Baffinland
Iron Mines Corporation

MARY RIVER PROJECT
Pre-Development Works

APPENDIX B.9
SHIPPING
MANAGEMENT PLAN

Foreword

Baffinland Iron Mines Ltd.(BIM) has developed a Shipping and Marine Wildlife Management Plan (SMWMP) to address all aspect of Shipping associated with the various stages of the Mary River Project, from Construction through Operations, and eventual Closure and Decommissioning. As a preliminary to Project Construction, the company is proposing Pre-Development Work (PDW) that will enable the overall Project Construction Schedule to be met, while ensuring continuing compliance with regulatory and Project Approval requirements.

An essential ingredient of the PDW will be the open- water shipment of equipment, materials, supplies and fuel to the Project site at both Steensby Inlet and Milne Inlet.

The following document has been prepared as a supplement to the generic SMWMP to address specific aspects of Shipping applicable to the PDW. Not all sections of the SMWMP have been repeated herein; consequently this supplement frequently refers to the text of the master document. The policy commitments made in the SMWMP apply to the PDW program and should be referred to as appropriate. Since the described work is to be carried out in advance of Project Construction, many of the organizational and physical features of the Project will not be in place. Adaptations to accommodate these circumstances are addressed in this supplement.

ENVIRONMENTAL MANAGEMENT

Appendix B.9 – SHIPPING AND MARINE WILDLIFE MANAGEMENT PLAN

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SECTION 1.0 - INTRODUCTION

1.1 PURPOSE

The Baffinland Iron Mines Corporation (Baffinland) was formed specifically to develop the Mary River Iron Ore Deposit Project (the Project) on the coast of Nunavut. The proposed development, the largest planned in the history of Nunavut, is located about 160 km south of the community of Pond Inlet (Mittimatalik) and 1000 km northwest of Iqaluit, the capital of Nunavut (Figure 1).

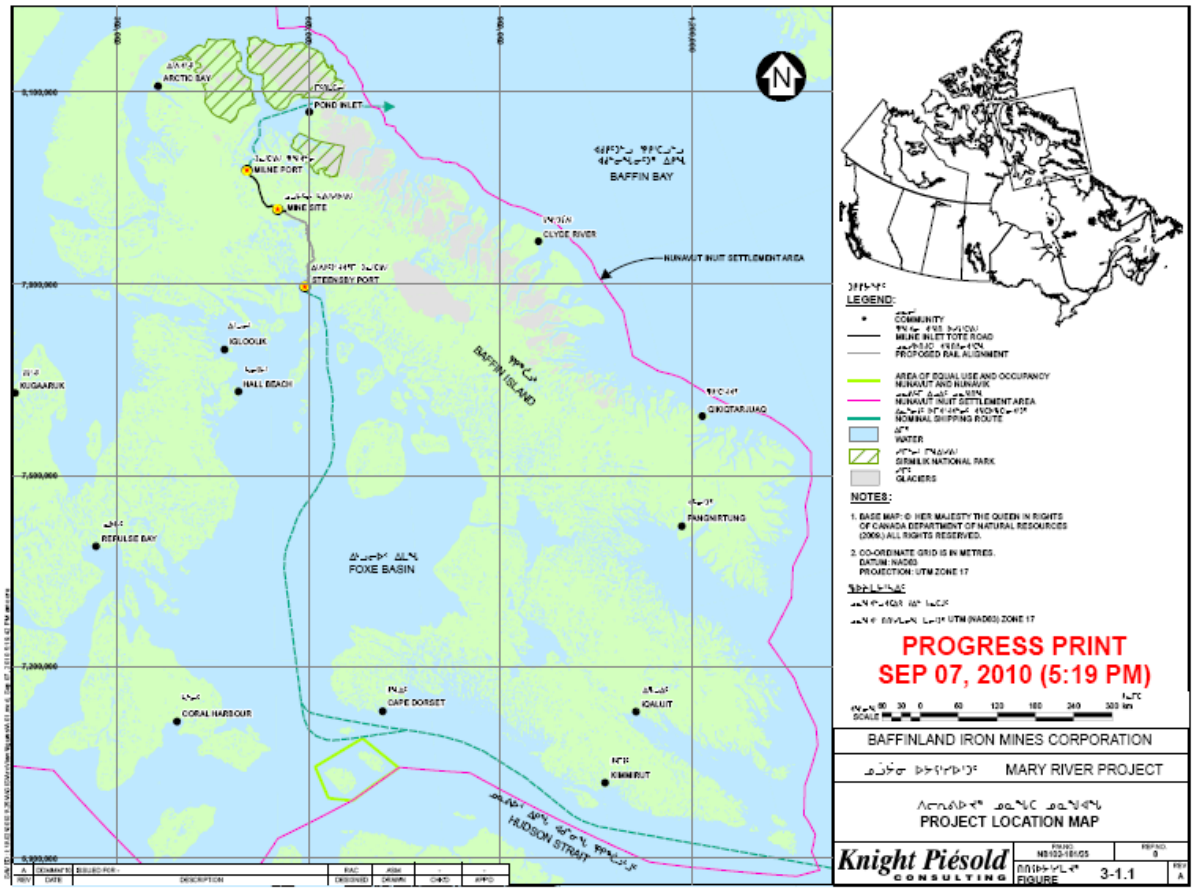


Figure 1 Location of Baffinland Iron Ore Deposit

The viability of the proposed Project depends on the constant supply of iron ore to overseas markets requiring shipping on a 12 month-per-year basis. Accordingly, a Shipping and Marine Wildlife Management Plan (SMWMP) has been developed to:

1. Address the issues of concern to Inuit with respect to shipping;

2. Establish rules and procedures applicable to open water and winter shipping during the construction, operational and decommissioning phases of the Project; and,

3. Provide for Inuit involvement in the planning, environmental management and decision-making processes related to shipping.

The SMWMP is a part of the Baffinland Environmental Management System (EMS) and reflects the Baffinland commitments respecting shipping. Specifically, the SMWMP:

1. Describes the means whereby Baffinland will ship construction materials and equipment to the site and export iron ore from the Steensby Port Site and the Milne Inlet Port Site;

2. Describes the management of the shipping operation, including the design and contract of a dedicated Iron Ore carrier to be employed for year round operations at the Steensby Port Site. The SMWMP also describes the specification and procedure in place to charter and operate suitable vessels to export iron ores from Milne Inlet Port Site on a seasonal basis

3. Addresses the management, routing and operation of ships and describes how the vessels will navigate through and in the vicinity of ice; and.

4. Describes the monitoring and mitigation measures to be employed in addressing concerns related to marine wildlife, including mammals and birds.

This supplement to the overall SMWMP has been developed specifically to address the shipping associated with an application for Pre- Development Works, i.e. the mobilization of a limited work program intended to provide the necessary staging that will enable the overall Project, once approved, to proceed on schedule. Consequently the following text addresses the limited scope and duration associated with the shipping activities required to deliver materials, supplies, equipment and fuel to the site over a single open water period.

1.2 REGULATORY FRAMEWORK

The regulatory framework as described in the master SMWMP applies to this supplement.

