) Faecal coliforms pH Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus	N/A	N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
MRY-4	Mary River Camp sewage discharge at the WWTF	558322	7914283	BOD TSS pH Faecel Coliforms Oil and Grease	30 mg/L 35 mg/L 6.0 to 9.5 1,000 CFU/100 mL No visible sheer	N/A	Every 4 weeks during discharge	Water License Part I, Item 3	Daily Volume Requirement for monthly reporting
				Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus		N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
				Acute lethality to Rainbow Trout and Daphnia magna (Biological Test Methods EPS/1/RM/13 and EPS/1/RM/14)	Non-toxic	N/A	Once annually during open water	Water License Part I, Item 4	Monthly report following testing; annual report
MRY-4a	Mary River Camp sewage discharge from the PWSP	559789	7913619	BOD TSS pH Faecel Coliforms Oil and Grease	30 mg/L 35 mg/L 6.0 to 9.5 1,000 CFU/100 mL No visible sheer	N/A	Once prior to discharge and every 4 weeks thereafter	Water License Part I, Item 3	Daily Volume Requirement for monthly reporting
				Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus		N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
				Acute lethality to Rainbow Trout and Daphnia magna (Biological Test Methods EPS/1/RM/13 & EPS/1/RM/14)	Non-toxic	N/A	Once annually during open water	Water License Part I, Item 4	Monthly report following testing; annual report
MRY-5	Milne Inlet Camp sewage discharge at the WWTF	TBD	TBD	BOD TSS pH Faecel Coliforms Oil and Grease	100 mg/L 120 mg/L 6.0 to 9.5 10,000 CFU/100 mL No visible sheen	N/A	Every 4 weeks during discharge	Water License Part I, Item 3	Daily Volume Requirement for monthly reporting
				Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus		N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
				Acute lethality to Rainbow Trout and Daphnia magna (Biological Test Methods EPS/1/RM/13 and EPS/1/RM/14)	Non-toxic	N/A	Once annually during open water	Water License Part I, Item 4	Monthly report following testing; annual report

