MARY RIVER PROJECT

2012 Work Plan

ATTACHMENT 8

OIL POLLUTION EMERGENCY PLAN

STEENSBY INLET FUEL STORAGE FACILITY

2011-12-14	C	Approved for Use	A. Grzegorczyk	J. Binns	S. Perry	
2011-11-10	B	Approved for Use	A. Grzegorczyk	J. Binns	S. Perry	
2011-11-09	A	Issue for Internal Review	A. Grzegorczyk	J. Binns	S. Perry	
DATE	**REV.**	**STATUS**	**PREPARED BY**	**CHECKED BY**	**APPROVED BY**	**APPROVED BY**
			HATCH			**CLIENT**

Prepared by:

NAVENCO MARINE INC.

Version: September 8, 2011 (V-4)

Table of Contents

Annex 1:	Site Overview Plan
Annex 2:	Bulk Fuel Storage Facility Plans/Drawings
Annex 3:	Shoreline Characterization and Sensitive Zones
Annex 4:	Resident Spill Response Equipment
Annex 5:	Bulk Cargo Transfer Procedures / Tug and Ice Management Vessel Fuelling Procedures
Annex 6:	Spill Response Equipment - Onboard Ship
Annex 7:	Training Register
Annex 8:	Standard Operating Guideline (SOG), Emergency Response Code 1 Situations, Steensby Inlet
Annex 9:	Transport Canada – TP-9834E – “Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and /or Marine Pollutants”

Register of Updates and Revisions			
Date	**Page/chapter**	**Update/revision**	**Object**

LIST OF ACRONYMS

Arctic Shipping Pollution Prevention Regulations	(ASPPR)
Arctic Waters Pollution Prevention Act	(AWPPA)
Baffinland Iron Mines	(BIM)
Canada Shipping Act	(CSA)
Canadian Council of Ministers of the Environment	(CCME)
Department of Fisheries and Oceans	(DFO)
Environment Canada	(EC)
Government of Nunavut, Department of Environment	(GN-DOE)
Indian and Northern Affairs Canada	(DIAND)
Job Safety Analysis	(JSA)
Material Safety Data Sheet	(MSDS)
Northwest Territories	(NWT)
Oil Pollution Emergency Plan	(OPEP)
Personal Protective Equipment	(PPE)
Process Hazard Analysis	(PHA)
Potential Hazard Review	(PHR)
Qikiqtani Inuit Association	(QIA)
Regional Environmental Emergencies Team	(REET)
Shipboard Oil Pollution Emergency Plan	(SOPEP)
Standard Operating Guideline	(SOG)
Universal Transverse Mercator	(UTM)
Workplace Hazardous Materials Information System	(WHIMIS)

OIL HANDLING FACILITY DECLARATION

Pursuant to paragraph 168(1) (b) of the *Canada Shipping Act, 2001*, Baffinland Iron Mines Corporation declares that:

(a) To comply with the regulations made under paragraph 182(a) of the Canada Shipping Act, 2001, on the detection of an oil pollution incident that arises out of the loading or unloading of oil to or from a ship, the measures as outlined in the Steensby Inlet Fuel Storage Facility, Oil pollution Emergency Plan shall be implemented.

(b) ~~in accordance with paragraph 168(1)(a) of the *Canada Shipping Act, 2001*, I have an arrangement with the certified response organization known as *~~

~~(Name of response organization)~~

~~The arrangement is with respect to _____ tonnes of oil~~
~~(Number of tonnes)~~

~~and in respect of _____~~
~~(Geographic location of the oil handling facility)~~

*** NOTE: In accordance with paragraph 168(2) of the *Canada Shipping Act, 2001*, the requirements under paragraph 168(1)(a) and 168(1)(b)(ii) do not apply.**

(c) ~~the persons listed below are authorized to implement the arrangement described in paragraph (b):**~~

**** NOTE: In accordance with paragraph 168(2) of the *Canada Shipping Act, 2001*, the requirements under paragraph 168(1)(b)(iii) do not apply in respect to the arrangement described in paragraph (b).**

(d) the persons listed below are authorized to implement the oil pollution emergency plan required by paragraph 168(1)(d) of the *Canada Shipping Act, 2001*:

NOTE: ALL CONTACTS WILL BE UPDATED UPON APPROVED OF 2012 WORK IN ACCORDANCE WITH SITE ORGANIZATION.

PREAMBLE

This Oil Handling Facility, Oil Pollution Emergency Plan (OPEP) for the Steensby Inlet Port shall be in effect at the commencement of Port operations in 2012.

Please note that this plan is valid for the year of 2012. The Preliminary Oil Pollution Emergency Plan for the Steensby Inlet Fuel Storage Facility will be updated on an annual basis to reflect changes in the project and newly gathered information. In addition to the plans organizational chart will be established upon approval of the 2012 Work.

Contacts details will be uprovided 60 days prior to Transprt Canada review and/or any fuel transfers.

Formal distribution of the Plan has been made to:

Transport Canada
Box 8550,
344 Edmonton Street (RMW),
Winnipeg, Manitoba, R3C 0P6

Additional copies and updates of this Plan may be obtained from:

Baffinland Iron Mines Corporation
Suite 1016,
120 Adelaide Street West
Toronto, ON, Canada M5H 1T1
Tel: (416) 364-8820 Fax: (416) 364-0193

Navenco Marine Inc.
Attn: Todd Mitchell
350 boul. Ford, Suite 130
Chateauguay, QC, J6J 4Z2
Tel: (450) 698-2810
info@navenco.com

SUSTAINABLE DEVELOPMENT POLICY

At Baffinland Iron Mines Corporation, we are committed to conducting all aspects of our business in accordance with the principles of sustainable corporate responsibility and always with the needs of future generations in mind. Everything we do is underpinned by our responsibility to protect the environment, to operate safely and fiscally responsibly and to create authentic relationships. We expect each and every employee, contractor, and visitor to demonstrate a personal commitment to this policy through their actions. We will communicate the Sustainable Corporate Policy to the public, all employees and contractors and it will be reviewed and revised as necessary on an annual basis.
These four pillars form the foundation of our corporate responsibility strategy:

1. Health and Safety
2. Environment
3. Investing in our Communities and People
4. Transparent Governance

1.0 HEALTH AND SAFETY

- We strive to achieve the safest workplace for our employees and contractors; free from occupational injury and illness from the very earliest of planning stages. Why? Because our people are our greatest asset. Nothing is as important as their health and safety.
- We report, manage and learn from injuries, illnesses and high potential incidents to foster a workplace culture focused on safety and the prevention of incidents.
- We foster and maintain a positive culture of shared responsibility based on participation, behaviour and awareness. We allow our workers and contractors the right to stop any work if and when they see something that is not safe.

2.0 ENVIRONMENT

- We employ a balance of the best scientific and traditional Inuit knowledge to safeguard the environment.
- We apply the principles of pollution prevention and continuous improvement to minimize ecosystem impacts, and facilitate biodiversity conservation.
- We continuously seek to use energy, raw materials and natural resources more efficiently and effectively. We strive to develop pioneering new processes and more sustainable practices.
- We understand the importance of closure planning. We ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is

undertaken as early as possible to reduce potential long-term environmental and community impacts.

3.0 INVESTING IN OUR COMMUNITIES AND PEOPLE

- We respect human rights and the dignity of others. We honour and respect the unique culture, values and traditions of the Inuit people.
- We contribute to the social, cultural and economic development of sustainable communities adjacent to our operations.
- We honour our commitments by being sensitive to local needs and priorities through engagement with local communities, governments, employees and the public. We work in active partnership to create a shared understanding of relevant social, economic and environmental issues, and take their views into consideration when making decisions.

4.0 TRANSPARENT GOVERNANCE

- We will take steps to understand, evaluate and manage risks on a continuing basis, including those that impact the environment, employees, contractors, local communities, customers and shareholders.
- We ensure that adequate resources are available and that systems are in place to implement risk-based management systems, including defined standards and objectives for continuous improvement.
- We measure and review performance with respect to our environmental, safety, health, socio-economic commitments and set annual targets and objectives.
- We conduct all activities in compliance with the highest applicable legal requirements and internal standards
- We strive to employ our shareholder's capital effectively and efficiently. We demonstrate honesty and integrity by applying the highest standards of ethical conduct.

Tom Paddon
President and Chief Executive Officer
September 2011

1 General Introduction

The Steensby Inlet Fuel Storage Facility, Oil Pollution Emergency Plan (OPEP) was developed to specifically assist in implementing measures to protect the marine environment and minimize impacts from potential spill events. The Plan outlines potential spill scenarios, and provides specific procedures for responding to spills while minimizing potential health and safety hazards, environmental damage, and clean up costs. The OPEP provides instructions to guide all personnel in emergency spill response situations, defines the roles and responsibilities of management and responders and outlines the measures taken to prevent spills, the related exercise and evaluation program, and the mechanism for regular updates to the plan.

1.1 Update Requirement

The Steensby Inlet Fuel Storage Facility, Oil Pollution Emergency Plan (OPEP) was developed as a preliminary plan based on available information. Plan will be updated at least 3 months prior to any fuel transfer with updated information and contacts before review by Transport Canada and other interested parties.

1.2 Legislative Requirement

The *Canada Shipping Act*, 2001*,* stipulates that operators of designated oil handling facilities must have an on-site oil pollution emergency plan.