1.3 BAFFINLAND'S COMMITMENTS

Baffinland will provide the necessary human, material and financial resources to implement and maintain the Health, Safety and Environment Management System. Baffinland's Sustainable Development Policy is presented in Figure 2.0

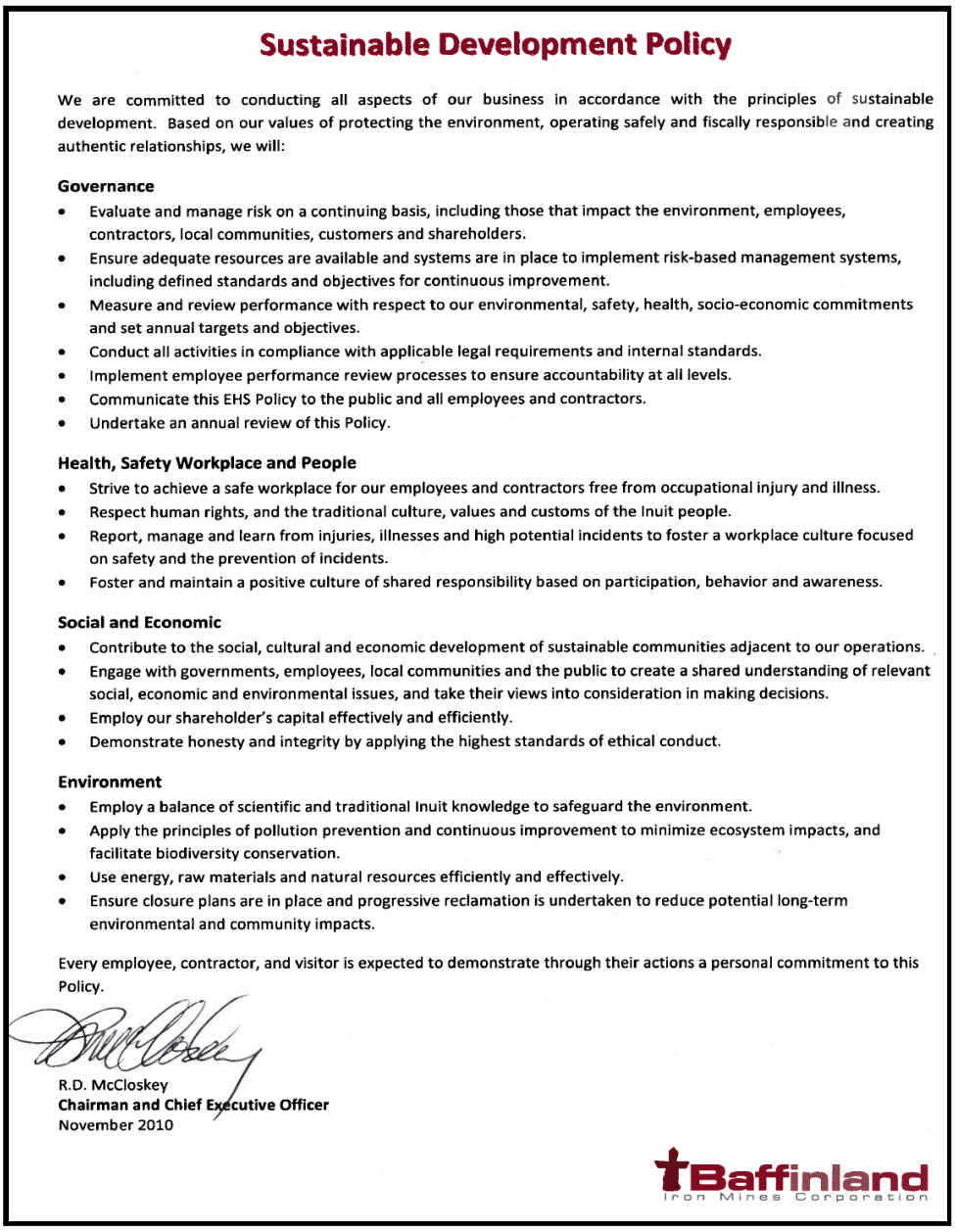
1.4 RELATIONSHIP TO OTHER MANAGEMENT PLANS

This plan should be viewed in concert with the following additional plans that have been prepared by Baffinland.:

1. Environmental Protection Plan (EPP)
2. Emergency and Spill Response Plans (Fuel Storage Facility Oil Pollution Emergency Plan – Milne Inlet and Steensby Port)
3. Closure Plan

1.5 UPDATE OF THIS MANAGEMENT PLAN

The master Shipping and Marine Wildlife Management Plan, as well as this supplement, will be updated as required on the basis of management reviews, incident investigations, regulatory changes or other Project related changes. Commencement of the Pre Development work will be an important milestone for the Project.



Sustainable Development Policy

We are committed to conducting all aspects of our business in accordance with the principles of sustainable development. Based on our values of protecting the environment, operating safely and fiscally responsible and creating authentic relationships, we will:

Governance

- Evaluate and manage risk on a continuing basis, including those that impact the environment, employees, contractors, local communities, customers and shareholders.
- Ensure adequate resources are available and systems are in place to implement risk-based management systems, including defined standards and objectives for continuous improvement.
- Measure and review performance with respect to our environmental, safety, health, socio-economic commitments and set annual targets and objectives.
- Conduct all activities in compliance with applicable legal requirements and internal standards.
- Implement employee performance review processes to ensure accountability at all levels.
- Communicate this EHS Policy to the public and all employees and contractors.
- Undertake an annual review of this Policy.

Health, Safety Workplace and People

- Strive to achieve a safe workplace for our employees and contractors free from occupational injury and illness.
- Respect human rights, and the traditional culture, values and customs of the Inuit people.
- Report, manage and learn from injuries, illnesses and high potential incidents to foster a workplace culture focused on safety and the prevention of incidents.
- Foster and maintain a positive culture of shared responsibility based on participation, behavior and awareness.

Social and Economic

- Contribute to the social, cultural and economic development of sustainable communities adjacent to our operations.
- Engage with governments, employees, local communities and the public to create a shared understanding of relevant social, economic and environmental issues, and take their views into consideration in making decisions.
- Employ our shareholder's capital effectively and efficiently.
- Demonstrate honesty and integrity by applying the highest standards of ethical conduct.

Environment

- Employ a balance of scientific and traditional Inuit knowledge to safeguard the environment.
- Apply the principles of pollution prevention and continuous improvement to minimize ecosystem impacts, and facilitate biodiversity conservation.
- Use energy, raw materials and natural resources efficiently and effectively.
- Ensure closure plans are in place and progressive reclamation is undertaken to reduce potential long-term environmental and community impacts.

Every employee, contractor, and visitor is expected to demonstrate through their actions a personal commitment to this Policy.

R.D. McCloskey
Chairman and Chief Executive Officer
November 2010

Baffinland
Iron Mines Corporation

Figure 2 Baffinland Sustainable Development Policy

SECTION 2.0 - TARGETED VALUED ECOSYSTEM COMPONENTS

The following Valued Ecosystem Components (VECs) (as described in the Project EIS can be expected to interact with the shipping activities associated with PDW. Each is listed below with a brief comment on the nature of the anticipated interaction:

Air Quality

Vessel machinery, including the main engines will discharge exhaust gas to the atmosphere. Cargo transfer will release modest quantities of dust to the atmosphere

Noise and Vibration

Vessel machinery as well as the movement of the vessel through water will create noise and vibration that will propagate through the atmosphere as well as through the water.

Birds

Marine bird Indicator Species are snow geese, common and king eiders, and red-throated loons.

Vessel discharges (air emissions, sewage, solid waste), the sight of the vessels and their movement, as well as vessel noise and vibration have the potential to interact with birds and affect life cycle activities. Accidental spills and releases, especially of hydrocarbons have the potential to induce direct mortalities.

Marine Environment (water and sediment quality)

Vessel discharges (sewage, solid waste) have the potential to alter water and sediment quality.

Marine Environment (wildlife and habitat)

Of the twenty-two marine mammal species known or expected to occur along the proposed shipping routes into Steensby and Milne inlets and along the proposed shipping routes in Baffin Bay and Davis Strait, six were selected as indicator species in the EIS: ringed seal (*Pusa hispida*), walrus (*Odobenus rosmarus*), beluga whale (*Delphinapterus leucas*), narwhal (*Monodon monoceros*), bowhead whale (*Balaena mysticetus*), and polar bear (*Ursus maritimus*).

With the exception of one population of beluga whales (Ungava Bay population listed as 'Endangered' and perhaps extirpated), all populations of cetaceans selected as indicator species are listed as a species of 'Special Concern' by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); polar bears are also listed as 'Special Concern'. Ringed seals are currently listed as 'Not At Risk' by COSEWIC. None of the marine mammal indicator species are currently listed on the *Species at Risk Act* (*SARA*).