Knight Piésold CONSULTING

TABLE 10.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

COMPREHENSIVE ENVIRONMENTAL MONITORING PLAN

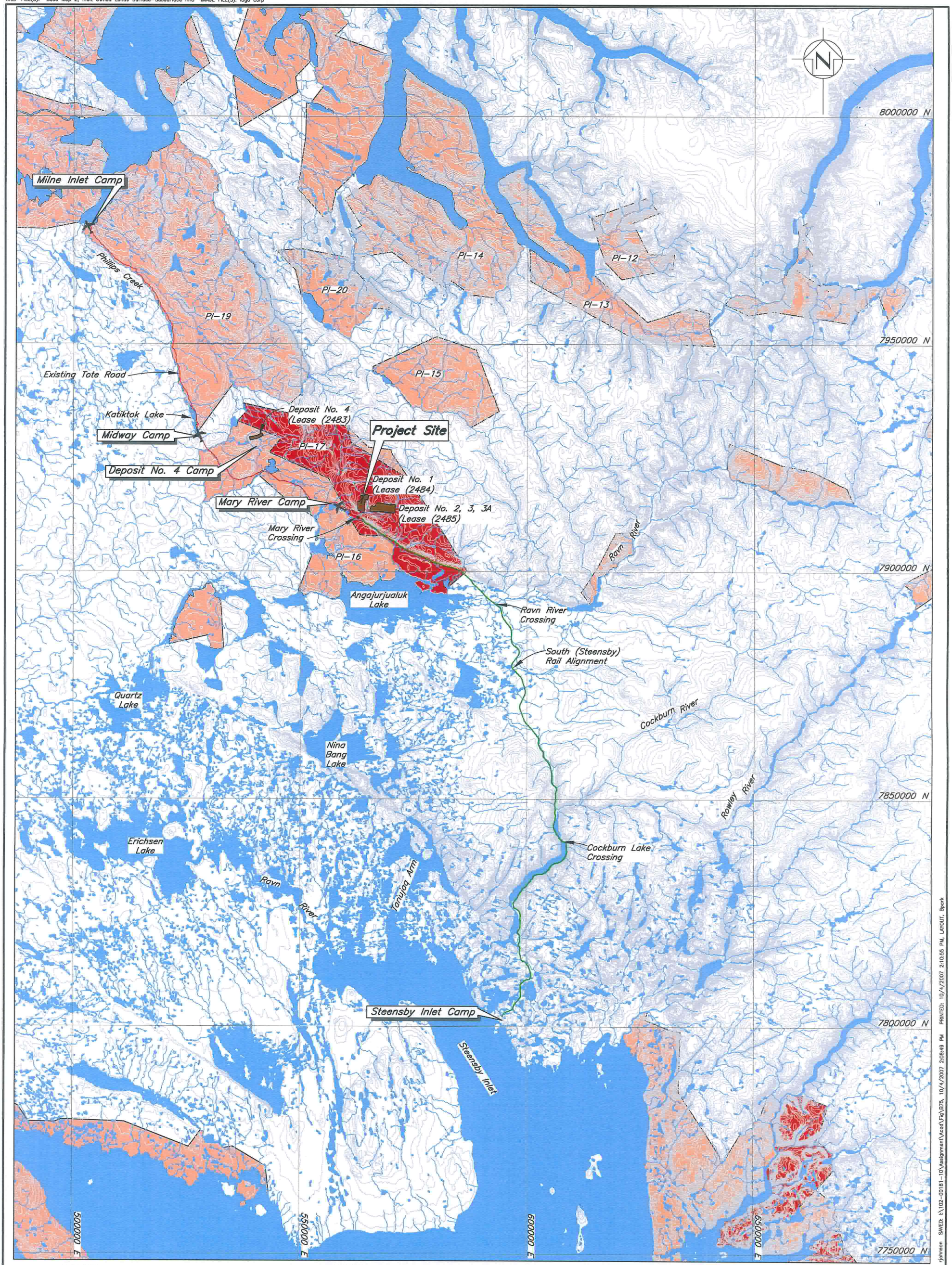
MONITORING STATIONS

Monitoring Station	Description	Easting (NAD 83)	Northing (NAD 83)	Parameters	Maximum Average Concentration	Maximum Grab Concentration	Sampling Frequency	Reporting Requirement	Reporting Frequency
MRY-5a	Milne Inlet Camp sewage discharge from the PWSP	TBD	TBD	BOD TSS pH Faecel Coliforms Oil and Grease	100 mg/L 120 mg/L 6.0 to 9.5 10,000 CFU/100 mL No visible sheen	N/A	Once prior to discharge and every 4 weeks thereafter	Water License Part I, Item 3	Daily Volume Requirement for monthly reporting
				Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus		N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
				Acute lethality to Rainbow Trout and Daphnia magna (Biological Test Methods EPS/1/RM/13 and EPS/1/RM/14)	Non-toxic	N/A	Once annually during open water	Water License Part I, Item 4	Monthly report following testing; annual report
MRY-6	Water collected within the Bulk Fuel Storage Facility at Mary River prior to release	TBD	TBD	Benzene Toluene Ethylbenzene Lead Oil and Grease	370 µg/L 2 µg/L 90 µg/L 1 µg/L 15,000 µg/L and no visible sheen	N/A	Monthly during removal of water	Water License Part I, Item 5	Monthly report following testing; annual report
MRY-7	Water collected within the Bulk Fuel Storage Facility at Milne Inlet prior to release	TBD	TBD	Benzene Toluene Ethylbenzene Lead Oil and Grease	370 µg/L 2 µg/L 90 µg/L 1 µg/L 15,000 µg/L and no visible sheen	N/A	Monthly during removal of water	Water License Part I, Item 5	Monthly report following testing; annual report
MRY-8	Minewater and surface drainage either pumped or released from the Hematite Open Pit	TBD	TBD	Total Arsenic Total Copper Total Lead Total Nickel Total Zinc TSS Oil and Grease pH	As 0.5 mg/L Cu 0.30 mg/L Pb 0.20 mg/L Ni 0.50 mg/L Zn 0.50 mg/L TSS 15 mg/L O&G No visible sheen pH Between 6.0 and	As 1.00 mg/L Cu 0.60 mg/L Pb 0.40 mg/L Ni 1.00 mg/L Zn 1.00 mg/L TSS 50.0 mg/L	During dewatering	Water License Part D, Item 9	Monthly report following testing; annual report
MRY-9	Minewater and surface drainage either pumped or released from the Magnetite Open Pit	TBD	TBD	Total Arsenic Total Copper Total Lead Total Nickel Total Zinc TSS Oil and Grease pH	As 0.5 mg/L Cu 0.30 mg/L Pb 0.20 mg/L Ni 0.50 mg/L Zn 0.50 mg/L TSS 15 mg/L O&G No visible sheen pH Between 6.0 and	As 1.00 mg/L Cu 0.60 mg/L Pb 0.40 mg/L Ni 1.00 mg/L Zn 1.00 mg/L TSS 50.0 mg/L	During dewatering	Water License Part D, Item 9	Monthly report following testing; annual report
MRY-10	Surface discharge from the weathered ore stockpile	TBD	TBD	General chemistry and metals	No criteria specified; suggest MRY-8	No criteria specified; suggest MRY-8	Seepage Survey in July[1]	Water License Part I, Item 2	Monthly report following testing; annual report
MRY-12	Surface discharge from the lump ore and fine ore stockpiles at the processing area	560987	7913364	General chemistry and metals	No criteria specified; suggest MRY-8	No criteria specified; suggest MRY-8	Seepage Survey in July[1]	Water License Part I, Item 2	Monthly report following testing; annual report
MRY-13	Surface discharge from the lump ore and fine ore stockpiles at Milne Inlet	503357	7976453	General chemistry and metals	No criteria specified; suggest MRY-8	No criteria specified; suggest MRY-8	Seepage Survey in July[1]	Water License Part I, Item 2	Monthly report following testing; annual report

I:\102-00181-10\Assignment\Report\Report 3, Rev. 0 - CEMP\Tables\[Table 10.1 Monitoring Stations.xls]Table 10.1 Monitoring Stations
04-Oct-07

Notes:
1. The water license does not specify timing but July is the high runoff month.

XREF FILE(S): Base Map 2; Inuit Owned Lands Surface-Subsurface Info IMAGE FILE(S): logo corp



LEGEND:

- River
- Transportation Route Alternatives
- Existing Road
- Contour
- Airstrip
- Inuit Owned Land-Surface Only Excluding Minerals
- Inuit Owned Land-Surface and Subsurface including Minerals
- Mineral Leases

NOTES:

1. Base Map © Her Majesty the Queen in Rights of Canada, Department of Natural Resources, (2004). All rights reserved. (Government of Canada, 2006).
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
3. South (Steensby) Rail Alignment.

Scale 8 4 0 8 16 24 32 40 Kilometres

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

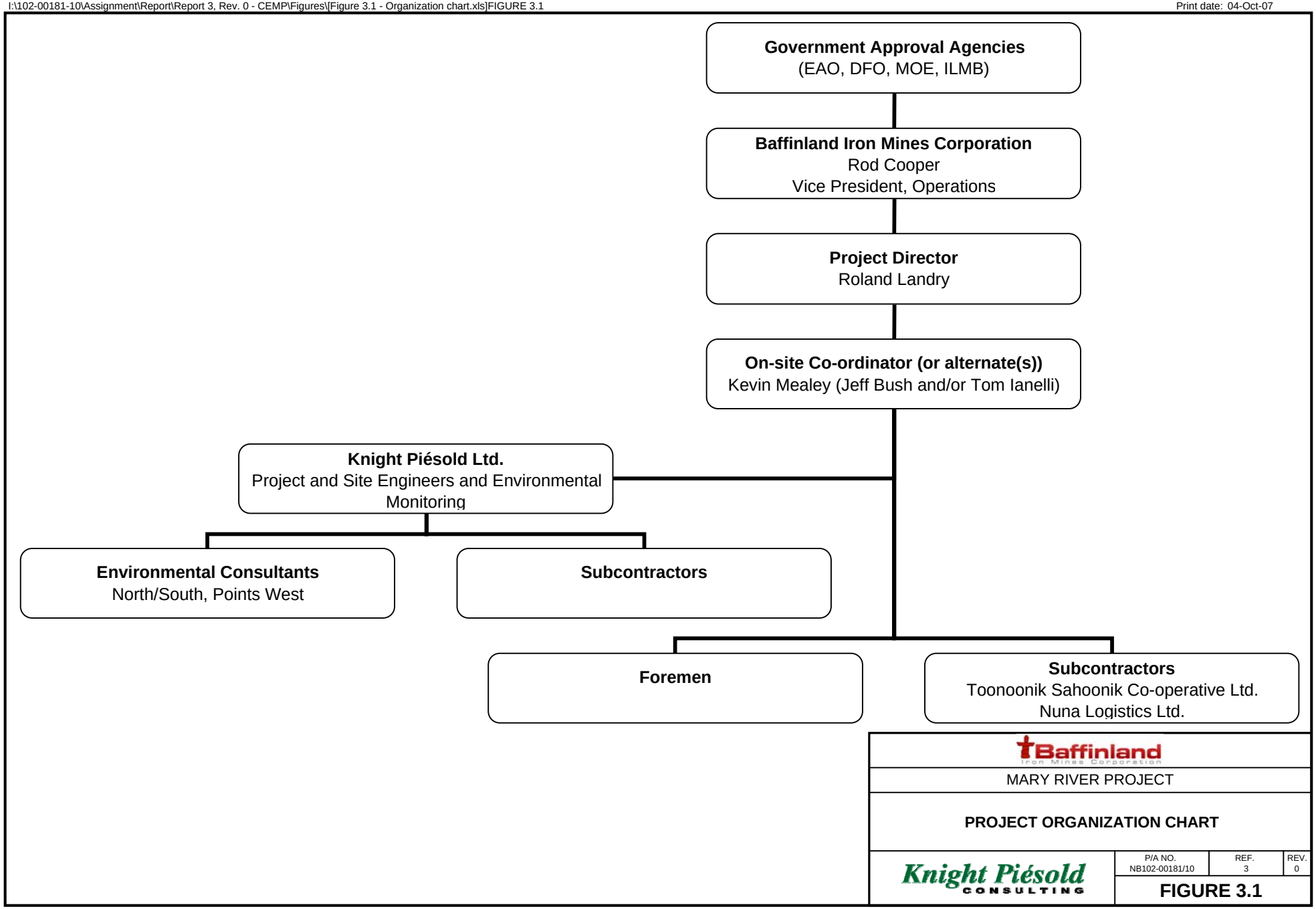
LOCATION OF PROJECT FACILITIES

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/10	3	0

FIGURE 2.1

NORTH BAY ON. CREATED BY: rjohnson SAVED: i:\102-00181-10\Assignment\Acad\Fig\B75, 10/4/2007 2:08:49 PM PRINTED: 10/4/2007 2:10:55 PM, LAYOUT, Bpark