The Steensby Inlet Fuel Storage Facility, Oil Pollution Emergency Plan takes into account the requirements of the Canada Shipping Act, 2001, part 8, subsections 168. (1), 168. (2) and 168. (3). Although the subsection 168 (2) is applicable, as the Steensby inlet site is located North of 60', therefore the subsections 168. (1) (a), 168. (1) (b) (ii), 168. (1) (b) (iii) do not apply.

The Canada Shipping Act Response Organizations and Oil Handling Facilities Regulations (SOR/95-405) applies.

The Oil Handling Facilities Standards, TP12402 applies.

Spill reporting requirements per TP-9834E apply.

1.3 Links to Baffinland General Spill Contingency Plan

Spills of all types, both marine and land based are addressed in the Baffinland Iron Mines Corporation, Mary River Project, "Spill Contingency Plan" which is a separate document. The Spill Contingency Plan addresses a wider scope of operations and includes storage areas other than the Milne Inlet Fuel Storage Facility. The plan also addresses other

The Steensby Inlet Fuel Storage Facility OPEP has been designed specifically to compliment the Mary River Project, "Spill Contingency Plan" document. The plan is not to be construed as to supersede existing emergency response plans, rather it is conceived to address the specifics of the fuel storage facility, the bulk incoming transfer of fuel and spill scenarios directly relating to this operation.

2 Planning Standards

In the preparation of the Steensby Inlet OPEP, the standards as outlined in the Oil Handling Facility standards, TP 12402 have been employed.

2.1 Facility Category

Based on the ship to shore maximum pumping rate of approximately 400 m^3/hr, the Steensby Inlet Facility is classified as a level 2 facility. Spill scenarios have been developed and are outlined in section 6 of this plan. As a scenario addressing a possible 5 m^3 spill exists, the minimum size of an oil pollution incident for which a response is described in this OPEP is 5 m^3.

2.2 General Planning Guidelines

Beyond the requirements of the CSA and the Oil Handling Facilities Standards, Baffinland Iron Mines recognizes the unique nature of the geographical location and the challenges inherent in mounting a response to a pollution incident.

All spill contingencies for Steensby Inlet must take into consideration the diverse elements that might define, simplify or even reduce the possibility of taking action. The harsh climate, the remoteness, transportation difficulties (for personnel and goods), limited availability of manpower in case of oil spills and the lack of infrastructure in case of a fire are all elements that can limit the response to take in this type of situation. Air transportation is the only transportation on a regular basis but weather conditions may not be favourable, rendering a quick response difficult.

In the preparation of this plan, existing documents relating to the site specifications (physical, natural and social conditions) have been utilized. In the preparation of the plan and related Mary River Emergency Response Plan, extensive consultations with local authorities have been undertaken, with the goal of a cooperative response as part of an important incident.

To specifically address the CSA and Oil Handling Facilities Standards, spill scenarios have been developed, taking into consideration among various factors the following:

(a) The nature of the oil product in respect of which the scenario is developed;

(b) The types of ships that are unloaded at the facility;

(c) The tides and currents that prevail at the facility;

(d) The meteorological conditions that prevail at the facility;

(e) The surrounding areas of environmental sensitivities that would likely be affected by an oil spill;

(f) The measures that will be implemented to minimize an oil pollution incident;

(g) The time within which an effective response to an oil pollution incident can be carried out.

Several priorities have also been identified among which include:

(a) The safety of the facility's personnel;

(b) The safety of the facility;

(c) The safety of the communities living adjacent to the facility; (hunting camps)

(d) The prevention of fire and explosion;

(e) The minimization of the oil pollution incident;

(f) The notification and reporting of the oil pollution incident;

(g) The environmental impact of the oil pollution incident;

(h) The requirements for cleaning up the oil pollution incident.

2.2.1 Response Time Standards

The operations and response structure at the Steensby Inlet facility have been designed so that a rapid response to a spill incident can be carried out. All equipment and resources are strategically placed near the beach front, directly at the port operation site. Responders, workboats and other support equipment are on standby during all port operations. The deployment of equipment and resources required to contain and control the oil, or where the oil cannot be contained, to control the quantity of oil involved in the incident, up to the minimum spill size of 5 m^3 as determined in accordance with section 2 of the Oil Handling Facilities Standards, shall be on site and deployed on scene within 1 hour after the discovery of the oil pollution incident, unless deployment would be unsafe.

The equipment and resources required to recover and clean up the oil involved in the incident, up to the minimum spill size of 5 m^3 as determined in accordance with section 2 of the Oil Handling Facilities Standards shall be deployed on scene as soon as practical and effective, within 6 hours of the oil pollution incident.

2.2.2 On-Water Recovery

On water recovery of spilled product shall be initiated immediately upon containment of free floating product. The skimming capacity available at Steensby inlet is capable of recovery of several times the required spill volume within the time standards after derating formula are applied.

2.2.3 Dedicated Facility Spill Response Equipment

The Steensby Inlet Bulk Fuel Storage Facility shall be equipped with appropriate spill response equipment which provides *resident capability* for the response to spills in accordance with the scenarios which have been developed under this Oil Pollution Emergency Plan. Containment and recovery equipment inventories exceed the facility category planning standards and are especially appropriate for the potential spill volumes as outlined in the scenarios contained in the OPEP. Full details relating to specifics of the equipment can be found in Annex 4.

3 Steensby Inlet Storage Facility

3.1 General Overview and Site Description

The Steensby Inlet Fuel Storage Facility is situated on the eastern shore of Steensby Inlet, in northern Foxe Basin, Baffin Island. (70° 16.90' North, 78° 28.60' West). A site overview plan is presented in Annex 1.

3.2 Fuel Storage Facilities and Infrastructure

At the onset of 2012 Work Plan activities, seven (7) prefabricated, one hundred thousand litre (100,000 L) ISO doubled walled tanks fuel tanks will be placed on site. Two (2) of the ISO fuel fuel tanks will be designed to contain Ultra Low sulphur Diesel (P50) and five (5) will be deisgned to containe Jet A 1 fuel. It is not expected that the two (2) ISO fuel fuel tanks designed to contain Ultra Low sulphur Diesel (P50) will be filled in 2012. The seven temporary steel tanks will eventually be decommissioned and removed during the construction phase of the Project when the larger permenant steel storage tanks are constructed and operational. To supplement the fuel requirement required for the 2012-2013 period, an 8 ML fuel fuel vessel will be anchored near shore and overwinter in Steensby Inlet. The placement of the fuel fuel vessel is detailed in Annex 1 of this plan.

3.3 Steensby Inlet Shoreline and Marine Characteristics

3.3.1 Shoreline Characteristics and Sensitive Zones

A 2007 coastal habitat survey was conducted to document coastal and near shore habitats in the proposed development area. In that oil spills are a potential development issue, the survey extended several hundred kilometres from the proposed port sites so as to encompass habitats in the far field as well as the near field of the possible port sites.

Steensby Inlet is a large inlet at the northern end of Foxe Basin. Terrestrial relief around the Inlet is low, resulting in flat plains with very high concentrations of ponds and wetlands. The Inlet can be considered in terms of three general coastal regions: the coastal plain along the western shore, the northern lagoon complex and the rocky east coast. As spill scenarios developed for the purposes of this plan are focused on the immediate Steensby Port area, the local shoreline types found in this area are the focus here.

The eastern shore of Steensby Inlet is dominated by granitic bedrock and much of the coastal morphology is bedrock controlled. Rock headlands, rock cliffs and pocket beaches are interspersed with a few estuaries and lagoons to make this shore the most diverse in terms of coastal morphology. Steeper offshore gradients allow higher wave exposures, and ice movement along the shores has contributed to the formation of series of intertidal boulder ridges. Accretional landforms are relatively rare. Salt marshes are primarily located in delta flat complexes.

The shoreline characteristics in the immediate Steensby Port area are approximately composed of 10% rocky cliffs, 55% rocky cliffs with beaches, 30% alluvial fans with a small percentage (5%) lagoon complexes present.
Rock cliff beaches intertidal areas are primarily composed of poorly sorted sand gravel beaches. Boulder ridges in this intertidal zone are common. Intertidal widths are generally less than 30 meters. Biological description includes upper intertidal zone mostly bare of attached macrobiota. Lower intertidal commonly has rockweed type algae, in particular associated with boulder lag or at boulder ridges. Near shore subtidal often shows narrow band of understory kelp complex.

Alluvial fans are areas of till and glacial outwash. Backshore slopes are moderate and usually include a tundra vegetation cover. Associated intertidal areas are usually moderate to narrow coarse sediment

beaches of boulder, cobble, and pebble sand. Bounder ridging tends to be common. Biological description shows intertidal generally bare of attached macrobiota on mobile sediments. Some lower intertidal rockweed type algae associated with boulder ridges.

In addition, extensive spill trajectory modeling for spills originating at Steensby Port has also been undertaken. The advection or transport of spilled fuel on the sea surface was modelled using wind and ocean current data. A 30-year time-series of gridded winds from the NCEP/NCAR reanalysis project were selected for use. These data are near-surface modelled winds and were found to compare favourably with measured winds from the nearby Steensby met station from 2006 to 2009. The NCAR/NCEP winds long time-series length ensures good statistical reliability in the predicted spill probability distributions. Estimation of ocean currents in Steensby Inlet were made following analysis of Acoustic Doppler Current Profiler (ADCP) measurements from field programs in September 2008. Based on the results of this study, and as the spill scenarios developed for the purposes of this plan are relatively small in volume (i.e. 5m^3), impacts to the immediate area surrounding the port and fuel dock area only have been considered in this plan.