Vessel discharges (sewage, solid waste), the sight of the vessels and their movement, vessel noise and vibration, as well as accidental spills and releases have the potential to interact with marine wildlife and affect life cycle activities. Collisions have the potential to induce direct mortalities.

Culture, Resources and Land Use

Vessel traffic, especially port traffic associated with PDW has the potential to alter resource harvesting and land use patterns.

SECTION 3.0 - SHIPPING OPERATION

3.1 VESSELS

All cargo vessels engaged with Baffinland PDW will comply with current Canadian and applicable international legislation. Canada is a signatory to the International Maritime Organization (IMO) agreements and it follows that foreign vessels certified as being IMO compliant will meet Canadian Standards.

In order to ensure that all tonnage chartered for operation in Steensby Inlet and Milne Inlet is in compliance with the Baffinland Shipping and Wildlife Management Plan, each vessel considered for the work will receive an audit of their condition, certification and operation of their International Safety Management System (ISM) prior to being placed on charter. All vessels will be required to comply with Baffinland Environment, Health and Safety Policies and general site rules while under Baffinland charter.

3.1.1 Charter Vessel Specifications

Baffinland has established a protocol for selecting chartered vessels such that all charters are operating to current applicable regulations and standards. As well, each charter will be required to have in place appropriate ice class (Canadian Arctic class 1A or equivalent) and familiarity with AIRSS to operate in the ice conditions forecast to be encountered during the projected period of operation along the shipping routes to Steensby Inlet and Milne Inlet.

3.1.1.1 Audit/Inspection of PDW Charters

Baffinland will arrange for each candidate vessel (foreign and domestic) to be assessed before being placed on charter, to ensure that the vessel is suitable and capable of operating in the conditions present in Steensby Inlet and Milne Inlet during the period of operation. Each vessel will undergo an audit to ensure conformance with the ISM system before the vessel is chartered. The audit will be an adaptation of the ISM internal audit and the ship inspection will follow the Transport Canada port state inspection format.

3.2 SHIPPING ACTIVITY

Shipping activity will occur over a period of up to ten weeks between August and October, 2012. The assumed shipping season will be July 30- Oct 10 for Milne Inlet and Aug 10 – Oct 30 for Steensby Inlet.
The first shipments to each location will include the tugs, barges, machinery and equipment necessary to establish the temporary docks – one at Milne Inlet and two at Steensby Inlet. This arrangement of a temporary shoreline berm and spud barges will provide an offloading dock for lightering barges or vessels. Tugs will provide lightering in cases where direct offloading is not practical. A specialized contractor will be retained to handle the cargo transfer between vessels and the onshore laydown areas. This contractor will supply and install the spud barges, and operate the lightering barges.

Containerized supplies, equipment and materials will be shipped to both Milne Inlet and Steensby Inlet. Items bound for Milne Inlet site as well as the Mine Site will be shipped to Milne Inlet and then transported over the Milne Inlet Tote Road as appropriate. Steensby Inlet will receive cargo for that site as well as for the railroad construction site. The pattern of shipping will likely involve bringing vessels in as pairs with approximately 4-5 days between passages.

Ships will not be serviced at either Milne Inlet or Steensby Inlet.

Fuel (diesel, gasoline and jet fuel) will be delivered to Milne Inlet by tanker, and to Steensby Inlet by both fuel barge and tanker. Fuel will be transferred to shore by the commonly-employed floating hose fuel transfer method. At Steensby Inlet the initial delivery of fuel will be by tug and barge, and fuel will be transferred from the barge to shore as storage facilities are made available. At the end of the shipping season, a tanker will re-fill both the onshore storage as well as the fuel barge. The barge will provide over-winter storage of a full load of fuel during the winter of 2012-2013. During periods when fuel is being transferred from vessel to shore, there will be a suspension of all other offloading activities.

Both ports will have a Transport Canada approved OPEP which will be reviewed and resubmitted annually.

The potential for accidental releases during ship-to-land transfer has been identified as a risk and, consistent with prudent practice, the shipping contractor will establish appropriate loading and off-loading procedures using guidance from legislation such as the *Arctic Waters Pollution Prevention Act*, *Arctic Shipping Pollution Prevention Regulation,* and the *Regulation for the Prevention of Pollution from Ships and Dangerous Chemicals* to prevent or quickly contain any spills or releases of fuel during ship-to-land transfers. Port contingency and vessel-specific response plans will be developed to address issues relating to:

- Appropriate fuel intake devices that prevent overflows;
- Spill fuel collection and recycling or destruction facilities, where applicable;
- Spill containment structures including soak-away pits or dry wells, seepage or infiltration trenches, percolation basins and catch basins.

Table 1 presents the estimated volume of vessel traffic at Mine Inlet and at Steensby Port Site during 2012 as well as the approximate tonnage of materials to be delivered. The estimated number of voyages is based on use of conventional sealift ships, of around 7,000 to 16,000 DWT capacity. Larger ships or barges may be used depending on cost and availability. A fleet of 8 -12 vessels will be required to meet the sealift requirements of the PDW operation.

Table 1 Shipping Traffic During Pre-Development Works

Estimated Maritime Transportation	Milne	Steensby	Total
# Shipments	**20-23**	**18 -20**	**38 - 43**
General Cargo (tones x 1,000)	200 -350	180 -300	380-650
Fuel (tonnes x 1,000)	**62.5**	**47**	**109.5**

A freight-forwarding team will be responsible for receiving all cargo in the port of discharge and for directing freight to the consolidation point. The Project Description for the PDW lays out the routine to be followed in offloading, laydown and transport of all cargo and fuel.

3.2.1 Shipping Route

The vessels required to support the Pre-Development Works will follow the routes presented in the DEIS for shipping to Milne Inlet and to Steensby Inlet. Most shipping will originate from ports along the St. Lawrence River (e.g. Montreal, Quebec City, Becancour).

Fuel for the Project will be purchased only from accredited suppliers that can provide assurance that the fuel used for shipping conforms to Canadian regulations (*Benzene in Gasoline Regulations, 1997; Contaminated Fuels Regulations, 1991; Gasoline Regulations, 1990; Fuel Information Regulations, No. 1, 1999; Sulphur in Diesel Fuel Regulations, 2002; Sulphur in Gasoline Regulations, 1999*).

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3.2.2 Safety

The safety of the ship, her crew and the environment is a primary concern of Baffinland. who recognize that the waters in which the vessels operate are subject to severe storms, icebergs and pack ice throughout a large part of each year. Baffinland requires that the ship-owner/operator of the candidate ships and other ships will have as priorities safety of life, protection of the environment, and the preservation of ship and cargo.

While Baffinland and the charter vessel operators wish to obtain the maximum efficiency in all of their ship operations, it is recognized that the Master of a ship has sole responsibility for the safety of the ship, crew and cargo, and the protection of the environment. The Master has the authority to adjust speed, heave to, deviate, seek shelter or enter a port of refuge to re-stow cargo or seek medical assistance should environmental conditions or the condition of the vessel, the machinery, safety of the crew or cargo require such a precaution. Under such circumstances the Master is responsible for immediately reporting the circumstances and his intentions to the charterer and the ship manager's "Designated Person Ashore" and maintain a full record of the event and actions taken to secure the safety of the ship.