Baffinland Iron Mines Corporation

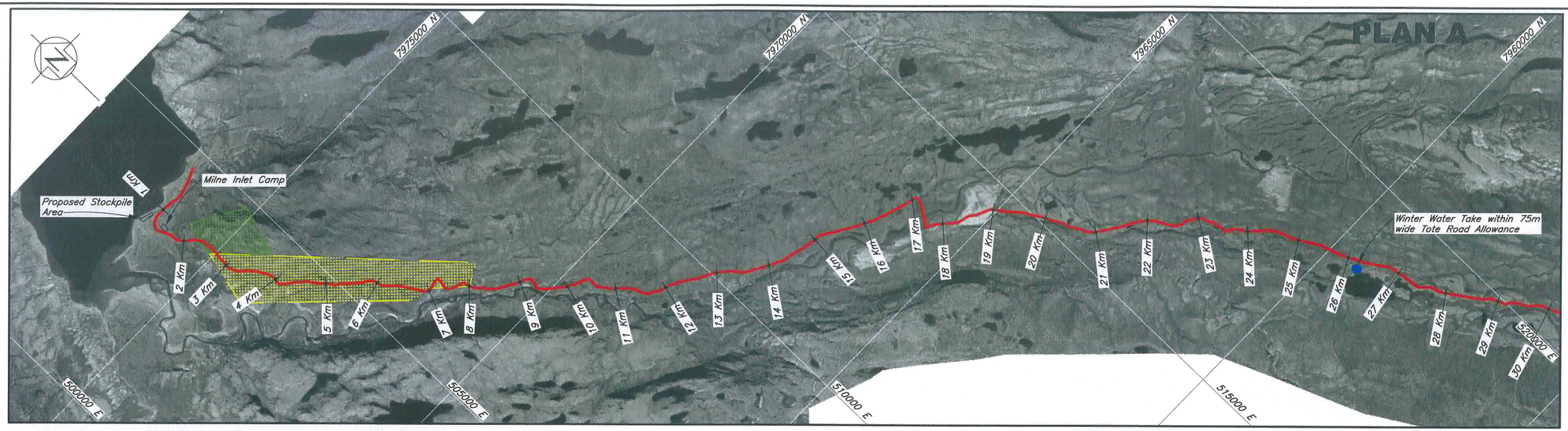
MARY RIVER PROJECT

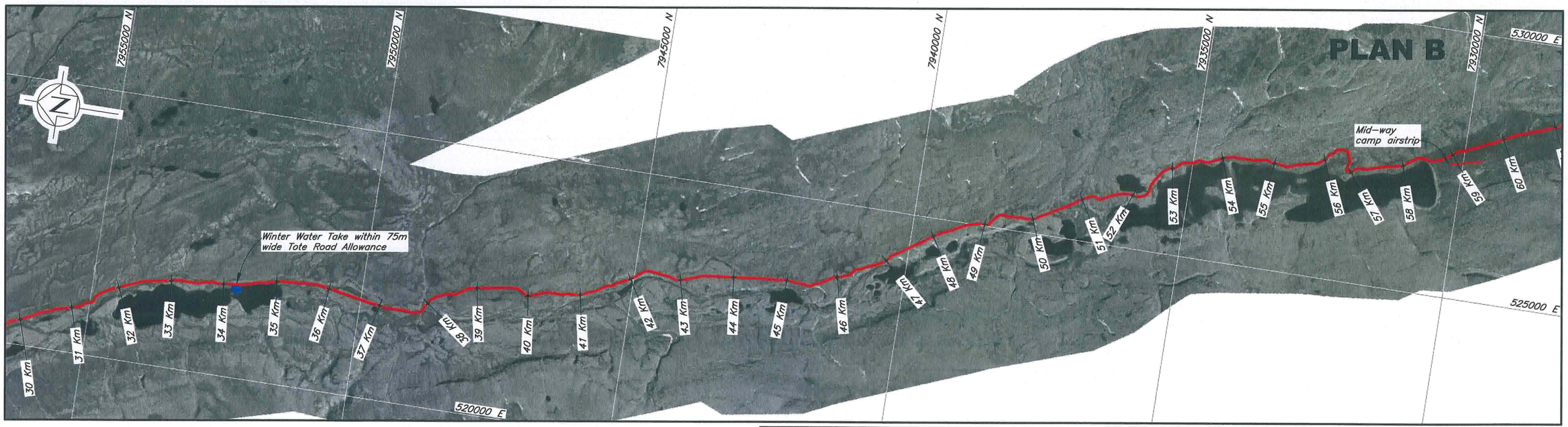
PROJECT ORGANIZATION CHART

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/10	3	0

FIGURE 3.1





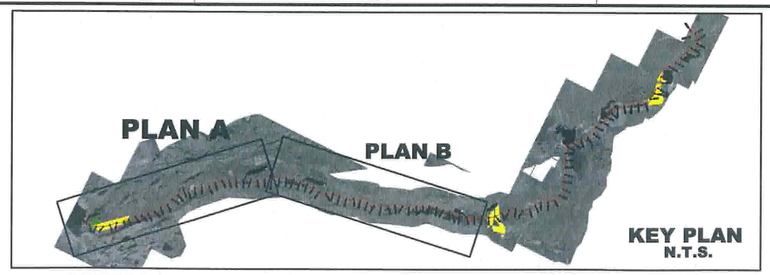
LEGEND:

- Borrow Source Location
- Rock Quarry Location
- Existing Tote Road
- Winter Water Take Location for Milne Inlet Camp

NOTES:

1. Air photos provided by Eagle Mapping (2005).
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.

Scale 750 375 0 750 1500 2250 3000 3750 Metres



Baffinland Iron Mines Corporation

MARY RIVER PROJECT

ROAD AND BORROW AREAS (SHEET 1 OF 2)

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/10	3	0

FIGURE 5.1

XREF FILE(S): Northern Route Ortho Photos; Chainage Check IMAGE FILE(S): Baffinland logo-big corp missing area (northern)_3 missing area (northern)_3.1 Sheet 1 Sheet 2 Sheet 3

NORTH BAY ON. CREATED BY: mdemers SAVED: I:\NB102-00181-10\Assignment\Word\Fig\BS4RD, 10/4/2007 1:16:03 PM PRINTED: 10/4/2007 1:17:17 PM, SHEET 1 OF 2, rjohnson

PLAN C

7930000 N
530000 E
Proposed Midway Camp Location
61 Km
62 Km
63 Km
64 Km
65 Km
66 Km
67 Km
68 Km
69 Km
70 Km
71 Km
72 Km
73 Km
74 Km
75 Km
76 Km
77 Km
78 Km
79 Km
80 Km
81 Km
82 Km
83 Km
84 Km
85 Km
86 Km
87 Km
88 Km
89 Km
90 Km
91 Km
92 Km
93 Km
7925000 N
535000 E
7920000 N
540000 E
7915000 N
545000 E