Spill trajectory modelling which takes into account the vast majority of trajectories, have shown that 86%, reach shore in the port site area, as soon as 15 minutes and on average in two hours. Considering the spill response mechanism in place and a high probability of containment of potential spills the likelihood of migration of minor spills beyond the port confines is considered a low risk.

Besides the Baffinland complex, there is no permanently settled community or habitation in the area. Cultural use of the coastal zone in Steensby inlet is limited. During coastal habitat surveys, only a single active hunting camp (wall tent) was observed in all of Steensby Inlet and tent rings were rare. A few locations of man-made materials were associated with the hunting camp. There was no cultural use observed in the immediate Steensby Port area considered in the plan.

3.3.2 Bathymetric and Marine Data

Steensby Inlet has not been well surveyed by the Canadian Hydrographic Service. As part of the present studies, multi-beam and single-beam echo-sounding surveys were carried out focusing largely on the southern two-thirds of the inlet with some reconnaissance transects in the northern part of the area. Very detailed bathymetric and geophysical studies were carried out in the vicinity of the proposed port area.

Echo sounding surveys carried out in the vicinity of the proposed port facilities in Steensby Inlet show that off the more northerly proposed service dock site depths reach more than 40 m within about 350-400 m of the shoreline. Steep offshore gradients to more than 60 m occur in the vicinity of the proposed ore loading dock. Between the larger islands and the mainland, water depths do not typically exceed 10 m (small local depressions reach 13 m) and the topography is complex; similarly the area south of the proposed ore loading
dock (off the southern end of the island) is a broad complex of shoals and small islets with water depths less than 10 m.

Sidescan sonar results revealed that the seafloor was generally covered by scattered cobbles and boulders on a sandy gravel seafloor. In near shore areas ice-related features were common.

While present in most areas, long sinuous ridges and depressions are particularly well developed along the western margins of the area lying between the mainland and the most northerly of the chain of islands. Ice wallows can be highly concentrated yielding a patchwork of circular zones of fine sediments, in some cases overlapping, with intervening cobble/boulder zones.

In some areas (e.g., off the proposed service dock site) gravelly shore-normal ridges were noted. These are generally of low relief (< 1-2 m) though some of the largest are up to 7 m above the surrounding seafloor and continuous in some cases for more than 150 m into water depths of at least 35 m. These ridges are 10-20 m wide.

The absence of existing tidal measurements in Steensby Inlet led to a study of water levels in the southern part of the inlet. Tides are mainly semidiurnal and have a pronounced fortnightly cycle. The maximum observed tidal range was approximately 4 m during spring tides and 1.5 to 2 m during neap tides.

Currents in the immediate port area have also been extensively studied, however tidal action is by far the most dominant current action observed at the port.

Limited bathymetric and marine data is available at the Steensby Inlet site. Canadian Hydrographic Service (CHS) charts cover most of the area; however data within the shallow beach areas is limited.

The marine environment at Steensby Port is characterized as a sheltered waters environment. As has been noted at the site, the prevailing winds generally provide sea conditions of onshore waves, varying in height from flat calm to less than 1 meter in average winds of less than 20 km/hr.

3.3.3 Meteorological Data

There is currently no Environment Canada meteorological station at Steensby Inlet, the closest being Pond Inlet. Extensive data exists for Pond Inlet, and data has been collected over a shorter period of time at the Steensby site.

Baffinland established an on-site meteorological station at Mary River Camp on June 13, 2005. The station has been collecting hourly data since being established, except for an interruption in the winter of 2005.

Two additional meteorological stations were installed by Baffinland in June 2006 at Milne Inlet and Steensby Inlet. These stations have the same sensors as the Mary River station.

The North Baffin region is located within the Northern Arctic Ecozone, as delineated in the National Ecological Framework for Canada (Agriculture and Agri-Food Canada, 2000). Northern Baffin Island has a semi-arid climate with relatively little precipitation. The region experiences near 24-hour darkness with less than two hours of twilight from approximately November 12th to January 29th. During winter months (December to April), the treeless topography and fine powdery snow produce blowing snow conditions resulting in restricted visibility. Steam fog may occur in areas of open water, but does not persist more than a few miles downwind. Ice fog is infrequent, due to the lack of moisture in the air, but may occur more frequently if settlements become larger and sufficient moisture is added to the air through fuel combustion.

Frost-free conditions are short and occur from late June to late August. There is continuous sunshine from approximately May 5th to August 7th. The months of July and August bring maritime influences and are usually the wettest (snow may still occur). Fog increases at this time due to arrival of moist air from southern Canada.

During September to November, temperature and the number of daylight hours start to decrease, and by mid-October the mean daily temperature is well below 0°C. The highest amount of snowfall typically occurs during this period. A condition called “Arctic white out” often occurs during this time, where diffuse white clouds blend into the white snow-covered landscape, reducing visibility and increasing the likeliness of disorientation. This condition can also occur in April and May.

Although ore shipments shall be carried out at Steensby Inlet throughout the year, fuel deliveries shall be received only during the summer months, the most favourable time of year to carry out fuel transfer activities.

The meteorological factors most affecting spill recovery operations are wind and temperature. The major observations through data collected and baseline data from Pond Inlet show August and September mean monthly temperatures of 6.6 and minus 1.2°C respectively.

Specific data accumulated indicate that winds from the northwest occur most frequently (24% of the time), followed by winds from the east (nearly 12% of the time). The wind data also indicates that “gentle breeze” conditions (3.4 to 5.5 m/s) occur most frequently at 32% of the time, followed by “light breeze ” conditions (1.6 to 3.4 m/s), which occur 25% of the time. The data indicates that strong breezes (10.8 to 13.9 m/s) occur nearly 4% of the time.

Precipitation is generally not an adverse factor during the operating period although August and September are among the wettest months of the year in this region.

4 Site Activities

4.1 Bulk Oil Transfer, Ship to Shore

The bulk fuel transfer from ship to shore discharge takes place up to twice a year between the months of June to September and there will be approximately 700,000 L of petroleum product at any onetime that is transferred to the fuel tanks to shore. The transfer will be by means of a single floating hose with an approximate length of approximately 1000 meters deployed between the vessel and the connecting flange on the shore. The products are then transferred by pipeline to the above mentioned bulk storage facility. A steel pipeline of 4“ diameter connects between the shore manifold and the tank farm situated at approximately 1000 meters from the shoreline. Tidal influence on currents and wind force and direction are the dictating environmental factors during bulk transfer and criteria for acceptable conditions for discharge are outlined in cargo transfer procedures.

The transfer operation involves filling the shore based tankage with two types of fuel (Jet A and CP-43 (diesel)). It is expected that once cargo operations are underway, the ship will discharge at a rate of 400 m^3/hour and that the 100,000 L tank will take approximately 1.0 hours to fill per tank. Accurate reconciliation of discharge & fill volumes through regular communication between ship & shore personnel is required to ensure the safe transfer of fuel and prevent the overfilling and over pressurization of the fuel tanks that could result in a spill. The detailed bulk transfer procedures are fully detailed in the standard operating procedure in Annex 5.

4.2 Bulk Oil Transfer, Ship to Fuel Vessel

The bulk fuel transfer from ship to ship discharge takes place up to twice a year between the months of August or September and there is approximately 8 ML of petroleum product that is transferred to the fuel vessel by means of a single floating hose with an approximate length of approximately 1000 meters deployed between the vessel and the fuel vessel. Tidal influence on currents and wind force and direction are the dictating environmental factors during bulk transfer and criteria for acceptable conditions for discharge are outlined in cargo transfer procedures.

The transfer operation involves filling the fuel vessel based tankage with CP-43 (diesel) fuel. It is expected that once cargo operations are underway, the ship will discharge at a rate of 400 m^3/hour and that the 8 ML will take approximately 18 hours to fill. Accurate reconciliation of discharge & fill volumes through regular communication between ship to ship personnel is required to ensure the safe transfer of fuel and prevent the overfilling and over pressurization of the fuel tanks that could result in a spill. The detailed bulk transfer procedures are fully detailed in the standard operating procedure in Annex 5.

4.3 Bulk Oil Transfer, Fuel Vessel to Shore

The bulk fuel transfer from fuel vessel to shore discharge takes place throughout the year and there is approximately 700,000 L of petroleum product that will be transferred to the fuel tanks on shore by means of a single floating hose with an approximate length of approximately 1000 meters deployed between the fuel vessel and the connecting flange on the shore. The products are then transferred by pipeline to the above mentioned bulk storage facility. A steel pipeline of 4“ diameter connects between the shore manifold and the tank farm situated at approximately 1000 meters from the shoreline.
The products are transferred by pipeline to the bulk storage facility. A steel pipeline connects between the receiving manifold on the freight dock and the tank farm. Tidal influence on currents and wind force and direction are the dictating environmental factors during bulk transfer and criteria for acceptable conditions for discharge are outlined in cargo transfer procedures.

The transfer operation involves filling the shore based tankage with two types of fuel (Jet A and CP-43 (diesel)). It is expected that once cargo operations are underway, the ship will discharge at a rate of 400 m^3/hour and that the 100,000 L tank will take approximately 1.0 hours to fill per tank. Accurate reconciliation of discharge & fill volumes through regular communication between ship & shore personnel is required to ensure the safe transfer of fuel and prevent the overfilling and over pressurization of the fuel tanks that could result in a spill. The detailed bulk transfer procedures are fully detailed in the standard operating procedure in Annex 5.