Baffinland will require that the charter vessels have a safety and operating management system based on the principles of the International Safety Management Code (ISM Code). The objective of the ISM Code is to ensure safety at sea, prevention of human loss of life or injury and avoidance of marine environment pollution. To achieve this objective, the Code requires that the ship-owner/operator share fully with the vessel personnel the responsibility to maintain a safe ship. The Code establishes a clear and concise safety management system, including, as examples, the following functional requirements:

- **A safety and environmental protection policy.** By considering the nature of the waters that vessels are to travel within, standards of watch keeping are reinforced with additional lookouts on the bridge and engineers in the machinery space. The maneuvering ability of machinery and the operation of steering gear are tested prior to arrival or departing in a passage where navigation is restricted or where the route is close to shore. Strict measures regarding the handling and transfer of bunker and cargoes are established. Masters will be required to navigate within established channels.
- **Levels of authority and lines of communication defined.** This ensures that safety remains a high priority and that the lines of communication between shore and ship personnel remain open. Responsibilities are clearly defined and contacts to provide the ship with round the clock shore support are mandatory.
- **Procedures for reporting accidents and non-conformities with the Code.** The method of recording non-conformities, establishing corrective measures, and ensuring open dialogue between all parties is to be documented and reviewed.
- **Procedures to prepare for and respond to emergency situations.** Ships must have a set of operating manuals that supplement and support regulatory requirements and vendor instructions. These manuals evolve from standard practices and procedures, and they are to be tailored to individual ships. The objective is to document and provide guidance and instruction on the safe handling and operation of all shipboard equipment. Clear instruction is provided with regard to pre-arrival and departure check lists, navigation, handling of cargoes,

bunkering, stability conditions, and the stresses imposed and acceptable to each concentrate carrier. The manuals are a concise guide for both ship and shore personnel to ensure safe operation, with emergencies considered and responses planned.

In addition, ship and shore personnel engaged in operations must be aware of hazards arising from cargo operations and from the materials and iron ores being handled. This includes the provision of Material Safety Data Sheets (MSDS) information and any additional training required.

3.2.2.1 Canadian Charts and Publications

All vessels entering Canadian ports, whether Canadian or foreign registered, are required to carry charts and marine publications as set out in the Canadian Charts and Nautical Publications Regulations 1995.
Note 1:
Details of Canadian routes and reporting requirements are set out in the Annual Notice to Mariners which is normally re-issued every April.
Note 2:
In order to maintain the above listed items corrected up-to-date, the vessel must obtain copies of the Weekly Notices to Mariners.

3.2.2.2 Inuit Advisors

Local residents with extensive knowledge of the area may be called upon to assist in an advisory capacity to Baffinland and provide information such as:

- Local tidal information;
- Environmentally sensitive areas or life cycle of birds and mammals activities along the route and possible means to avoid them;
- Harvesting cycles and fishing activities;
- Travel patterns and level of activity;
- Land mass identification;
- Local ice information; and
- Communication with ice monitors.

3.3 INSURANCE AND COMPENSATION

The provisions with respect to Insurance, Compensation and indemnification of Third Party Liabilities are all as described in the master SMWMP.

SECTION 4.0 - MITIGATION MEASURES

The planned operation of vessels serving the Project will involve a series of measures designed to detect, reduce or eliminate negative environmental effects, including pollution reduction as well as preparedness capability to address unplanned event

4.1 ONBOARD WASTE MANAGEMENT

All vessels will have Waste Management Plans for sewage and solid waste.

4.1.1 Sewage

All vessels are to be fitted with an approved sewage treatment plant which operates to Canadian standards or a holding tank with sufficient capacity to meet the grey and black water requirements of the ship for the duration of her time in port. Vessels will not discharge effluent from treated sewage while at Steensby Port or Milne Port.

4.1.2 Solid waste

In accordance with MARPOL and the *Arctic Waters Pollution Prevention Act,* no solid waste materials or garbage will be disposed of in Canadian waters. As no facility exists to dispose of foreign or Canadian ship waste materials or garbage at either Steensby Port Site Terminal or Milne Port, such materials will either be incinerated or retained onboard and later disposed of in accordance with Canadian and International regulations.

4.2 BALLAST WATER MANAGEMENT

Ballast is water taken on in chambers of vessels mainly to stabilize sea-going vessels by adding weight to them and maintaining a specified draft (the depth a vessel sits in the water). Vessels empty of cargo take on much more ballast than a fully laden ship. Since the PDW will involve inbound cargo only, it is highly unlikely that any ballast water will be discharged at either Milne Inlet or Steensby Inlet. Some ballast water might be taken on by vessels for their return voyage south.

Ballast Water Management Plans are specific to individual ships. The SMWMP outlines the major elements and requirements of a plan acceptable to Baffinland..

4.3 FUEL AND DANGEROUS GOODS

As there is a total prohibition in place with respect to the discharge of any oil, oily water or dangerous goods in Arctic waters, all vessels will:

- Comply with the *Oil Pollution Prevention Regulations* and maintain an approved shipboard oil pollution emergency plan (SOPEP);
- Have oil spill clean-up materials available onboard the vessel at all times;

- Conduct exercises with the Terminal staff at regular intervals to ensure ship and shore can co-operate to minimize the damage from any spill of fuel;
- Maintain an up-to-date oil transfer record book covering the disposal of engine room sludge and the discharge of oily water through a separator;
- Maintain a separate record book for oil cargo and the treatment and disposal of cargo slops;
- Provide copies of the Ships' Oil Spill Response Plans to Baffinland;
- Conduct exercises to test the ship and shore joint capability to handle an oil pollution incident in accordance with the provisions of the Ships' Oil Spill Response Plan and the Baffinland Oil Pollution Emergency Plan (OPEP);
- Ensure that all hazardous materials are stored and handled as per information provided in Material Safety Data Sheets (MSDS); and
- Ensure that all dangerous goods are transported as per requirements under the *Transportation of Dangerous Goods Act* and R*egulations.*

4.4 MARINE WILDLIFE

The Project Environmental Assessment has made predictions as to the effect of the anticipated Project-environment interactions. From this will flow an Environmental Effects Monitoring Program which will serve to confirm the effects predictions made, as well as to evaluate the effectiveness of mitigation measures.

Potential interactions between shipping activity and marine mammals are generally related to either the issue of human-generated noise or direct impacts from accidental events such as collisions or hydrocarbon spills. Appropriate monitoring and mitigation programs are designed to address these two phenomena. The text which follows describes a mitigation and monitoring program that is applicable to the shipping required to support the PDW.

4.4.1 Marine Mammals

During consultations for the Project, one of the key concerns was the potential effects of shipping on marine mammals. Two of the issues identified included:

- Influence of noise on whales, seals, and walrus; and
- The risk of collision with vessels.

An accidental release of fuel from a vessel could also affect marine mammals but preventative measures and contingency planning substantially reduce the risk of such an event.

4.4.1.1 Interactions and Potential Effects

Noise.

Vessels are major contributors to background sound in the ocean. While in transit, ships emit underwater noise from their various components, including onboard machinery and propellers. The environmental effects of noise on marine mammals are highly variable, and can be categorized as:

- too weak to be heard at the location of the animal (i.e., lower than the prevailing ambient noise level, the hearing threshold of the animal at relevant frequencies, or both);

- audible but not strong enough to elicit any overt behavioural response (i.e., the animal may tolerate it); or
- eliciting subtle behavioural reactions (such as changes in respiration) or other changes that are detectable only by statistical analysis, up to active avoidance reactions.

Upon repeated exposure, animals may habituate, i.e. exhibit diminishing responsiveness. Alternately, disturbance effects may persist, especially in cases where the sounds are highly variable in characteristics, unpredictable in occurrence, and associated with situations that the animal perceives as a threat.

Any human-made (anthropogenic) noise that is strong enough to be heard has the potential to reduce (mask) the ability of marine mammals to hear natural sounds at similar frequencies, including calls from other animals, echolocation sounds, and environmental sounds such as surf noise or ice noise.

Very strong sounds have the potential to cause temporary or permanent reduction in hearing sensitivity, or other physical or physiological effects. Received sound levels must far exceed the animal's hearing threshold for any temporary threshold shift to occur. Received levels must be even higher for a risk of permanent hearing impairment.

Marine mammals are not expected to be exposed to sound levels from shipping that would be high enough to cause hearing impairment.

Collisions

Collisions between ships and marine mammals occur infrequently. Such events usually occur when vessels are travelling at a rate of speed greater than 14 kn.

During consultations for the Project, community members expressed their concern about the effect of icebreakers on ringed seal pups in the landfast ice. This concern will not be an issue for PDW, given the timing for shipping.

Spills

Spilled oil can affect marine mammals through dermal contact, inhalation, ingestion and/or fouling of baleen plates. Potential effects would be short-lived due to the high volatility and relatively small volume of any spilled oil (diesel or kerosene) and confinement to surface water. No significant adverse effects are anticipated for marine mammals as a result of any possible small volume accidental spills.