PLAN D

94 Km
95 Km
96 Km
97 Km
98 Km
99 Km
100 Km
101 Km
102 Km
103 Km
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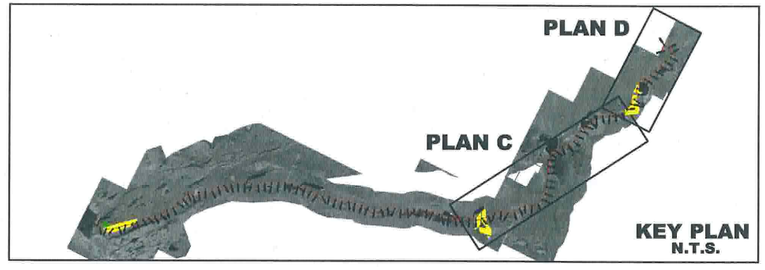
109 Km
7915000 N
555000 E
560000 E
565000 E



LEGEND:

- Borrow Source Location
- Rock Quarry Location
- Existing Tote Road

NOTES:

1. Air photos provided by Eagle Mapping (2005).
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.

Scale 750 375 0 750 1500 2250 3000 3750 Metres

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

ROAD AND BORROW AREAS (SHEET 2 OF 2)

Knight Piésold CONSULTING

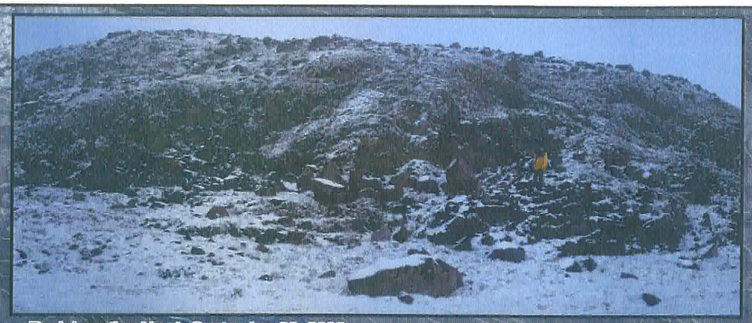
P/A NO.	REF.	REV.
NB102-00181/10	3	0

FIGURE 5.2

Close up view showing sample SC50 pit, July 6, 2006.

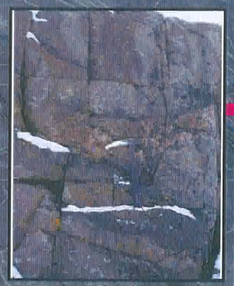
Rock Location No. 2, September 29, 2006.

Panoramic view looking north showing general location of sample SC50, July 6, 2006.

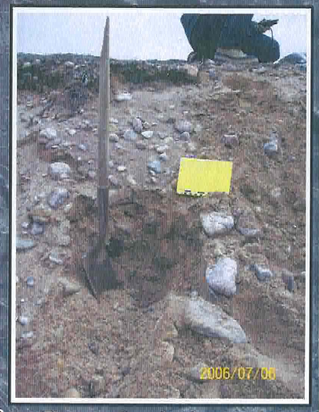


Rock Location No. 1, September 29, 2006.

Rock Location No. 2, September 29, 2006.

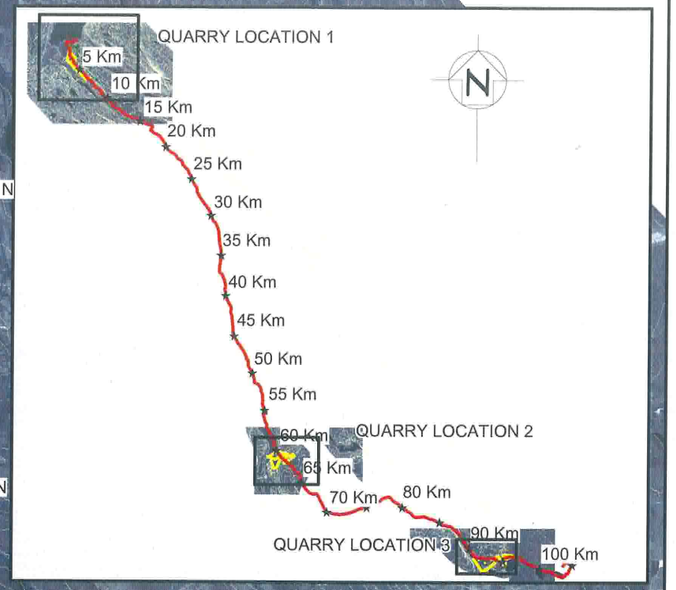


Rock Location No. 2, September 29, 2006.



Close up view showing sample SC51, July 6, 2006.

Panoramic view looking southwest showing general location of sample SC51, July 6, 2006.



Line	Bearing	Distance
A1-B1	S59°42'32"E	1092.91m
B1-C1	S17°08'22"W	1030.56m
C1-D1	S42°05'38"E	3821.50m
D1-E1	S61°55'40"W	465.56m
E1-F1	N47°02'20"W	748.43m
F1-G1	N79°04'36"W	397.45m
G1-H1	N44°54'51"W	3229.07m
H1-A1	N13°56'55"E	1771.02m

LEGEND:

- *Existing Tote Road*
- *River/Stream*
- *Control Point (Eagle Mapping)*
- *Maximum Extent of Rock Quarrying*
- *Maximum Extent of Identified Borrow Sources*
- *Peregrine Falcon Nesting Location*
- *Rough Legged Hawk Nesting Location*
- *Common Raven Nesting Location*
- *Rock Sample Location*
- *Soil Sample Location*

NOTES:

1. *Air photos and topography provided by Eagle Mapping (2005).*
2. *Contour interval is 25 metres and was provided by Eagle Mapping.*
3. *Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.*

Scale 0 1,000 2,000 Metres

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

BORROW AND ROCK SOURCES NEAR MILNE INLET

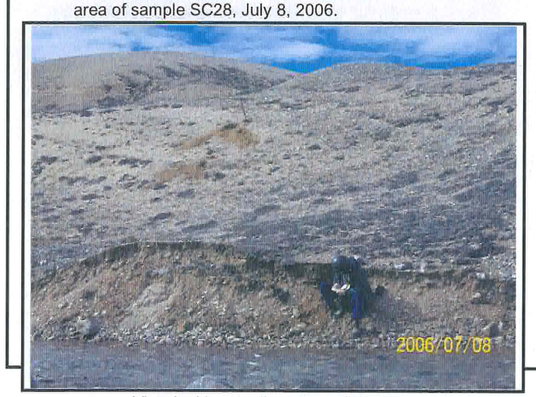
Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/10	3	0