4.4 Port Operations

Other than the planned bulk fuel transfers, no other port operations involving fuel transfer are anticipated at Steensby Inlet for the 2012 operating season.

Dry cargo sealift operations are anticipated to occur, however these will be separate from the operations of the bulk fuel facility and are not considered in this Oil Pollution Emergency Plan.

Spill Response Procedures

4.5 General Spill Procedures

The response to spills begins immediately when the spill has been detected. In all cases immediately upon detection of a spill, all transfer operations are to be shut down and not restarted in any manner that would interfere with the immediate, effective and sustained response to the oil pollution incident.

This plan clearly outlines the notification procedure and the roles and responsibilities of the management and spill response team. All emergency telephone numbers are clearly listed and the persons are contacted as needed and according to the priority of the incident. The contact list is included in section 5.3.1.

The response team, following a spill, must ensure that personnel safety is their first priority. First and foremost evaluate the risks as quickly as possible to guarantee that appropriate measures are taken to prevent or reduce the risk of injury to personnel, to avoid fire or explosion, to protect property and to minimize the damage to the environment. It is important to contain the oil slick or to start cleaning up as quickly as possible to stop the spill from contaminating a greater area.

As outlined in section 3.2 of this plan, two products are received at the facility. Both products, JET A1 and ULTRA LOW SULPHUR DIESEL CP-43 are classified as non-persistent combustible hydrocarbons and will behave in a similar fashion if spilled. The response to a spill of either of these products shall be carried out in the same fashion. Full details of the properties and hazards associated with these products are found on the Material Safety Data Sheets (MSDS) in The Hazardous Materials & Hazardous Waste Management Plan - Attachment 1.

Both products are of relative low viscosity, are clear to yellow in color and will float readily when spilled. It should be anticipated that any spillage will rapidly spread when spilled and a high rate of evaporation will occur. Wind and tidal current will be the most important factor in promoting the spread of the product on the water surface.

When responding to spills, all procedures and safety methods in handling these products must be observed. The following specific measures must be followed with distillate spilled on water or on land:

Take personal protective safety measures. Personal protective equipment must be worn at all times during response operations.

Close all electrical sources.

Take all appropriate measures to ensure personnel safety and the safety of the facility.

Request help to control personnel access, vehicles and close the area. Never enter inside and/or within the radius of the contaminated area. Have a fire extinguisher close by. If a fire starts extinguish the fire only if it is safe for you and that you were trained to do so without exposing yourself to unnecessary risks.

Through the marine spill training initiative, all spill response personnel will be fully briefed on the procedures to be followed to report a spill and initiate spill response. The first person to notice a spill will take the following steps:

1 Immediately warn other personnel working near the spill area;
2 Evacuate the area if the health and safety of personnel is threatened;
3 Notify the On-Site Coordinator, who will initiate the spill response operations;

In the absence of danger, and before the spill response team arrives at the scene, take any safe and reasonable measure to stop, contain and identify the nature of the spill.

All spill response actions carried out by the spill response team will follow these general procedures:

Cease Transfer Operations - In all cases immediately upon detection of a spill, all transfer operations are to be shut down and not restarted in any manner that would interfere with the immediate, effective and sustained response to the oil pollution incident.

Source Control - Reduce or stop the flow of product without endangering anyone. This may involve very simple actions such as closing shore valves, sealing a puncture hole with almost anything handy (e.g., a rag, a piece of wood, tape, etc.), raising a leaky or discharging hose at a level higher than the product level inside the tank.

Control of Free Product - Prevent or limit the spread of the spilled material. Accumulate/concentrate spilled product in an area to facilitate recovery. Barriers positioned down-gradient of the spill will slow or stop the progression of the spill. Barriers can consist of absorbent booms, dykes, berms, or trenches (dug in the ground). Deployment of floating booms to contain a marine spill should be carried out by the spill response team as soon as safe and practical.

Protection - Evaluate the potential dangers of the spill in order to protect sensitive ecosystems and natural resources. Block or divert the spilled material away from sensitive areas where possible.

Clean up the Spill – Recover and containerize as much free product as possible. Recover contaminated soil, snow, ice, and water. Pressure-wash contaminated bedrock surfaces, shorelines, ice and recover as much as possible oily water for containerization and/or treatment.

Report the Spill - Provide basic information such as date and time of the spill, type and amount of product discharged, location and approximate size of the spill, actions already taken to stop and contain the spill, meteorological conditions and any perceived threat to human health or the environment. Reporting requirements are presented on Section 5.5.

Specific spill response techniques, operations, equipment and materials are part of the comprehensive marine spill training program as outlined in section 7 of this plan.

4.6 Health and Safety

Baffinland Iron Mines Corporation and its senior management are committed to ensuring the health, safety and welfare of its employees, contractors and visitors. As a consequence of this, Baffinland Iron Mines requires all personnel to regard accident prevention and working safely as a collective individual responsibility.

Baffinland Iron Mines Corporation conducts all site activities in accordance with all applicable Federal and Territorial health and safety regulations. The following applicable health and safety regulations apply to the activities described in this Oil Pollution Emergency Plan:

Northwest Territories, Nunavut Worker's Compensation Act - Provides the territorial legislation covering the health and safety of workers in Nunavut.

Mine Health and Safety Act and Regulations (Nunavut) - Provides specific health and safety guidelines for mines operating in Nunavut .. Section 2(1) Duties and Responsibilities (the Owner).

Canada Labour Code Part II – Provides Federal regulations for the health and safety of workers involved in shipping and marine port operations.
Baffinland Iron Mines requires and provides WHMIS training for all employees and contractors at the Steensby Inlet and Mary River sites. Mines Health & Safety Act & Regulations : Part VI Regs. Training 6.03

It is also a requirement for supervisory personnel to hold level 1 or level 2 certification as required by the Mine Health and Safety Act. Mines Health & safety Act & Regulations: Part V Regs. Supervision

Comprehensive general training is provided to spill responders throughout the site in relation to inland spills. In addition, specific training with relation to safety during response to marine spills is provided to all responders through Baffinland's marine spill training program. All responders who are involved in marine operations shall participate in the training as outlined in section 7 of this Oil Pollution Emergency Plan.

4.6.1 Personal Protective Equipment (PPE) – Requirements

For all responders, personal protective equipment requirements shall be as follows:

Steensby Inlet Site Support Services: (non-water operations, no contact with spilled product)

Hard Hat
CSA approved work boots
Safety glasses
Leather work gloves
Orange/yellow retro reflective vests

Steensby Inlet Site Support Services: (non-water operations, possible contact with spilled product)

Hard Hat
CSA approved work boots
Safety glasses
Orange/yellow retro reflective vests (if not wearing rain wear)
PVC rain suit
Nitrile work gloves

Workboat and shoreline responders: (beach or on-water operations, possible contact with spilled product)

Hard Hat
CSA approved work boots
Safety glasses
PVC rain suit
Nitrile work gloves
Approved personal flotation device

4.7 Roles and Responsibilities

As part of the spill emergency response plan, Baffinland is responsible for implementing, through its project management team, the following procedures:

- Train site personnel in spill response procedures and the proper use of response equipment and materials.
- In the event of a spill, mobilize all available site personnel, equipment and tools, as required.
- Implement all required health and safety procedures at the site of the spill.
- Eliminate all fire hazards and potential ignition sources near the spill area.
- Control the source of the spill (i.e., reduce or stop product discharge).
- Contain the spilled product using the most appropriate methods and equipment
- Evaluate the possibilities of recovering spilled materials.
- Obtain, if required, assistance from government agencies such as Environment Canada, the Canadian Coast Guard and/or Fisheries and Oceans Canada.
- Obtain, if required, additional assistance by hiring local rangers or residents from the nearest communities and/or firms specialized in spill response operations.
- Comply with all applicable guidelines and regulations.
- Conduct a preliminary assessment of environmental impacts to marine, freshwater and terrestrial ecosystems and natural resources.
- Report the spill to the appropriate authorities.

4.7.1 Steensby Inlet Response Management Structure

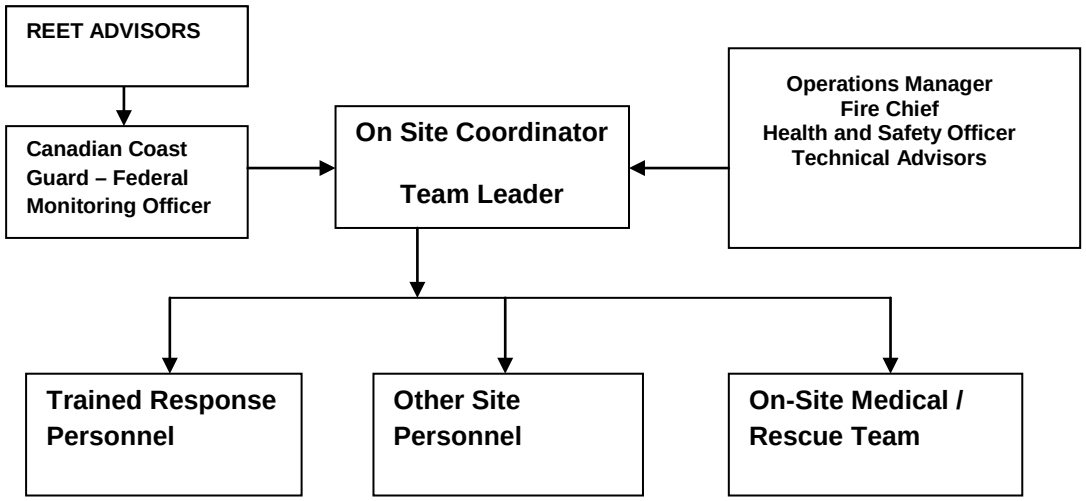
All spill procedures and response functions are to be implemented through the spill management team. The structure of this management team is shown in table 1 and the organizational chart Figure **1**.