4.4.1.2 Monitoring

If requested, Baffinland will provide for the position of Inuit Advisor to observe and report on shipping and cargo transfer operations at Milne Inlet and Steensby Inlet.

The Inuit Advisor should have received training in marine mammal identification (as well as seabird identification). Additionally, candidates would likely be required to have the following certificates: WHMIS,

First Aid, and Transport Canada Marine Emergencies Duties (MED), and Transport Canada Marine Medical.

The Inuit Advisor would be tasked with carrying out standard monitoring and data collection protocols for marine mammals as described in the SMWMP. Relevant information in the monitoring program will be made available to the general public using established communication mechanisms.

4.4.2 Marine Birds

There is a small potential for planned shipping activities to interact with marine birds either directly (e.g. through collisions) or indirectly (e.g. through habitat alteration or contaminant discharge). An unplanned event such as an oil spill could result in mortalities and, depending on time of year and location, these effects could be severe. Monitoring programs would aim to produce an understanding of potential and actual interactions between shipping and marine birds. It would also provide an opportunity to investigate the effectiveness of proposed mitigation measures.

From a shipping perspective, potential impacts could include:

- Frequent but brief and localized disturbance of open-water marine foraging and brood-rearing areas due to ship traffic along the shipping lanes;
- The alteration of local marine water quality or food supply due to contamination from bilge water, grey water, or ballast water discharges from ships;
- The accidental introduction of other chemical contaminants into the marine waters from the ports or ships, and the subsequent potential for direct (poisoning) and indirect (food chain effects) mortality to birds;
- Direct mortalities due to collisions; and
- Fuel or oil spills resulting in mortalities and long-term loss of foraging and brood-rearing habitat.

The objectives of a marine bird monitoring program would include:

- Collection of incidental information on the occurrence and distribution of marine birds in Steensby Inlet and Milne Inlet;
- to record the reactions of marine birds to shipping and offloading operations; and
- to assess the effectiveness of mitigation measures.

The numbers, species and distribution of marine birds would be monitored and documented on an ongoing basis by the Inuit Advisor.

4.4.2.1 Mitigation

Communications on vessel traffic would be maintained through Baffinland or their designated representative and the Inuit Advisor via marine radio while at sea. Results from monitoring would be used to determine the need to adjust operations, e.g. in order to avoid concentrations of marine wildlife. Relevant information would be made available to the general public using established communication mechanisms.

Any observed negative effects would be reported immediately to Baffinland by the Inuit Advisor, and, depending on the nature of the effect, the necessary mitigation measures applied expeditiously.

4.5 SAFETY OF PERSONS TRAVELING ALONG THE PROJECT SHIPPING ROUTES

Measures to ensure the safety of persons traveling by boat along Project shipping routes include the following:

- Notices will be provided of vessel transit schedule to inform others of the route, timing and related matters associated with each ships' passage; and
- Public meetings will be held as requested to answer questions about the PDW shipping activities and to identify any opportunities to reduce or avoid travel conflicts.

SECTION 5.0 - ROLES AND RESPONSIBILITIES

The following describes Roles and Responsibilities related to shipping operations in support of the Pre-Development Works.

5.1 BAFFIINLAND MARINE TRANSPORTATION MANAGEMENT TEAM

Baffinland will work with Hatch Construction Management to establish a PDW Marine Transportation Management Team who will work under the direction of the Hatch Construction Director. This Marine Transportation Management Team will access expertise in shipping, environmental protection, safety, navigation and emergency response. The team will manage all aspects of the marine transportation associated with the PDW, including ships transits, mooring, offloading and related logistics.

5.1.1 Membership

The members of the Marine Transportation Management Team (and their location) are:

- Hatch-PDW Construction Director - On Site
- Steensby Site Construction Manager On Site
- Milne Site Construction Manager On Site

- Hatch Logistics Lead - On Site

- Lightering & Dock Operations Lead - On Site
- Hatch Health, Safety & Environment Director - On Site
- Ships Masters - Onboard vessel

5.1.2 Priorities

With respect to shipping, the priorities of the team will be:

1. The safety of life;
2. The protection of the marine environment; and
3. The preservation of the ship and her cargo.

The following outlines the Roles and Responsibilities of the Marine Transportation Management Team. Note: Individual team member Roles and Responsibilities are presented in Section 5.1.4.

5.1.3 Roles and Responsibilities of the Team

The overall responsibilities of the Marine Transportation Management Team are:

1. To manage and schedule shipments of cargoes into Steensby Inlet and Milne Inlet;
2. To be responsible for chartering and scheduling vessels, including tugs and barges;
3. To ensure, prior to chartering a Carrier, a pre-charter audit and/or inspection is carried out on the vessel to confirm the condition of the vessel and that it is managed and operated in accordance with the ISM system with all certificates up to date; and
4. To ensure that, wherever appropriate, the interfaces between the Site and the ships' emergency response plans are compatible.

Specific responsibilities for the listed subject areas are listed below.

5.1.3.1 Hydrographic Information and Navigation Aids

The Marine Transportation Management Team will ensure that hydrographic issues affecting the terminals or ships are brought to the attention of the responsible parties and those affected by the changes (i.e., ships' Masters , Berthing Advisors, Inuit Advisor).

5.1.3.2 Cargo Documentation

The Marine Transportation Management Team will establish:
1. A documentation system for the cargoes including Bills of Lading, Cargo Quality Certificates, Cargo Manifests and MSDS information; and
2. A system whereby advice of dangerous cargoes is provided to the ship's Master in good time to develop a cargo plan which provides safe and secure stowage always within the vessel's capacity.
3. An inspection system to confirm the as-received condition of all items of cargo, including examination to identify possible presence of invasive species.

5.1.3.3 Training

The Marine Transportation Management Team will ensure:
1. That the off-loading operators are properly trained in the operation of the lightering system; and
2. That the ship and shore personnel engaged in loading and discharging the vessel are trained in the safe practices of stevedoring, crane operation and slinging of cargo.

5.1.3.4 Services

The Marine Transportation Management Team will provide:
1. An experienced contractor to manage the lightering operation for off-loading of cargo at Steensby Inlet and Milne Inlet; and
2. Inuit Advisor for selected aspects of the vessel operations (mooring, off-loading, transits).

5.1.3.5 Communications

The Marine Transportation Management Team will ensure:

1. That the Baffinland Logistics Officer is informed of any delay to the vessel's schedule caused by mechanical defect, ice, heavy weather or diversion to assist a vessel in distress, and is informed of the vessel's revised estimated time of arrival at its destination; and
2. That communications between the vessel and the loading terminals, emergency services, security staff and relevant authorities is established and that short-range VHF communications involved in cargo operations between ship and shore is effectively managed.

5.1.3.6 Safety

1. Safety is a major responsibility. The Marine Transportation Management Team will ensure that ship and shore personnel engaged in operations are aware of hazards arising from cargo operations and from the materials being handled. This includes the provision of MSDS information and any additional training required; and
2. The Marine Transportation Management Team will ensure that all personnel are provided with and shall wear the appropriate personal protection equipment (PPE) which shall be suitable for the task at hand under the existing weather conditions.

5.1.3.7 Emergency Response

The Marine Transportation Management Team will:

1. Be the source of expertise and technical review in the development of the terminal contingency and emergency response plans (Milne OPEP – Appendix B.2, and, Steensby OPEP-- Appendix B.3);
2. Co-ordinate assistance should a vessel experience a problem which cannot be dealt with by the ship's crew or the Ship's Master alone; and
3. Be informed of any incident onboard the vessel which may result in a lost time accident or dangerous occurrence. All such incidents will be investigated by the Ship's Safety Officer and be reported to the Baffinland Health & Safety Superintendent. At no time can such investigation interfere with a formal Accident Investigation by Transport Canada and does not relieve the vessel from the Transport Canada reporting system.

Detailed emergency response procedures are outline in the Milne Port OPEP (Appendix B.2) and the Steensby Port OPEP (Appendix B.3).