FIGURE 7.1

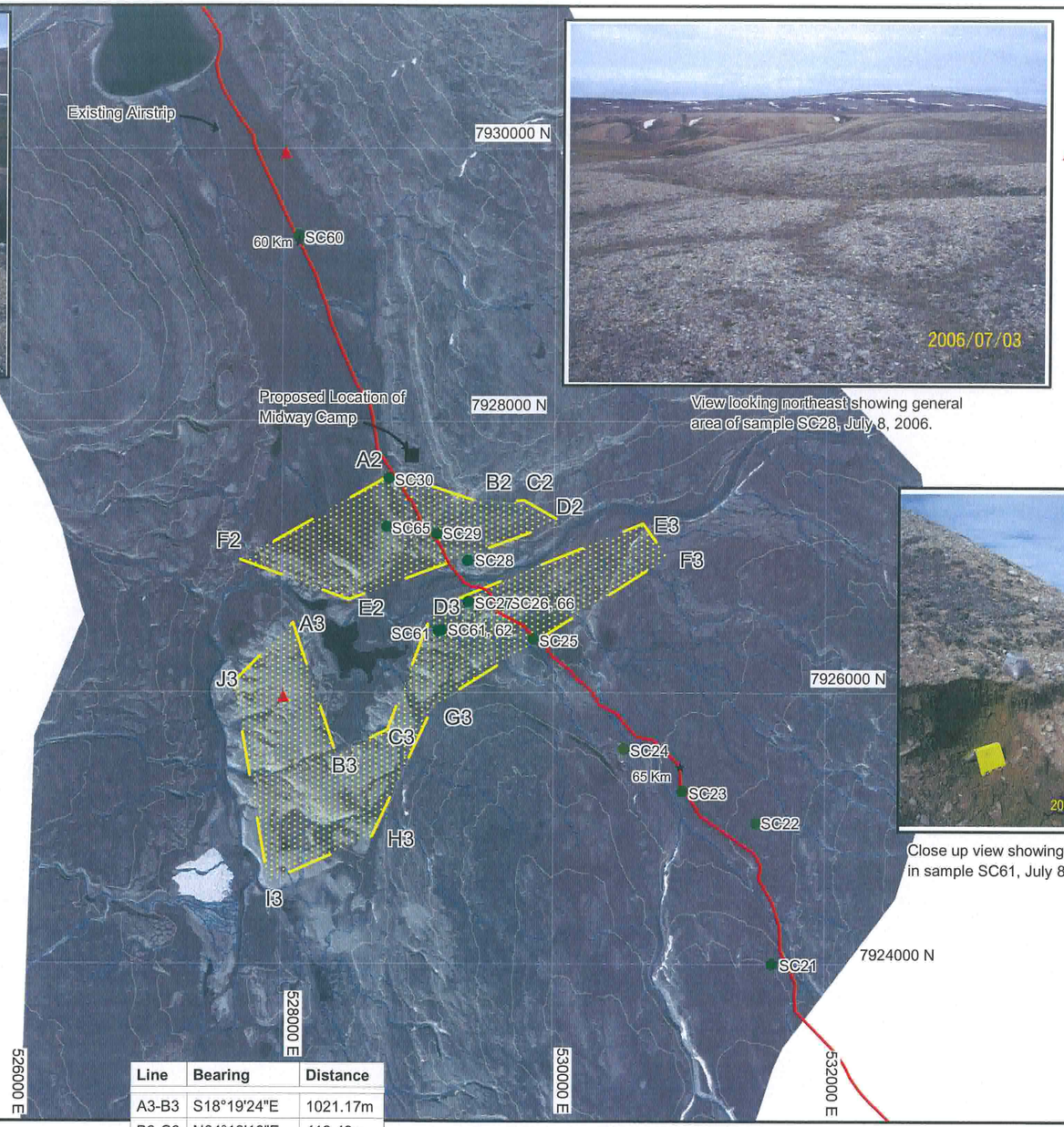
View looking northeast showing general locaton of sample SC27, July 2, 2006.

View looking northeast showing general area of sample SC28, July 8, 2006.

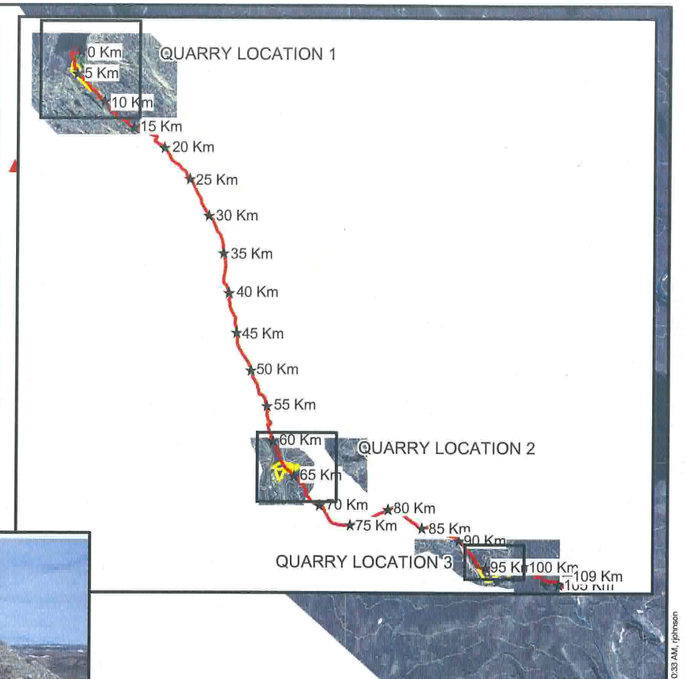


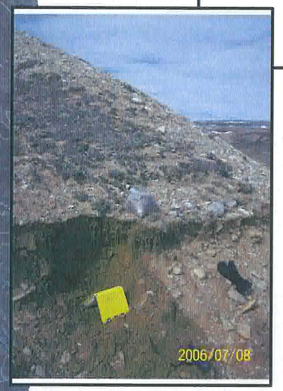
View looking south showing location of sample SC61, July 8, 2006.

Line	Bearing	Distance
A2-B2	S71°51'57"E	669.72m
B2-C2	N88°03'30"E	328.14m
C2-D2	S60°22'37"E	307.48m
D2-E2	S69°28'39"W	1659.41m
E2-F2	N69°25'48"W	839.76m
F2-A2	N20°09'26"E	1278.10m



Line	Bearing	Distance
A3-B3	S18°19'24"E	1021.17m
B3-C3	N64°12'18"E	419.49m
C3-D3	N20°28'03"E	954.1m
D3-E3	N67°42'52"E	1659.92m
E3-F3	S35°56'32"E	311.01m
F3-G3	S57°29'17"W	2037.86m
G3-H3	S24°53'38"W	1061.75m
H3-I3	S65°56'59"W	834.09m
I3-J3	N9°53'48"W	1501.62m
J3-A3	N45°00'00"E	614.25m





Close up view showing material in sample SC61, July 8, 2006.

Close up view of sample SC62 pit, July 8, 2006.

LEGEND:

- *Existing Tote Road*
- *Maximum Extent of Identified Borrow Sources*
- *River/Stream*
- *Control Point (Eagle Mapping)*
- *Soil Sample Location*
- *Proposed Location of Midway camp*

NOTES:

1. *Air photos provided by Eagle Mapping (2005).*
2. *Contour interval is 25 metres and was provided by Eagle Mapping.*
3. *Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.*