Once a spill event is reported, the On-Site Coordinator establishes a specific strategy for containing and controlling the spill and to initiate the cleanup activities. Other site personnel such as the Fire chief, Health and Safety Officer, and Operations Manager may act as technical advisers prior to and during the response. The trained Spill Response Team will conduct all emergency spill response operations under the leadership of the On-Site Coordinator. During the cleanup phase of the response other site personnel (e.g., heavy equipment operators, labourers, etc.) may be involved.

CONTACTS WILL BE UPDATED PRIOR TO TRANSPORT CANADA SUBMISSION

Table 1.2: Baffinland Emergency Response Management Personnel	
Position	**Contact**
On-site Co-Coordinator	**Emergency After Hours Tel:** Email: Mary River Site Tel: Email: Mary River Site Tel: Steensby Inlet Site Tel:
On-site Co-Coordinator (alternates)	**Emergency After Hours Tel:** Email: Mary River Site Tel: Email: Mary River Site Tel**:**
Environmental Health & Safety Superintendant	**Mary River Site Tel:** Email : Off-Site Cell: Email : Mary River Site Tel :
Operations Manager	**Mary River Site Tel:** Cell: Email:
Corporate Contact – VP Sustainable Develop.	**Office Tel:** Cell: Email:

Figure 1: Spill Response Team Organization Chart



4.7.1.1 On Site Coordinator

As part of the spill response plan, the On-Site Coordinator, acting as on-scene commander, is responsible for implementing the following procedures:

- Assume authority over the spill scene and personnel involved.
- Activate the Spill Response Plan.
- Evaluate the initial situation and assesses the magnitude of the spill.
- Develop an overall plan of action.
- Collect photographic records of the spill event and clean up efforts.
- Prepare a root cause analysis and an incident investigation for major spills.
- Provide information and recommendations to the Operations Manager in regards to resource requirements (additional manpower, equipment, material, etc.) to complete the cleanup effort.
- Mobilize personnel and equipment to implement the cleanup.

The On Site Coordinator shall be accessible via telephone to the Canadian Coast Guard during the entire transfer operation.

4.7.1.2 Operations Manager

The responsibilities of the Operations Manager with support from the Environmental Superintendent include the following:

- Report the spill to the Canadian Coast Guard (Arctic region) at 1-800-265-0237 (24-hour), NWT 24-hour Spill Report Line at (867) 920-8130, to Qikiqtani Inuit Association Lands Administrator at (867) 975-8422, QIA for spill on Inuit owned lands at (867) 975-8419 or (867) 979-5391, and DIAND Manager of Field Operations at (867) 975-4295.
- Provide liaison with Management to keep them informed of cleanup activities.
- Obtain additional required resources not available on-site for spill response and cleanup.
- Act as the spokesperson with government agencies as well as the public and the media as appropriate.
- Document the cause of the spill and effectiveness of the cleanup effort, and implement the appropriate measures to prevent a recurrence of the spill.
- Prepare and submit follow-up documentation required by appropriate regulators.
- Ensure that the spill is cleaned up and all follow-up communication and reports are filed with the DIAND Water Resources, Environment Canada offices and QIA Land Administrator. Ensure that the spill reports submitted to QIA include accident investigation reports, photographic records and an updated map (1:50,000) showing UTM coordinates, date, amount and the nature of spill.

4.7.2 Other Site Personnel - Responders

All responders that are to be involved with a marine spill response are to be trained under the program as outlined in section 7 of the Oil Pollution Emergency Plan.

The number of responders and their specific tasks is estimated in accordance with the spill scenarios as outlined in section 6 of the Oil Pollution Emergency Plan.

4.7.3 On Site Medical / Rescue Team

Existing Steensby Inlet fire response and medical emergency procedures per *Standard Operating Guideline (SOG), Emergency Response, Code 1 Situations, Steensby Inlet* – Annex 8, would be initiated during any response operation.

4.8 Coordination with Canadian Coast Guard and other Governmental agencies

4.8.1 Canadian Coast Guard

The response to spills at the Steensby Inlet site shall be managed in coordination with the Canadian Coast Guard who are the lead response agency north of 60°.

The *Central & Arctic Regional Response Plan (2008)* and the *Baffin Region, Nunavut Area Plan* outline the Canadian Coast Guard's response capability for the Baffin region. This plan is a component of the *Canadian Coast Guard National Response Plan* which is the responsibility of the Director of Safety and Environmental Response Systems, Ottawa. It establishes the framework and the procedures by which Central & Arctic Region will prepare for, assess, respond to and document actions taken in response to pollution incidents in this Region. This capability and the information contained in the Coast Guard plans are considered a valuable resource in the planning and response to spills at the Steensby Inlet Bulk Fuel Storage Facility

4.8.2 Regional Environmental Emergencies Team (REET)

The Environment Canada, Regional Environmental Emergencies Team (REET) is a multi-agency, multi-disciplinary group specializing in environmental emergencies. REET is designed to provide consolidated and coordinated environmental advice, information and assistance in the event of an environmental emergency. REET members represent several federal, provincial, territorial and municipal government departments, aboriginal communities, private sector agencies, and local individuals.

During emergency response situations a REET operates as a flexible and expandable multi-disciplinary and multi-agency team brought together to obtain and provide comprehensive and coordinated environmental advice, information and assistance to On Site Coordinator or Lead Government Agency.

4.8.3 Other Governmental Agencies

At all times, the response to spill incidents shall be coordinated with the various agencies as listed in table 2.

4.9 Reporting Requirements

Two individual reporting requirements are applicable in the case of all spills. Procedures for each are outlined herewith:

4.9.1 Canadian Coast Guard Reporting Requirements

All spills of a marine nature will be reported to the Canadian Coast Guard (Central and Arctic region) 1-800-265-0237 (24-hour). The fax number for transmission of the written report is (519) 337-2498.

Reporting of marine spills shall be in accordance with Transport Canada Guideline TPP- 9834E, “Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and /or Marine Pollutants”. Detailed harmful substances report requirements are outlined in Appendix A-2 of the guideline, a copy of which is included in Annex 9of this plan.

4.9.2 Government of Nunavut Reporting Requirements

Government of Nunavut also mandates requirements for reporting of spills.

After the initial field emergency response to the spill event, the spill will be reported to the 24 hour Spill Report Line:

24-Hour Spill Report Line Tel. (867) 920-8130

Or

Fax (867) 920-8127

Failure to report a spill can lead to fines. The DIAND Water Resources Inspector will also be immediately notified of the spill event at (867) 975-4298.

It is the responsibility of the Operations Manager to prepare the proper reports and transmit them to regulatory authorities. Table 2 presents an additional contact list for spill reporting.

Table 2: Contact List for Spill Reporting Afterwards, the spill event will be reported in writing using the standard Spill Report Form.

Department	Person	E-mail	Telephone
INAC-Waters (Iqaluit)	Kevin Buck	buckk@inac-ainc.gc.ca	(867) 975-4550
INAC-Inspector	Andrew Keim	keima@inac-ainc.gc.ca	(867) 975-4289
INAC-Qikiqtani	David Abernethy	abernethyd@inac-ainc.gc.ca	(867) 975-4555
INAC-Field Operations	Peter Kusugak	kusugakp@inac-ainc.gc.ca	(867) 975-4289
DFO-Iqaluit	Gary Cooper	Gary.cooper@dfo-mpo.gc.ca	(867) 979-8011
EC-Iqaluit	Jim Noble		(867) 975-4639
GN-DOE	Robert Eno	reno@gov.nu.ca	(867) 975-7748
Qikiqtani Inuit Association	Salamonie Shoo	landadmin@qia.ca	(867) 975-1643
Pond Inlet Health Clinic			(867) 899-7500 (867) 899-8431
Pond Inlet RCMP			(867) 899-1111 (867) 899-6055
Qikiqtani General Hospital (Iqaluit)			(867) 979-7300

The written report will include the following information:

- The identity of the Baffinland Iron Mines Oil Handling Facility
- Date and time of the incident;
- Location or map coordinates and direction of spill movement if not at steady-state;
- Party responsible for the spill;
- Type and estimated quantities of spilled contaminant(s);
- Specific cause of the incident;
- Status of the spill indicating if spilled materials are still moving or now at steady-state;
- Approximate surface of contaminated area;
- A photographic record of the spill event and clean up efforts;
- Factors affecting spill or recovery such as temperature, wind, etc.;
- Status on containment actions indicating whether a) naturally, b) booms, dykes or other, c) no containment has been implemented;
- Corrective action taken or proposed, to clean, contain or dispose spilled material;
- Description of any assistance and salvage measures undertaken
- Whether additional assistance is required and in what form;
- Whether the spill poses a hazard to persons or property (i.e., fire, drinking water);
- Comments and recommendations;
- Name, position and employer of the person reporting the spill; and,
- Name, position department of the person to whom the spill is reported.
- Any other information deemed relevant

In addition, QIA requests Baffinland produce a site map(s) listing the location in UTM coordinates, date, amount and nature of the substance spilled. The map(s) should be updated and sent to QIA whenever a spill occurs. The map(s) will also detail major project components and all water bodies.