5.2 TEAM MEMBER ROLES AND RESPONSIBLITIES

5.2.1 Hatch Construction Director

The Construction Director (CD) has overall responsibility for all marine transportation aspects of the SMWMP. In particular, the CD is responsible for:

1. Appointment and leadership of the Marine Transportation Management Team;
2. Protecting the safety and health of all persons working on the Project and protecting the environment by taking all reasonable actions including following appropriate codes and regulations; and

3. Taking reasonable actions to address Inuit concerns respecting shipping and overseeing and being accountable for the implementation of the Company's commitments and obligations regarding shipping.

5.2.2 Site Construction Manager

The Steensby Site Construction Manager and the Milne Site Construction Manager have overall responsibility for the shipment operations at each respective site. Specifically, the Site Construction Manager is responsible for:

1. Coordinating the schedule of all vessels used to support the above operations. The Site Superintendent controls the scheduling of cargo supply;
2. Ensuring that all chartered vessels are audited, inspected and are shown to operate to the requirements Baffinland for vessels engaged to deliver cargo to the Project. The vessels must meet the agreed specifications for operations within the time frame and ice conditions expected during the charter;
3. Maintaining direct communication with the Ship Operations Manager and the managers of chartered ships to advise the quantities and timing of each shipment; and
4. The safety of shore-based marine related employees, site facilities, the temporary docks and equipment supplied or operated to support the transportation of materials, equipment, fuel and supplies.

In addition, the Site Superintendents have specific responsibilities as listed below.

5.2.2.1 Environment, Health and Safety

1. The care of the marine and immediate shore environment;
2. Ensuring that the charter vessels comply with the environmental undertakings set out by Baffinland;
3. Ensuring that operations at the interface between ship and shore are carried out with due regard to the safety and health of employees and the preservation of the environment; and
4. From time to time, participating in vessel inspections to ensure that environmental requirements are met.

5.2.2.2 Fuel Transfer & Emergency Response

1. Ensure the implementation of the Transport Canada approved OPEP for each location.
2. Ensure that the Steensby Site facilities (storage tanks and fuel barge) and procedures for receiving fuel are compatible with those on the ship;
3. Establish and agree an oil offloading procedure with the vessel. This is addressed in the Baffinland Environment Protection Plan and is part of the vessel's procedures for the discharge of oil cargoes;
4. Manage the Baffinland oil spill cleanup contract capabilities;

5. Arrange for the provision and maintenance of oil spill containment and recovery equipment suitable to contain/recover a spill from a vessel in Steensby Inlet or Milne Inlet; and
6. Arrange and supervise oil spill exercises to maintain ship and shore ability to deploy the oil containment boom and other equipment quickly and efficiently.

5.2.3 Logistics Manager

The Logistics Manager is responsible for the operation of a number of local manpower contracts which service the sites and support the port and shipping operations as required. These services include, but are not limited to, the following:

1. Providing local contractors to train and provide Inuit Advisor;
2. Ensuring that the Inuit Advisor is made aware of vessel schedules when arriving and departing from the Terminal;
3. Ensuring adherence to the Baffinland communication protocol;
4. Providing local weather and ice information to every charter vessel within 24 hours of that vessel's ETA in Steensby Inlet or Milne Inlet and continuously update this information whilst the vessel is approaching and transiting each Inlet; and
5. Gathering any hydrographic or navigation aid information which the Master's of ships may become aware of in the course of transiting in or out of Steensby Inlet and Milne Inlet, and ensuring that the information is passed to the Canadian Coast Guard and Hydrographic Office.

5.2.4 Assistant Logistics Manager (Land/Marine)

On a day-to-day basis the off-loading at Steensby Inlet and Milne Inlet are operated by the Assistant Logistics Manager (Land/Marine) who report to the Site Logistics Manager. These individuals manage the tugs and lightering barges and other aspects of the off-loading operations and are the direct point of contact for the Masters of ships using the temporary dock facilities. The duties and responsibilities of the Assistant Logistics Manager (Land/Marine) are listed below.

5.2.4.1 Shore Cargo Operations

1. Manages the operation of tugs and barges employed in lightering operations;
2. Provides crews to handle the vessel's mooring lines at the berth on arrival, sailing or shifting ship during loading;
3. Arranges shore activities associated with the arrival, berthing, discharge and loading of cargo; and
4. Boards vessels to agree the order of discharge, confirms the contents of cargo fuel tanks and the order of discharge and loading with the Master.

5.2.4.2 Safety

1. Participates in a joint ship and shore briefing and safety meeting on the order and method of discharge and highlights any special handling for dangerous or hazardous cargoes, safety, health or, environmental concerns;
2. Is responsible for the maintenance, inspection and operation of marine-related fire systems installed onshore;
3. Has the authority to stop or shut down any operation which is considered hazardous or which may result in damage to personnel, property or cargo. For example, heavy rain, snow, ice accumulation or vessels improperly secured against the weather; and
4. Is a first line responder in the case of an oil spill from ship or shore.

5.2.4.3 Communications

1. Establishes communications between ship and shore to suit every aspect of the cargo operation;
2. Provides VHF radios for crew communication with stevedores; and
3. Makes contact with vessels to arrange any boarding location or boarding method for the Inuit Advisor and ensures that this information is passed to the Inuit Advisor.

5.2.4.4 Documentation

1. Responsible for recording the numbers and quantities of cargo received and off-loaded from the ship and recording damage or shortages. Notice of damage and shortages is to be brought to the Master's attention in writing;
2. Provides inspection of as-received cargo, including for adequacy, completeness, condition, and potential presence of invasive species;
3. Receives and acknowledges receipt of protests from the Masters of vessels alleging damage to the vessel, temporary dock or lightering barge; and
4. Receives cargo documentation, bills of lading and signs cargo manifests.

5.2.4.5 Cargo Handling Equipment

1. Maintains and operates the mooring/lightering tug and any winches, lines, spill containment booms or other equipment which are part of the mooring system on the temporary dock.

5.2.4.6 Cargo Operations

1. Provides the manning and equipment required to remove general cargo offloaded by the ship's cranes. All cargo is to be removed from the temporary docks to the appropriate laydown area.

5.2.5 HSE Manager

The HSE Manager's responsibilities include:

1. Development and Maintenance of the Site Environmental Protection Plan, including port and marine aspects;
2. Conduct of and reporting on all required environmental monitoring programs, including environmental effect and compliance monitoring to marine operations;
3. Development of Oil Spill Contingency Plans;
4. Development of PDW Closure and Progressive Remediation Plans;
5. Assistance and support in the development of an Emergency Response Plan, including associated training, exercises and equipment purchases;
6. The provision of an auditing service, where necessary, to the Project with respect to environment, health and safety compliance;
7. The provision of health and safety systems and standards for various aspects of marine transportation and cargo handling operations at the Project site; and
8. The securing of consulting services, where necessary, to the Project with respect to environment, health and safety;

5.2.6 Emergency Response Team

1. The charters will maintain an experienced onboard Emergency Response Team provided with the information required to support the ship in an emergency. An emergency response center outfitted with the necessary ship drawings, specifications, contingency plans, communications systems and contact numbers for relevant emergency support services is maintained in the ship managers offices;
2. The Emergency Response Team will be familiar with the vessel's contingency plans and responsible for supporting the vessel's Master by arranging assistance such as tug support, casualty evacuation, contacting the next of kin, dealing with the media, and related actions.

5.2.7 Master of the Vessel

The Master is responsible at all times for the safe navigation and operation of the vessel within the applicable laws of Canada, having special responsibility for the safety of life, the safety of the ship and the preservation of the environment. In order to meet these responsibilities, the Master has full authority to take whatever action which the Master considers necessary to successfully complete the voyage. This includes adjusting speed, seeking shelter, accepting assistance or deviating to save life. In addition, the Master has the responsibilities listed below.

5.2.7.1 Ships Equipment

1.Provides, maintains and certifies slings and lifting equipment used by the vessel's cranes; and
2. Takes responsibility for the care, maintenance and certification of the cargo fuel hoses and the receipt of fuel discharged by the vessel.