Scale 0 1,000 2,000 Metres

Baffinland Iron Mines Corporation

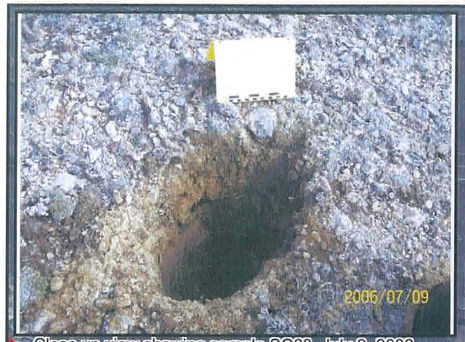
MARY RIVER PROJECT

BORROW SOURCE ALONG TOTE ROAD

Knight Piésold CONSULTING

P/A NO. NB102-00181/10 | REF. 3 | REV. 0

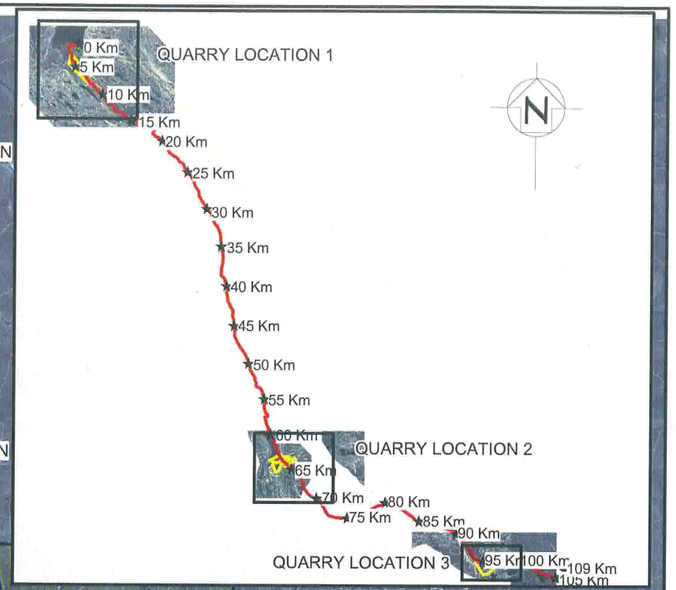
FIGURE 7.2



Close up view showing sample SC63, July 9, 2006.

View looking north showing location of sample SC63, July 9, 2006.

View looking northeast showing location of sample SC67, July 9, 2006.



View looking west showing location of sample SC67, July 9, 2006.

Line	Bearing	Distance
A4-B4	S56°46'05"E	810.96m
B4-C4	N77°09'08"E	1709.40m
C4-D4	S26°19'05"E	606.73m
D4-E4	S80°14'19"W	551.83m
E4-F4	S47°58'54"W	1589.98m
F4-G4	S81°41'25"W	525.97m

Line	Bearing	Distance
A5-B5	S88°25'34"E	1064.68m
B5-C5	S39°36'37"E	220.13m
C5-D5	S74°34'42"W	703.67m
D5-E5	S42°27'17"W	372.51m
E5-F5	S5°26'25"E	370.07m
F5-G5	S67°17'07"W	272.59m
G5-H5	N15°38'30"E	455.45m
H5-A5	N14°36'04"W	719.10m

Line	Bearing	Distance
A6-B6	S66°44'30"E	965.47m
B6-C6	S59°59'27"W	256.64m
C6-D6	N68°45'22"W	877.68m
D6-A6	N38°39'36"E	245.34m

LEGEND:

- Existing Tote Road
- River/Stream
- Maximum Extent of Identified Borrow Sources
- Maximum Extent of Rock Quarrying
- Rock Sample Location
- Peregrine Falcon Nesting Location
- Rough Legged Hawk Nesting Location
- Soil Sample Location

Scale 0 1,000 2,000 Metres

NOTES:

1. Air photos provided by Eagle Mapping (2005).
2. Contour interval is 25 metres and 10 metres in detailed limits. Contour data was provided by Eagle Mapping.
3. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
4. Mining lease boundaries from Indian and Northern Affairs (2006).

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MARY RIVER PROJECT

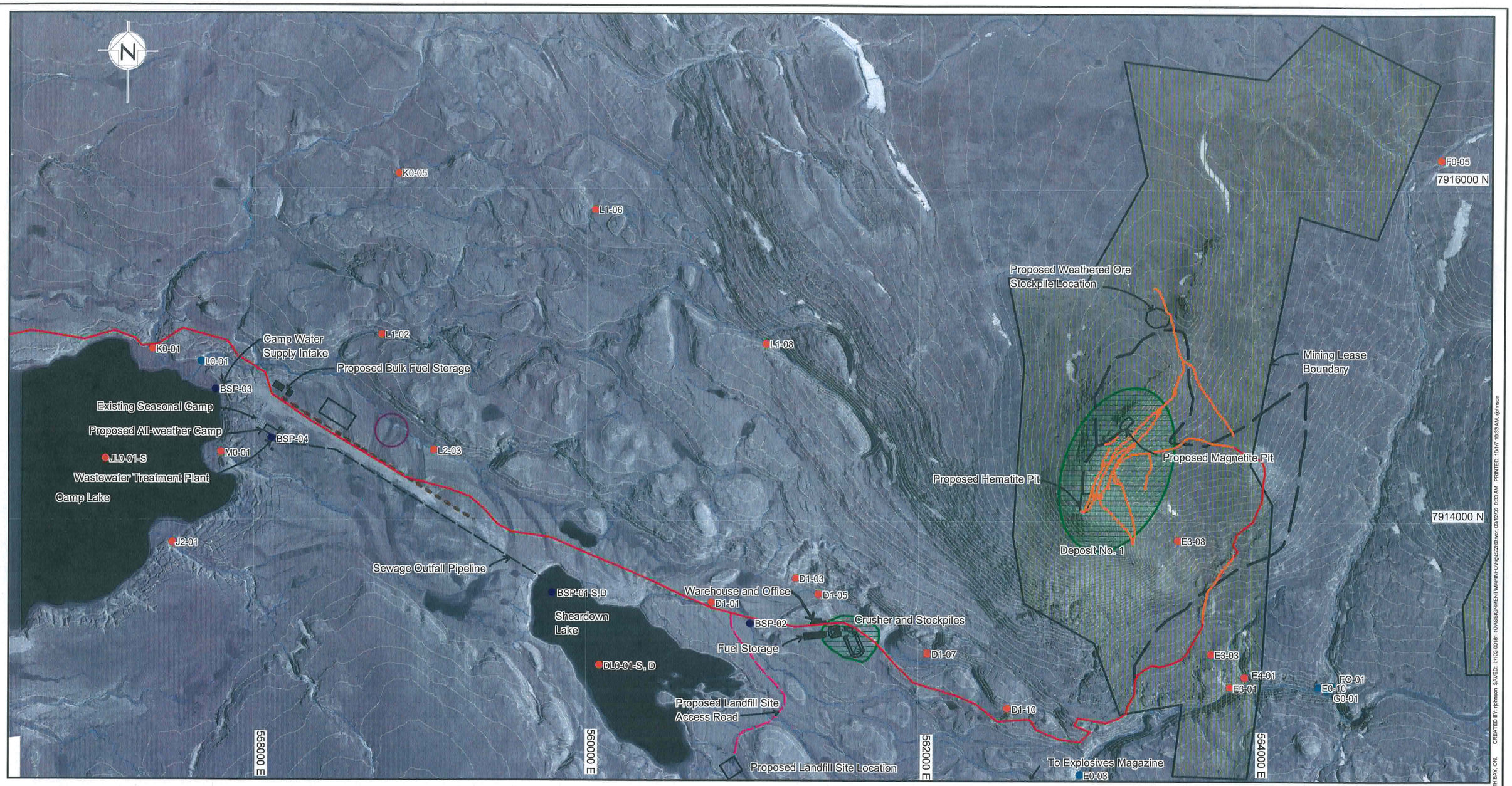
BORROW AND ROCK SOURCES NEAR MARY RIVER

Knight Piésold CONSULTING

P/A NO. NB102-00181/10 | REF. 3 | REV. 0

FIGURE 7.3

NORTH BAY, ON. CREATED BY: rjohnson SAVED: I:\102-00181-10\ASSIGNMENT\MAPINFO\Fig\Bz1R0.wor, 09/12/08 8:33 AM PRINTED: 10/17 10:33 AM, rjohnson