In the event of a spill involving the marine carrier delivering bulk fuel, Baffinland will ensure that the subcontractor reports any spill event under its responsibility.

4.10 Treatment and Disposal

All debris and other contaminated matter shall be safely transported to temporary storage areas as designated by the On Site Coordinator for treatment and disposal of recovered hydrocarbons. The establishment of temporary storage areas shall be made after consultation with the Technical Advisors, and in the case of a large spill in consultation with REET, Coast Guard and others. Various temporary storage options have been anticipated on site, including drums, portable tanks, temporary engineered lined berms and vacuum trucks.

Oil water separation capability is also available on site. In all cases treatment of waste and disposal of effluent from separation is to be carried out in strict accordance with and to the approval of the appropriate regulatory body.

5 Spill Scenarios and Response Strategies

Baffinland Iron Mines is committed to planning for spills at the Steensby Inlet Bulk Fuel Facility using an analysis of possible spill scenarios. The potential incident analysis is based on real projected operations, and potential quantities spilled are based on pumping rates and estimated times to halt pumping operations.

In the development of the scenarios the following constant factors have been applied:

- The type of ship that is employed for the bulk fuel delivery is a conventional double hulled, multi-compartment 20,000 T petroleum tanker.
- The tanker is anchored at a safe distance from the Steensby Inlet shoreline and up to 1100 meters of floating hose is deployed between ship and shore.
- In developing the scenarios, a pumping rate of approximately 400 m^3/hr has been assumed. As ship crew is positioned at the manifold connection at all times, a time to shut down of approximately 1 minute or less following a rupture or discovery of a leak in the hose or couplings has been used. As it is unlikely that a full flow rate of discharge would be experienced, a probable spill volume of less than 5 m^3 has been established for the purposes of this plan.
- As outlined in section 3.2 of this plan, two products are received at the facility. Both products, JET A1 and ULTRA LOW SULPHUR DIESEL CP-43 are classified as non-persistent combustible hydrocarbons and will behave in a similar fashion if spilled. The response to a spill of either of these products shall be carried out in the same fashion. Full details of the properties and hazards associated with these products are found on the Material Safety Data Sheets (MSDS) in The Hazardous Materials & Hazardous Waste Management Plan - Attachment 1.
- Both products are of relative low viscosity, are clear to yellow in color and will float readily when spilled. It should be anticipated that any spillage will rapidly spread when spilled and a high rate of evaporation will occur. Wind and tidal current will be the most important factor in promoting the spread of the product on the water surface.
- Where environmental sensitivities are mentioned in the scenarios, these relate to the sensitivity zones as outlined in Annex 3 of this plan.
- Local topography plays an important part in wind direction and force, but it is generally noted at the Steensby site that the most common wind direction is from the Northwest. Average wind speeds at the Steensby site for this period between 15 and 20 km/hr have been observed. Spill trajectory modelling which takes into account the vast majority of trajectories, have shown that 86%, reach shore in the port site area, as soon as 15 minutes and on average in two hours. Considering the spill response mechanism in place and a high probability of containment of potential spills the likelihood of migration of minor spills beyond the port confines is considered a low risk.

- As is indicated in the plan, upon discovery of spillage of any sort pumping operations are ceased. General response time limits should be observed for each action as follows:

  Deployment of containment boom: 0-1 hr following the spillage event.

  Deployment of skimming equipment: 0-6 hours following the spillage event

During ship to shore discharge of the product, the discharge hose is inspected on a regular basis by the ship crew member who is always present at the ship manifold discharge. Stoppers and absorbents are available in case they are needed. The ship has a Shipboard Oil Pollution Emergency Plan (SOPEP), appropriate response gear on board and the crew is fully trained in its use.

There is a person on watch at the shore manifold at all times during discharge and in direct radio communication with the shore receiving facility. The pipeline is inspected visually and regularly by walking alongside of it. Once a year the pipeline is tested as part of annual maintenance (Pressure test).

All spills within the tank farm zone would be retained within the bermed area. During the filling of the tanks (unloading of the vessel) continuous monitoring takes place. At all times there is a person on watch during discharge and in contact with the vessel.

In the presentation of the spill scenarios in this section, it is implied that the initial spill response actions outlined in section 5.1 above have first and foremost been addressed. The scenarios are designed moreover for the purpose of identifying the appropriate specific actions and therefore the related resources required for a given incident.

Detailed scenarios are as follows:

5.1 Vessel to Shore Transfer

Source of discharge	Potential loss*	Appropriate actions	Resources required
Coupling or hose break / malfunction at the ship's manifold	20 – 600 litres	1: Deploy containment boom as required to control migration of spill. Typical deployment lengths of 50 meters are anticipated for this task. (Multiple lengths should be used when required) 2: Deploy skimmer and recover spill 3: Final recovery of spill using sorbents if necessary 4: Monitor any free floating oil that is unable to be contained 5: Notifications of local authorities	Boat – 3 responders Boom – 100 meters and accessories, additional booms if necessary to provide shoreline protection Shore crew to deploy from container – 3 responders
Coupling leaking or hose rupture along length of hose between ship and shore manifold	20 – 5000 litres	1: Deploy containment boom to control migration of spill. Typical deployment lengths of 50 meters are anticipated for this task. (Multiple lengths should be used when required) 2: Deploy skimmer and recover spill 3: Final recovery of spill using sorbents if necessary 4: Monitor any free floating oil that is unable to be contained 5: Notifications of local authorities	Boat - 3 responders Boom – 100 meters and accessories, additional booms if necessary to provide shoreline protection Shore crew to deploy from container – 3 responders
Leak at shore manifold connection	20 - 600 litres	1: Deploy containment boom to control migration of spill. Typical deployment lengths of 50 meters are anticipated for this task. (Multiple lengths should be used when required) 2: Deploy skimmer and recover spill 3: Final recovery of spill using sorbents if necessary 4: Monitor any free floating oil that is unable to be contained 5: Notifications of local authorities	Same marine response, shore based response deploy berms and sorbents 3 additional shore responders Steensby inlet site services group

5.2 Vessel to Vessel

Source of discharge	Potential loss*	Appropriate actions	Resources required
Coupling or hose break / malfunction at either vessels manifold	20 – 600 litres	1: Deploy containment boom as required to control migration of spill. Typical deployment lengths of 50 meters are anticipated for this task. (Multiple lengths should be used when required) 2: Deploy skimmer and recover spill 3: Final recovery of spill using sorbents if necessary 4: Monitor any free floating oil that is unable to be contained 5: Notifications of local authorities	Boat – 3 responders Boom – 100 meters and accessories, additional booms if necessary to provide shoreline protection
Coupling leaking or hose rupture along length of hose between vessels manifolds	20 – 5000 litres	1: Deploy containment boom to control migration of spill. Typical deployment lengths of 50 meters are anticipated for this task. (Multiple lengths should be used when required) 2: Deploy skimmer and recover spill 3: Final recovery of spill using sorbents if necessary 4: Monitor any free floating oil that is unable to be contained 5: Notifications of local authorities	Boat - 3 responders Boom – 100 meters and accessories, additional booms if necessary to provide shoreline protection

5.3 Pipeline

Source of discharge	Potential loss*	Appropriate actions	Resources required
Failure of flange or pipeline Vehicle Accident involving pipeline	20-4000 litres	Land spill only: 1: Immediately install portable berms under leaking or damaged line where possible. 2: If portable berms are not feasible, contain and recover oil spill using dykes or trenches 3: Prevent the oil from reaching natural drainage paths leading to the ocean. 4: Collect free-product for temporary storage. Excavate contaminated soil, store and manage appropriately Marine response if necessary: 1: Deploy containment boom to control migration of spill. Typical deployment lengths of 50 meters are anticipated for this task. (Multiple lengths should be used when required) 2: Deploy skimmer and recover spill 3: Final recovery of spill using sorbents if necessary 4: Monitor any free floating oil that is unable to be contained 5: Notifications of local authorities	Land spill only: Response by Steensby Inlet site services Recover free products with sorbents, pumps within temporary berms Earth moving equipment available for berming, etc. Boat – 3 responders Boom – 100 meters and accessories, additional booms if necessary to provide shoreline protection Shore crew to deploy from container – 3 responders Steensby inlet site services group
Failure at receiving skid, component failure, leak in coupling or hose from pipeline to receiving skid or leak in hose on discharge hose after receiving skid	20-600 litres	Land spill only: (Marine involvement unlikely due to distance and gradient) 1: Immediately install portable berms under leaking or damaged line where possible 2: If portable berms are not feasible, contain and recover oil spill using dykes or trenches 3: Prevent the oil from reaching natural drainage paths 4: Collect free-product for temporary storage. Excavate contaminated soil, store and manage appropriately	Response by Steensby Inlet site services Recover free products with sorbents, pumps within temporary berms Earth moving equipment available for berming, etc.

Source of discharge	Potential loss*	Appropriate actions	Resources required

5.4 Tank Farm

The entire Steensby Inlet Bulk Fuel Storage Facility is completely contained within a bermed and lined area, entirely designed and built to CCME standards. The area within the berm provides total liquid recovery to sump and engineered oil water separation system.