5.2.7.2 Schedule

1. Decides when it is safe to sail and when it is safe to enter the port and berth or when to bring the ship to anchor to await better weather;

5.2.7.3 Cargo

1. Takes responsibility for the provision of the cargo plan plus the loading, safe stowage and protection of all cargo carried onboard from the time the cargo is loaded over the ship's side until it is discharged over the ship's side; and
2.Is responsible for ensuring that the vessel safely loads the intended cargo for the planned voyage. On completion the Master agrees all quantities of cargo loaded or discharged and signs the appropriate documentation before the vessel sails.

5.2.7.4 Navigation

1. Through Baffinland and the Site Superintendents, the Master shall be made aware of Baffinland requirements and obligations that may affect navigation and will ensure the ship's compliance with all of the identified environmental concerns whilst at sea or in port; and
2. The Master will co-operate to the extent practicable with the Inuit Advisor to ensure the protection of the environment, wildlife and any fishing, sealing or other sensitive operations proximate to the vessel operations.

5.2.7.5 Safety

1 The operation of the ISM system onboard ship maintaining the established relationships with the Lightering & Dock Operations Lead and/or the Site Construction Manager; and
2 .Ensuring that regular safety meetings are held and that actions minuted at these meetings are passed to the ship managers for action and that actions agreed by the ship managers are put into effect onboard;

Note: Fire and Abandon Ship exercises shall be held in accordance with Transport Canada Regulations. Additional exercises will be arranged to ensure the crew's familiarity with the contingency plans established for the vessel including joint exercise with the shore managers.

5.2.7.6 Accident Reporting

1. In the event of an accident causing personal injury or loss of life, oil spill, or other incident within Steensby or Milne Inlet the vessel's Master will immediately inform the port emergency control system requesting such assistance as may be practical; and
2. Outside of Steensby or Milne Inlet the Master shall report the incident verbally and later in writing to the nearest Transport Canada reporting station.

5.2.7.7 Passage Planning

1. The Master approves the passage plan taking account of routing for ice, weather, and other relevant conditions/forecasts. and advises Baffinland of expected departure and arrival times;
2. The Master decides when to sail, retracing to the extent possible the agreed route used to enter the inlet; and
3. The Master reports the vessel's departure to NORDREG and confirms the latest ice information and planned route. The system is reversed on the return voyage.

5.2.7.8 Communication

1. The Master is responsible for the provision of daily position and progress reports to the Baffinland Site Superintendent. The estimated time of arrival at the destination / berth will be updated every 24 hours and every 4 hours within the last 24 hours before arrival;
2. Changes to the estimated times shall be reported by the Master to the Terminal in order that the provision of mooring gangs, and cargo handlers can be properly coordinated; and
3. The Master of a foreign flag vessel, or the vessel's agent, is responsible to ensure that Customs, Immigration and Port formalities are completed before sailing.

SECTION 6.0 - PERFORMANCE INDICATORS AND THRESHOLDS

The environmental (including socio-economic) issues related to shipping have been summarized in the SMWMP (Section 2.0) and organized in terms of Valued Environmental Components (VECs) and the associated Indicators.

This section provides, in a table summary, a listing of the identified environmental issues and concerns associated with Shipping for the Pre-Development Works.

The relevant performance indicator associated with each issue is referenced (e.g. government regulated standard, International Standard or convention, EIS commitment or condition, Company-generated requirement). The applicable threshold(s) for achieving compliance with Baffinland performance standards are stated in as quantifiable manner as possible,

This table will be reviewed and revised on a regular basis and as a consequence of:

- Completion of the Project Environmental Assessment;
- The collection of information from monitoring programs; and
- Changes to applicable standards and regulations.

Table 2 Performance Indicators and Thresholds

VEC	Concerns/Issues	Indicator	Threshold
Air Quality	Ship emissions	Routine maintenance records	Compliance with regulated standards
Marine Wildlife	Noise and Vibrations	Noise envelope in the water; marine mammal behavioral responses	To be established through EEM design.
Marine Water and Sediment Quality	Onboard ship wastewater treatment	Ship records	Zero discharge at sea
	Ship solid waste management	Ship records	Zero discharge at sea
	Oily water treatment	Ship records	Zero discharge at sea
	Dangerous Goods and HazMat – spills	Ship documentation	Zero discharge at sea
	Oil Spill	Ship documentation	Zero discharge *Arctic Waters Pollution Prevention Act*; compliance
	Introduction of Invasive species - Marine	Ship onboard documentation	Adherence to Ballast Water Management Plan.
Land and Resource Use	Altered travel patterns due to ships movements	Information and communication in affected communities Number of complaints related to shipping	To be established . through EEM design.
	Introduction of Invasive Species - terrestrial	Ship documentation. Cargo Inspections	Zero incidents

SECTION 7.0 - MONITORING AND REPORTING REQUIREMENTS

7.1 ENVIRONMENTAL EFFECTS MONITORING

Baffinland shall carry out monitoring of the effects of shipping as set out in the terms of approvals as issued by regulators and as amended from time to time.

7.2 REPORTING REQUIREMENTS

The responsibilities for reporting and documentation by various teams and individuals are reported in the noted Sections.

7.2.1 Marine Transportation Management Team:

Cargo Documentation - Section 5.1.3.2
Communications - Section 5.1.3.5

7.2.2 Site Superintendents

Liaison with Vessel Owners/Managers – Section 5.2.2

7.2.3 Lightering Operations Manager

Communications- Section 5.2.4.3.
Cargo Documentation – Section 5.2.4.4
Damage Reports– Section 5.2.4.4

7.2.4 EH&S Superintendent

Environmental Monitoring – Section 5.2.5

7.2.5 Ship Master

Accident Reporting – Section 5.2.7.6
Position/Progress Reports/ETAs – Section 5.2.7.7
Notice of Readiness (Load/Discharge) – Section 5.2.7.2
Cargo Plan - Section 5.2.7.3
Communications – Section 5.2.7.8

In addition, the following documentation is required:

7.2.6 Temporary Dock Information Manual

Baffinland will produce a Port Information Manual to provide the vessel's Masters with an overview of the environment (particularly the ice regime) and port operations, as well as procedures required by

Baffinland when navigating to Steensby Inlet or Milne Inlet. Additional copies of the Information Manual will be maintained at each Site.

7.2.7 Vessel Operations Manuals

All vessels navigating to Steensby Port Site or Milne Inlet Port will have operations manuals developed according to the ISM Code principles.

7.2.8 Baffinland Plans and Procedures

As part of its Environmental Management System (EMS), Baffinland has developed a number of plans and procedures. These include an Emergency Response Plan and a variety of Standard Operating Procedures for the Steensby Port Site Terminal and the Milne Inlet Port. Copies of all relevant Baffinland procedures and EMS plans will be maintained at each Site and be accessible through the office of the Site Supervisor.

7.2.9 Cargo Documentation and Other Shipping-Related Documentation

Copies of necessary cargo documentation forms will be supplied by Baffinland and maintained at the Site offices. Copies of other necessary shipping-related forms will be obtained by Baffinland and maintained at Site.

SECTION 8.0 - ADAPTIVE STRATEGIES

8.1 EMERGENCY AND CONTINGENCY PLANS

8.1.1 Accidental Spills of Fuels and Chemicals

Ships travelling to Steensby Inlet and Milne Inlet on behalf of the Baffinland Project will have prevention and response equipment for accidental spills, and will have in place a Shipboard Oil Pollution Emergency plan (SOPEP) in conformity with the International Maritime Organization (IMO) as approved by the Det Norske Veritas Classification AS on behalf of the Government of Canada. Onboard environmental protection equipment will include containment booms, absorbent pads and oil spill dispersant. Any spills of petroleum or other hazardous materials will also be reported to the Environmental Emergencies 24 Hour Report Line.