NORTH BAY, ON. CREATED BY: rjohnson SAVED: L:\102-00181-10\ASSIGNMENT\MAP\NFO\Fig\B2260.wor, 09/12/08 8:33 AM PRINTED: 10/1/7 10:33 AM, rjohnson

LEGEND:

- *Existing Tote Road*
- *Existing Trails for Drills*
- *Proposed Pit / Stockpile Road*
- *New Roads*
- *River/Stream*
- *Test Rail Embankment*
- *Mining Lease Boundary*
- *Existing Seasonal Water Quality Sampling Locations*
- *Existing Weekly Water Quality Sampling Locations*
- *Proposed Water Quality Monitoring Locations for Bulk Sampling Program*
- *Proposed Snow / Vegetation Sampling Location*

NOTES:

1. *Air photos and topography provided by Eagle Mapping (2005).*
2. *Contour interval is 10 metres and was provided by Eagle Mapping.*
3. *Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.*
4. *Mining lease boundaries from Indian and Northern Affairs (2006).*
5. *Location of Test rail Embankments were provided by Canarail and are approximate only.*

Scale 0 500 1,000 Metres

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MONITORING SITES AT MARY RIVER

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/10	3	0

FIGURE 10.1

CREATED BY: rjohnson SAVED: I:\102-00181-10\ASSIGNMENTS\MAP\INFO\Fig\BSP\BSP_09\12\06 8:33 AM PRINTED: 10/17 10:33 AM, rjohnson

NORTH BAY, ON.

LEGEND:

- *Existing Tote Road*
- *New Road*
- *River/Stream*
- *Transmission Line*
- *Alternative Stockpile Location*
- *Proposed Water Quality Monitoring Locations for Bulk Sampling Program*
- *Sewage Outfall*
- *Proposed Snow / Vegetation Sampling Location*

NOTES:

1. *Air photos provided by Eagle Mapping (2005).*
2. *Infrastructure provided by B.H. Martin Consultants Ltd.*
3. *Contour interval is 5 metres and was provided by Eagle Mapping.*
4. *Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.*

Scale 0 250 500 Metres

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MONITORING SITES AT MILNE INLET

Knight Piésold CONSULTING

P/A NO.	REF.	REV.
NB102-00181/10	3	0

FIGURE 10.2

Knight Piésold
CONSULTING

APPENDIX A

MONITORING AND INSPECTION FORMS

- Watercourse Crossing Monitoring Data Form 1 page
- Turbidity Monitoring Data Form 1 page
- Wildlife Log 1 page
- Off-Site Waste Disposal Log 1 page
- Waste Disposal Facility Inspection Form 2 pages
- Drill Site Inspection Form 1 page
- Fuel Storage Facility Inspection Form 1 page
- Environmental Issue Reporting 1 page

Watercourse Crossing Monitoring Data Form

CROSSING ID:			
Construction Duration:	**Start:**	**Finish:**	
	Environmental Inspector:	**Start (Date and Time):**	**Finish (Date and Time):**
Env. Inspector on site during in-water work:			
LOCATION	**Datum:**	**Zone:**	
Easting (m):	**Northing (m):**	**Elevation (from mapping):**	**Other notes:**

FISH ASSESSMENT PRIOR TO CONSTRUCTION	**Date of Inspection:**		
Fish Present?	**Y / N**	**If Yes, distance from crossing:**	**US / DS**
Spawning Arctic Char present at crossing?	**Y / N**	**(If yes, contact biologist)**	
Spawning site present 20 m upstream or downstream of crossing?	**Y / N**		

CHANNEL CHARACTERISTICS **Date Measured:**

		Pre-Construction					Post Construction				
Location	**Distance**	**Width (m)**		**Water Depth (m)**			**Width (m)**		**Water Depth (m)**		
		Wetted	**High W**	**Max**	**Avg.**		**Wetted**	**High W**	**Max**	**Avg.**	
Crossing											
Upstream											
Dwnstrm											

SEDIMENT AND EROSION CONTROL MEASURES	
Measure installed:	**Date installed:**
	Dated removed:
	Turbidity monitored Y / N
Measures taken to stabilise disturbed areas:	

CROSSING INSTALLATION DETAILS			
1.2 m	**culverts**	**lengths of culvert**	**Notes:**
1.0 m	**culverts**	**lengths of culvert**	
0.5 m	**culverts**	**lengths of culvert**	

PHOTOS ***View across crossing, view from upstream, view from downstream and any other to illustrate conditions.***

	Photo #	**Date**	**Direction**	**Vantage point**		**Photo #**	**Date**	**Direction**	**Vantage point**
Before					**After**				
across					across				
from US					from US				
from DS					from DS				
During					**Sed Con**				
across					across				
from US					from US				
from DS					from DS				

NOTES

Turbidity Monitoring Data Form

CROSSING ID:				
Field Crew:			**Date:**	**Time:**
LOCATION	**Datum:**		**Zone:**	
Easting (m):	**Northing (m):**		**Elevation (from mapping):**	**Other notes:**
CURRENT WEATHER:	**Wind:**	**Air Temp:**	**Precipitation:**	**Cloud Cover (%):**
Recent Weather Events:				
CONSTRUCTION	**Construction Phase (circle one):**	Pre-Construction	During Construction	Post-Construction
Type of Activity:		**Equipment in Use:**		
Date Construction Began:				
Is the crossing location changing?	(i.e. is the crossing moving upstream or downstream of its original location? How far? Which direction?)			

SITE SKETCH, NOTES, REMARKS: (i.e. high water table, high turbidity, natural bank erosion, water colour, char observed in stream, algae in water, etc.)

Is there anything unique about this crossing compared to other watercourses? (i.e. steep banks, clay in water, etc.)

Substrate Particles % Areal Coverage (est.) **% sand/silt/clay (<2mm)** **% gravel (2 - 64 mm)** **% cobble (64 - 256 mm)** **% boulder (> 256 mm)** **% bedrock**	**Riparian Vegation and Shading (describe):**

***IN SITU* TURBIDITY READINGS** (complete at least one measurement upstream and downstream of crossing)

Meter Make and Model:

Location	Distance from crossing (m)	Turbidity (NTU)	Time	Location	Distance from crossing (m)	Turbidity (NTU)	Time
Upstream				**Upstream**			
Crossing				**Crossing**			
Dwnstrm				**Dwnstrm**			

FLOW ESTIMATES **Location :**	
High Water Width (m):	**Distance between points (m):**
Wetted Channel Width:	**Time (min):** **/**
Approx. Average Depth:	**Surface velocity estimate:**
	Average Velocity (0.8 (1) x Surface Velocity) (V) =

Note (1) - depends on substrate composition: 0.8 for rough, loose rocks or coarse gravel / 0.9 for smooth mud, sand, or hard pan rock

PHOTOS: (upstream, crossing, downstream)

NOTES:

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Wildlife Log

Wildlife observations by site personnel make very important contributions to environmental baseline studies. It is important enough that Baffinland requires all site personnel to record any observations of wildlife as much as possible.

DATE	ANIMAL (HOW MANY?)	WHERE? (GPS)	COMMENTS (Behaviour)

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Off-Site Waste Disposal Log

Baffinland's water license requires that the company record the volume of wastes that are removed from site for off-site disposal. This includes all non-hazardous waste transported to the landfill at Pond Inlet. Hazardous wastes will be tracked through manifests required under the Transportation of Dangerous Goods (TDG) Regulations.