Source of discharge	Potential loss*	Appropriate actions	Resources required
Leaking reservoir or piping	20-500 litres	Temporary plugging, isolate pipe run patch accordingly	Use existing piping and infrastructure Patch kits Response by Steensby Inlet site services Recover free products with sorbents Berm designed with fuel recovery to sump and engineered oil water separator
Failure of hose couplings (cam locks)	20-500 litres	Contain product with portable berm Repair accordingly	Use existing piping and infrastructure Patch kits Response by Steensby Inlet site services Recover free products with sorbents Berm designed with fuel recovery to sump and engineered oil water separator
Leak at hard pipe flange	20-500 litres	Contain product with portable berm Repair accordingly	Response by Steensby Inlet site services Recover free products with sorbents

5.5 Port operations

Source of Discharge	Potential loss*	Appropriate actions	Resources required
Fuel transfer spill while fuelling tugs or ice management vessels	20-100 litres	1: Deploy containment boom to control migration of spill. Typical deployment lengths of 50 meters are anticipated for this task. (Multiple lengths should be used when required) 2: Deploy skimmer and recover spill 3: Final recovery of spill using sorbents if necessary 4: Monitor any free floating oil that is unable to be contained 5: Notifications of local authorities	Boat –3 responders Boom – 100 meters and accessories, additional booms if necessary to provide shoreline protection Shore crew to deploy from container – 3 responders Steensby inlet site services group

*** Potential loss estimated based on pumping rate and anticipated response time to shut down pumping operations**

5.6 Response Strategies – Large Spills

For the purposes of this plan, spills less than 5 m³ are to be handled by Steensby Inlet response operations. Steensby Inlet personnel shall deploy the resident on-site equipment as outlined in the plan.

If the spill is larger than 5 m³ and depending on the specific circumstances, the On-Site Coordinator shall determine if it is necessary to increase the response capability by requesting the assistance of the Canadian Coast Guard.

Where this support is deemed necessary, the On Site Coordinator shall immediately request this assistance while ensuring ongoing mitigation of spill impact to the extent possible while awaiting additional resources and assistance from the Canadian Coast Guard.

6 Preventive Measures

It is Baffinland Iron Mines policy to prevent any accidental spillage and all prior efforts are made to minimize the risk of incidents and impact to the environment. Baffinland constantly updates the facility, has adequate safety equipment at the site and provides comprehensive training to its employees, contractors and visitors with the goal of avoiding spills and to minimize their impact if they should occur. Furthermore, Baffinland Mines has established standard operating procedure in relation to the bulk fuel transfer – (Annex 5), that provides safeguards and immediate alarm in the event of failures during the operation.

6.1 Training - General

Baffinland Iron Mines ensures that personnel involved during a response receive training for their own safety, public safety, and that they have the required skills to minimize the impact of a spill on the environment.

The personnel directly linked to spill response operations will receive training to familiarize themselves with the environmental emergency plan. These personnel will also re-examine the manual of the Environmental Emergency Plan on a yearly basis according to their duties and responsibilities. All training is recorded in the training register and kept up to date in the Oil Pollution Emergency Plan binder.

The personnel directly linked to spill response operations, contract employees and the other responders identified in the environmental emergency plan should take part in the yearly training program.

All workboat operators and crews shall possess a Pleasure Craft Operator Competency Card.

6.1.1 Training Content

Spill training shall be provided on site prior to transfer operations for all personnel to be involved in the management and response to possible spills.

Baffinland Iron Mines On Site Co-ordinator shall possess accredited spill management training to a level commensurate to the duties required of the position.

Responder training is to be of a combined theoretical presentation (classroom) and also of hands on nature (equipment deployment exercise).

The major components of this training program shall include:

Classroom Training:

- Introduction and overview of marine spill response
- Review of Baffinland general spill response plan and integration of same to marine response
- Review of Marine Oil Pollution Emergency Plan elements
- Short review of oil spill behaviour and operational parameters / limitations for marine spill response operations
- Spill assessment
- Basic safety for spill responders to marine oil spills, presentation of video – small craft safety practices
- Basic oil boom deployment, presentation of video and booming techniques / guidelines
- Marine and shoreline recovery operations

Hands on Training and Deployments:

- Hands on review with participants of Baffinland inventory of spill equipment
- Hands on instruction - boom connections, tow bridles, rope handling, basic knots and attachment of deployment accessories
- Simulated deployment of booms and related gear on water using appropriate vessels
- Debriefing and lessons learned

6.1.2 Short Notice Training

In the event of a large spill the personnel requirements may exceed those that have received the specific responder training as outlined in section 7.1.1 above. Due to the remoteness of the site, volunteers are not anticipated. Steensby Inlet site services personnel shall be employed as additional responders.

Although all site services personnel possess WHMIS training additional short notice training shall be carried out for these new responders on an as needed basis. Certain modules of the responder training shall be delivered on site to these personnel selected specifically from the training outlined in section 7.1.1 above. The operations manager shall determine which modules are pertinent to each group of additional responders and shall be responsible for assuring adequate training for each group.

6.2 Exercises

Following the annual delivery of the spill training as outlined in section 7.1 a comprehensive spill exercise shall be undertaken. The exercise is structured to test the readiness of management, responders and to practice and validate the logistics of the deployment of spill gear. The exercise content shall be different

from year to year so that it can validate the various elements of the plan and the response over a three year period. Some of the factors that shall be evaluated include but are not limited to:

- Activation of the emergency plan
- Management response
- Site safety
- Communications
- Equipment deployment to a specific scenario
- Reporting and co-ordination with outside agencies
- Exercise coordination with Canadian Coast Guard
- Exercise coordination with ship

6.3 Spill Prevention Measures

6.3.1 Bulk Fuel Facility:

Normal operation procedures of Baffinland Iron Mines include many inspections which are performed regularly and kept on records. Any discrepancies noted are documented and investigated. Corrective measures are then applied.

6.3.2 Bulk Fuel Transfer:

Several preventive measures are in place to minimize risk of spills during bulk fuel transfer including:

- The bulk fuel storage facility, pipeline and all related equipment and infrastructures are inspected prior to the bulk cargo transfer and the inspection methods are documented as a standard operating procedure
- Complete bulk cargo transfer procedures have been established, a copy of which is found in Annex 5 of this OPEP
- As required by the applicable legislation the ship has a comprehensive Shipboard Oil Pollution Emergency Plan (SOPEP) and a copy of this plan has been reviewed by Baffinland Mines
- In addition to the legislative requirements, the charterer has implemented a shipboard spill response training program and performs routine exercises in spill response operations
- The ship carries a compliment of spill response equipment as listed in Annex 6 of the OPEP and this equipment is ready at the ship's rail at all times for deployment during cargo operations
- Baffinland Mines oil spill response equipment is on the beach, ready for immediate deployment at all times during cargo operations
- The workboats and trained responders are available at all times during cargo operations for spill equipment deployment
- Standard transfer procedures include constant monitoring of the hose between ship and shore manifold for leaks or other indications of potential spillage
- During transfer operations the ship and shore manifold is manned at all times
- The tank farm is monitored at all times by Baffinland personnel during the transfer
- The pipeline is inspected hourly on foot during the transfer operation

6.4 Response Equipment Auditing

As part of the annual exercise program, a scenario based deployment of spill gear is carried out. Prior to the exercise all gear is inspected, its condition is evaluated and any defects or missing equipment is replaced. The equipment audit is documented in the training register in Annex 7.

6.5 Oil Pollution Response Plan Updates

The Oil Pollution Emergency Plan (OPEP) will be scrutinized at least once a year to take into consideration any amendments of the legislation, new characteristics of the site, the equipment on site, new policies of the company, environmental issues and also new staff and particulars of team members. Furthermore following an exercise or an incident, the OPEP will be evaluated and modified accordingly.

Even if there is no change to be brought to the OPEP it will be updated at least once a year. The corrected version of the plan will then be sent to the responsible person on site to ensure that the team at the site always has an updated version of the plan in case their intervention is needed.

6.5.1 Update Registry

The Oil Pollution Emergency Plan (OPEP) shall be updated, reprinted and redistributed when changes are made as noted above. The plan carries the latest version identified by date as indicated in the footer of each page of the plan. If plan amendments result in a reprinting, all old versions of the plan shall be recalled and destroyed accordingly.

6.5.2 Plan distribution

In addition to distribution within Baffinland Iron Mines, all modified versions of the plan shall be submitted to Transport Canada accordingly.

Annex 1
Site Overview Plan

Please refer to the following for Site Layout Drawings for 2012 Work Plan Work at Steensby Inlet:

Steensby Inlet 2012 Work Plan Works Site Layout	H337697-7000-10-014-1107

Annex 2
Bulk Fuel Storage Facility Plans / Drawings

Please refer to the following for Bulk Fuel Storage Facility Drawings for pre-development work and Steensby Inlet:

H337697-4640-10-014-0001	Steensby Inlet Primary Fuel Storage Tank Farm Dyke Layout
H337697-4640-10-035-0001	Steensby Inlet Primary Tank Farm Dyke Sections
H337697-4640-10-035-0006	Steensby Inlet Typical Dyke Sections & Details
H337697-4640-10-042-0002	Steensby Inlet Marine Offload & Fuel Storage General Arrangement

Annex 3
Shoreline Characterization and Sensitive Zones

NOTE:
Will be submitted 3 months prior to any fuel transfer for final review by Transport Canada

Information still needs to be developed (Sept 2011)

Annex 4
Resident Spill Response

RESIDENT OIL SPILL RESPONSE EQUIPMENT
STEENSBY INLET BULK HANDLING FACILITY

Quantity	Description
1	Oil containment boom 1000 ft – Aquaguard “Liteflex” 24
4	Anchor kits for anchoring boom in place
4	Towing bridal for oil boom
8	Spill response unit – X Large Land
4	Overpack spill kit
500	25 lb. Bags Multizorb granular
1	Custom pump skid for emergency fuel transfers from one tank to another
8	2” x 25’ transfer hose for emergency transfer pump
12	18” x 18” x 6” Arctic mini berm for under fittings
12	36” x 36” x 6” Arctic mini berm for under fittings
2	Insta berm 10’ x 10’ x 15” Arctic
300	Oil sheets for replenishing spill kits
1	Aluminium workboat with outboard engine, equipped with towing post and related equipment for boom deployment
1	Drum skimmer and diesel driven power pack, suitable for recovery of distillates – Capacity 7.5 tonnes per hour
1	Vacuum truck, 3000 gallon capacity
20	45 gallon steel drums

ITEM 13.0 - ANCHOR SET – AS44

Reference: Quo 1184 2743-01 20070327

Anchor sets are supplied for mooring Aqua-Guard containment boom systems.