8.1.2 Extreme Weather Conditions

Site conditions play an important role in the planning and execution of the Project. Northern Baffin Island has a semi-arid arctic climate with less than 200 mm of annual precipitation and an annual average temperature of about -15 ºC. Summers bring 24-hour daylight from May to August, but continued cool to cold conditions. During the period July – October, Ice can be present as scattered pans in the marine inlets and along the coastline in the main channels. The Ship's Master is responsible at all times for the safe navigation and operation of the vessel within the applicable laws of Canada, having special responsibility for the safety of life, the safety of the ship and the preservation of the environment. In order to meet these responsibilities, the Master has full authority to take whatever action which the Master considers necessary to successfully complete the voyage. This includes adjusting speed, seeking shelter, accepting assistance or deviating to save life.

8.1.3 Malfunctions During Shipping Operations and Reporting Action Procedures

In the event of a malfunction or other incident during PDW shipping operations, the vessel's Master will immediately inform the relevant Site Comunications centre requesting such assistance as may be practical. Outside of Steensby or Mlne Inlet, the Master shall immediately report the incident verbally and later in writing to the nearest Transport Canada reporting station.

8.2 ENVIRONMENTAL MONITORING

Baffinland is committed to the implementation of an environmental effects monitoring (EEM) program, in part to confirm the predictions of environmental effects. The results of the monitoring programs outlined in the specific EMMPs will provide information that will serve to modify, add or eliminate mitigation measures. In Additional monitoring program may be developed, if required, and could lead to the implementation of adaptive management measures.

8.2.1 Marine Wildlife Monitoring

The response of marine wildlife to vessel transits is predicted to be not significant. However, should on-vessel observations indicate that this is not the case, additional mitigation measures would be considered and implemented as necessary.

Such measures would be developed in accordance with adaptive management techniques, and could include:

- Implement more intensive monitoring to ascertain the reason or cause for observed behavioural changes;
- Improved Noise Reduction at source if determined to be a factor for behavioural changes;
- Route or speed alterations of transiting vessels; or
- Other measures as might be recommended as a consequence of the monitoring program.

APPENDICES

PDW Appendix -1. Baffinland Pre-Charter Vessel Capability Assessment
PDW Appendix -2. Baffinland Pre-Charter Bulk Inspection Checklist and Limited Audit
PDW Appendix -3. Standard Format for the Ballast Water Management Plan

Pre-Development Works
APPENDIX 1

Baffinland Pre-Charter
Vessel Capability Assessment

BAFFINLAND PRE-CHARTER VESSEL CAPABILITY ASSESSMENT

1.0 General

The Baffinland pre-charter capability assessment will be carried out prior to finalization of any charter.

2.0 Application of the Vessel Selection Protocol

The vessel selection protocol applies to vessels engaged in the transport of cargo during the planned period of the Pre-Development Works.

3.0 Minimum Specifications for Vessel Selection

These are the minimum requirements for vessel selection according to the season during the planned period of the charter.

4.0 Criteria for Determining Vessel Performance in Ice

This is based on the Arctic Ice Regime Shipping System (AIRSS) calculation of ice numerals and Canadian Arctic Class or equivalent.

5.0 Minimum Requirements for Carriers and Alternate Iron Ore Carriers

The minimum requirements will be specified in the Baffinland original request to brokers for proposals for vessels, taking account of the season and projected ice conditions during the period of the charter.

6.0 Vessel Ice Capability Assessment

The main concern is to ensure that the carriers selected are capable of operating in the ice conditions which are forecast for the period when the vessel will be operating in the approaches to and within Steensby Inlet or Milne Inlet, as applicable.

The ice capability requirement is dependent on updated ice forecasting, based on current radar satellite information, related to the vessel's design, construction, ice performance, and operating procedures. The calculation is based on the following:

i. The ice numerals of a vessel being considered for operations into Steensby Inlet ice, which will be calculated under the Arctic Ice Regime Shipping System (AIRSS);

ii. The vessel's Class and Type in accordance with Canadian Regulations (i.e., Canadian Arctic Class or equivalent); and

iii. The thickness and character of the ice in Steensby Inlet during the period of the charter.

7.0 Conditions Forecasts and Capability Assessment

The following summary is provided as an aid to understanding Baffinland's vessel selection process for selecting vessels for operation during PDW.

1. An Information Contractor, with expertise in weather forecasting, will be contracted to provide a forecast of the conditions expected in the Steensby Inlet and Milne Inlet areas at the time of the proposed shipping.

2. The Owner and Managers of a vessel being considered for a charter shall be required to provide full details of the vessel's design, ice construction, machinery, class, and related matters to the Baffinland Independent Contractor responsible for assessing the vessel's capability.

3. The Independent Contractor engaged by Baffinland shall consider the vessel's design and construction, ice performance and certificates to confirm if the vessel's ice numerals are positive and sufficient to enable the vessel to safely transit the forecast ice conditions during the projected time frame.

   This contract shall be established well in advance of the first charter vessel assessment to enable the Independent Contractor to provide Baffinland with a list of information required to carry out their assessment of the proposed vessel's capability.

4. Providing the vessel meets all of the required criteria for navigating in the forecast conditions, the Independent Contractor shall determine that the vessel under consideration is structurally and mechanically capable of safely completing the contemplated voyage and will provide that determination to Baffinland.

5. Providing the vessel meets all of the above requirements for the charter, the vessel shall be subject to a general inspection to confirm that the vessel remains in good condition, meeting all of the equipment requirements and operating procedures necessary for vessels operating into Canadian ports. The Surveyor will also ensure that the equipment requirements and operating procedure requirements listed out in the Baffinland Inuit Impacts and Benefits Agreement (IIBA) are satisfied. These equipment requirements and operating procedure requirements are all included in the Baffinland pre-charter vessel inspection checklist (Appendix 2).

   The above inspection will be coupled with a limited audit to ensure that the vessel is operated in conformance with the International Safe Management regulations.

   Providing that the vessel satisfies all of the above inspections and the limited audit, the vessel may be placed on charter.

Note: Surveyors conducting the pre-charter inspection will be informed of any special inspection requirements related to ice procedures and route planning not otherwise included in the Baffinland IIBA

PRE-DEVELOPMENT WORKS

APPENDIX 2

Baffinland Pre-Charter Inspection Checklist and Limited Audit

BAFFINLAND PRE-CHARTER INSPECTION CHECKLIST AND LIMITED AUDIT

1.0 Introduction

Baffinland Iron Mines Corp. plans to develop an Iron Ore mine at Mary River, Baffin Island, and shipping terminals at Steensby Port Site and Milne Inlet on Baffin Island in Nunavut.

In order to preserve the environment and the Inuit way of life, BAFFINLAND have signed the Inuit Impacts and Benefits Agreement (IIBA) which, among other things, provides for the marine shipment of cargo and Iron Ore.

2.0 Shipping Operations

The vessels will follow the same track in and out of Steensby Inlet and Milne Inlet, to the extent practicable, during each round-trip transit.

Vessels must be classed for ice navigation according to the expected ice conditions.

3.0 Completion of Pre-Charter Inspection and Limited Audit

It is not the intention that the Baffinland inspector/surveyor inspect a vessel and carry out a complete ISM Type audit in the course of the vessel's normal turn-around in port.

However, an experienced surveyor can examine the vessel's documentation or computerized safety and maintenance programs in sufficient depth to satisfy themselves as to the standard of operation and management of the vessel. This information coupled with a visual inspection of the hull and superstructure, machinery spaces, deck and safety equipment is normally sufficient for the Charter to decide whether the vessel is capable of working safely in Canada or otherwise. In order to save time we suggest that the surveyor uses a digital camera to photograph points of interest, general layout of the vessel, hull condition, etc., or any items which cause concern.

The following pre-charter vessel inspection checklist is a combination of a Transport Canada Ship Safety Checklist, which is the standard required for all foreign ships entering Canada, to which we have added the requirements as identified by Baffinland as the outcome of the Environmental Assessment Process.

The limited audit outlined is sufficient to confirm that the vessel is maintaining ISM Standards.

(INSERT CHECKLIST)

APPENDIX 3

Standard Format for the Ballast Water Management Plan

(See SMWMP)