Waste that is incinerated, or inert wastes that are landfilled on site, do not need to be logged.

Date	**Waste Volume** (Weight, no. bags)	**Destination**	**Responsible Person**	**Signature**

Baffinland Iron Mines Corporation

Waste Disposal Facility Inspection Form

Date: _____

Inspector name: _____

Inspector's position: _____

Today's inspection was carried out at the following sites (check all that apply):

Milne Inlet camp _____

Midway camp _____

Mary River camp _____

Crusher area at Mary River _____

Steensby Inlet camp _____

Other (please describe location) _____

Incinerator

Please review and complete the checklist for each of the incinerators (Mary River and Milne Inlet).

	Milne Inlet Camp		Mary River Camp	
	Yes	No	Yes	No
Is the waste being incinerated (or stored for incineration) appropriate for incineration (i.e.food waste and packaging, paper and wood)?				
Are there any hazardous wastes proposed for incineration?				
Is waste around the incinerator being stored in an appropriate manner?				
Are there any food wastes stored in a way that could attract animals?				
Is the incinerator functioning properly? (burning completely, no substantial black emissions?)				
Are there any signs of fuel spills on the ground near the incinerator or fuel supply?				
Do you notice anything else of concern? If so, please describe below.				

Inert Landfill

Please walk the inert landfill at Mary River and observe the following:

	Mary River Inert Landfill	
	Yes	No
Are only inert wastes (plastics, metals, rubber) contained in the landfill?		
Is there any sign of biodegradable wastes (i.e. wood, cardboard)?		
Is there any sign of putrescible wastes (i.e. food waste)?		
Are there any potentially hazardous wastes in the landfill (i.e. drums)?		
Is there any evidence of spills of fuel or other substances? Has adequate cover been applied or is waste being windblown?		

Any non-conformances with the landfill should be reported to the Site Manager(s) in writing, for action.

Hazardous Waste Storage Areas

Please review and complete the checklist for the drum storage areas at each project location.

	Milne Inlet		Mary River		Midway Camp		Steensby Camp		Other:	
	Y	N	Y	N	Y	N	Y	N	Y	N
Are all drums labelled with "Baffinland" and identified as containing a specific hazardous waste?										
Are all drums located within a lined containment?										
Are any drums or containers leaking? Are there signs of spills on the ground or snow?										
Are there any drums or containers that are damaged? Drums with missing bungs, or containers that are improperly sealed?										
Do you detect any odours (more than you would expect)?										
Are all containers located more than 30 m (100 feet) from any waterbody?										

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Drill Site Inspection Form

Date:		**Which activities were inspected?**	(check)
Inspector name:		Drill move and set-up	
Inspector's position:		Drilling	
Drill Name or Number		Completion and abandonment	
Driller #1		Demobilization	
Driller #2		Drill is gone	
Drill Location (i.e. rail route)			
UTM (NAD83)			

Acceptable Locations to Drill	Yes	No	N/A
Is the drill or the sump located within 33 metres of a waterbody?			
Was archaeology clearance obtained for this drillhole location?			
Drill Operations and Movements			
Is the work area around the drill clean and tidy?			
Was overland transportation used to transport workers?			
Was helicopter used to position the drill rig and supplies?			
Were surface vehicles used to move drill rigs or other equipment?			
If yes, then did any rutting or other damage to the ground surface occur as a result?			
Is any litter or waste (i.e., salt bags, lunch wrappers) on the ground?			
Water Use			
Was brine (calcium chloride salt mixed with water) used during drilling?			
Were salt mixing stations (if applicable) located 33 m from any waterbody?			
Were drilling fluids re-circulated to the extent reasonably possible?			
Was water taken from a small stream?			
Did the water line have a screen over the intake?			
Was any erosion caused to the banks of any body of water during water line installation?			
Drill Water and Runoff			
Was a sump constructed or used to contain drill water?			
Did any drill water runoff flow over the land?			
Did the drill water reach a watercourse?			
Were silt fences, diversion channels or berms used downstream of the drill rig to contain drill water runoff?			
Was artesian flow encountered in this hole? (If so, it should be plugged immediately.)			
Drillhole Abandonment			
Were drill cuttings cleaned up from the ground and returned to the drillhole?			
Were drill sumps restored to the natural surrounding contours at the completion of drilling?			
Has the ground surface been restored to minimize evidence of disturbance?			
If a casing was left in the hole, was it cut off at ground surface?			
Was waste generated at the drill site returned to Mary River?			

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Fuel Storage Facility Inspection Form

Date: _____
Inspector name: _____
Inspector's position: _____

Today's inspection was carried out at the following sites (check all that apply):

Milne Inlet camp _____
Midway camp _____
Mary River camp _____
Crusher area at Mary River _____
Steensby Inlet camp _____
Other (please describe location) _____

Bulk Fuel Storage Facilities

Please review and complete the checklist for each of the three bulk fuel storage facilities (tank farms).

	Milne Inlet Camp		Mary River Camp		Crusher Area	
	Yes	No	Yes	No	Yes	No
Is re-fueling being fully supervised? (When people take fuel, do they stay next to the fuel pump)?						
Are there any signs of fuel spills on the ground near the fuel pump?						
Is the vehicle/equipment positioned on the fuel pad correctly?						
Walking around the storage facility – is there any fuel in the berm?						
If there is water in the berm, is there a visible sheen on the surface?						
Can you see any obvious damage to piping or the tanks?						
Can you see any damage to the berm or the plastic liner?						
Do you notice anything else of concern? If so, please describe below.						

Drum Storage Areas

Please review and complete the checklist for the drum storage areas at each project location.

	Milne Inlet		Mary River		Midway Camp		Steensby Camp		Other:	
Are all drums labelled with "Baffinland"?	Y	N	Y	N	Y	N	Y	N	Y	N
Are all full drums located within a lined containment?										
Are any fuel drums leaking? Are there signs of spills on the ground or snow?										
Are there any fuel drums that are damaged or missing bungs?										
Do you detect any fuel odours (more than you would expect)?										
Are all drums located more than 30 m (100 feet) from any waterbody?										

Report any spills immediately and implement the Spill Contingency Plan.

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Environmental Issue Reporting

Any personnel acting on behalf of Baffinland may issue an Environmental Issue Report (EIR) in response to poor or inappropriate work methods, equipment selection, maintenance of controls, or in relation to a non-compliance with the EPP or other contractual documentation. An EIR will be issued for deficiencies that are minor in nature however require some form of rectification or preventative system implementation whether immediate or not. Repetitive occurrences of minor deficiencies may be escalated into being issued as a non-conformance.

PERSON REPORTING

Date: _____

Name: _____

Position: _____

Company: _____

ISSUE DETAILS

Is the environmental issue you are reporting one of the following:

Check any that apply

Inappropriate Work Method _____

Poor Equipment Selection _____
(the equipment is not designed for its intended purpose)

Environmental Controls are Not In Place _____
(i.e. drilling without a sump; no sediment and erosion control measures in place)

Improper Activity _____
(the activity does not conform with the Environmental Protection Plan or other requirement)

Please describe the activity and the concern or non-conformance:

_____
_____
_____
_____
_____
_____
_____

Where is the Environmental Issue taking place?

Location Description: _____

UTM Easting: _____

UTM Northing: _____

Please report UTM coordinates in NAD83