Standard Anchor sets are equipped with the following:

Anchor:	20kg (44-pound) Danforth type galvanized steel
Chain:	3m (10 feet) of 8mm (5/16") galvanized steel chain
Working load limit:	862 kgs (1,900 pounds)
Breaking strength:	3,447 kgs (7,600 pounds)
Buoy:	20cm (8 in) diameter PVC mooring buoy attached to trip line
Anchor Line:	30 meter (98 feet) length of 1.3 cm (1/2 in) polypropylene anchor rope
Trip Line:	Trip Line attached to anchor fluke (not shown in photo)
Attachments:	Anchor set will be equipped with attachments ie: shackles as seen in the attached picture.

Aqua-Guard Spill Response Inc.
#100 – 1055 West 14th Street
North Vancouver, BC Canada
V7P 3P2
Tel : 1.604.980.4899
Fax : 1.604.980.9560
Email: sales@aquaguard.com

ITEM 1.0 - LITEFLEX 24F OIL CONTAINMENT BOOM WITH DEPLOYMENT BOX

Reference: Quo 1184 2743-01 20070327

Liteflex 24F oil spill containment boom is designed for use in protected harbors, lakes and rivers/stream with slow currents.

FEATURES

- Rugged construction using top quality components
- Using flat floatation reduces the amount of space required for storage
- Ease of deployment
- Ideal for storage on a boom reel
- Very cost effective compared to other types of containment boom

SPECIFICATIONS

Model	**Liteflex 24F**
Overall Width	61.0 cm (24 in) approx.
Freeboard	20.3 cm (8.0 in) approx.
Draft	40.6 cm (16.0 in) Approx.
Combined Tensile Strength	4,545 Kilograms (10,000 Pounds) approx.
Top Tension Member	¼ in PVC Coated Cable
Bottom Tension Member	8.0 mm Galvanized Steel Chain
Section Weight	2.53 kgs/m (1.7 lbs/ft) approx.
SPECIFICATIONS	
Section Length	25 Meter (82 feet) Sections
Flotation Element (L x W x H)	137 cm x 13 cm x 6 cm (54 in x 5 in x 2.5 in) Closed cell Polyethylene foam segments
Boom Connectors	Extruded marine grade aluminium Shotgun connector. Boltless attachment system insures stress is spread evenly across the boom fabric
Connector Pins	2 pins per connection. 3/8" diameter stainless steel toggle type with spring
Standard Fabric	Standard – PVC Coated Polyester 26.5/Yd^2, Non Wicking
Color	International Orange
Handles	3 meters (10 feet) of length 1" nylon webbing
Chain Pocket	3 meter (10 feet) Drain holes provided
Tow Bridle	2 x Non-Floating tow bridles included

Aqua-Guard Spill Response Inc.
#100 – 1055 West 14th Street
North Vancouver, BC Canada
V7P 3P2
Tel : 1.604.980.4899
Fax : 1.604.980.9560
Email: sales@aquaguard.com

ITEM 1.0 - LITEFLEX 24F OIL CONTAINMENT BOOM WITH DEPLOYMENT BOX

Reference: Quo 1184 2743-01 20070327

ALUMINIUM DEPLOYMENT BOX

Aqua-Guard manufactures a variety of aluminium storage/deployment boxes to meet specific customer needs.

Product Features:

- All aluminium construction makes them maintenance free
- Rugged construction
- Customer painting and labelling available
- Containers can have a front drop door, top door or both
- Light weight
- Designed to fit 4 deck packs into 20 foot container

Deployment Box Not Exactly as Shown

Specifications:

DEPLOYMENT BOX

Construction:	Aluminium
Dimensions: (L x W x H)	3.05 m x 2.13 m x 0.76 m (9 ft 6 in x 7 ft x 30 in)
Details:	Drop down front door, hinged top panel for easy access to repack complete with lifting eyes and fork lift pockets.

Aqua-Guard Spill Response Inc.
#100 – 1055 West 14th Street
North Vancouver, BC Canada
V7P 3P2
Tel : 1.604.980.4899
Fax : 1.604.980.9560
Email: sales@aquaguard.com

SPILL RESPONSE UNIT X LARGE LAND SPECIFICATIONS:

Kit Contents:

300 Oil sorbent pads, 8 - 8' socks, 8 - 4' socks, Plug N Dike 10 lb container, 12 large pillows, 8 small pillows, 2 plug patties (instant leak stop) 2 neoprene drain covers, telescopic shovel, 25 lb Bag granular/peat, 2 pr. Nitrile gloves, 2 Tyvek poly-coated suits, 1 roll (20) disposal bags, 1 roll of barrier tape. Castors available. Capacity 546 litres / 120 gallons.

Overpack Spill Kit (OSK) contents...

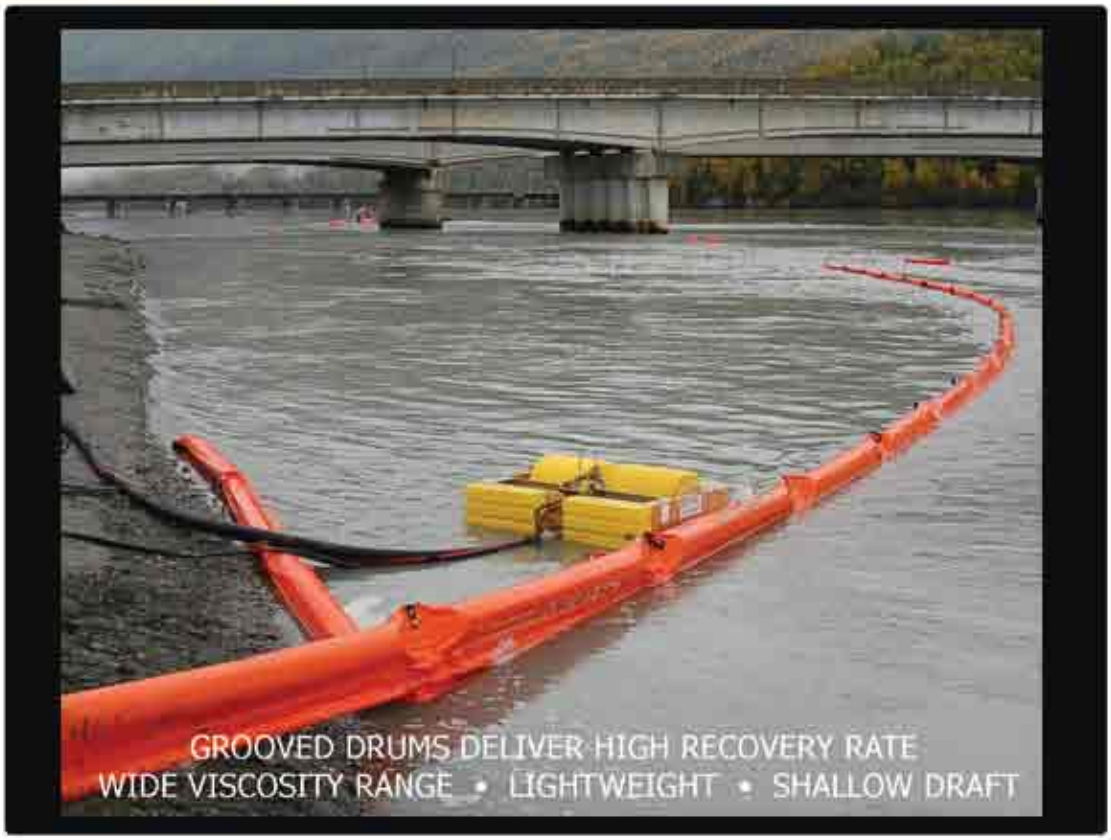
This heavy duty spill kit is ideal for around the plant or on exploration projects near fuel caches. The water tight screw down lid and UV treated polyethylene Overpack container will last outdoors in the extreme heat and cold. With grab handles that make moving it easy, this container meets UN regulations as an Overpack allowing this kit to double as a disposal container. This kit is also available in the wheeled Overpack. Capacity 231 litres / 51 gallons.

Standard Contents:

100 oil sorbent pads, 6 small pillows, 2 large pillows, 5 - 8' socks, 5 - 10' socks, 2 - 4' socks, 25 lb bag granular, plug patties (instant leak stop), goggles, gloves and poly coated tyvek coveralls.

ELASTEC INC.
AmericanMarine INC.

TDS118G DRUM SKIMMER

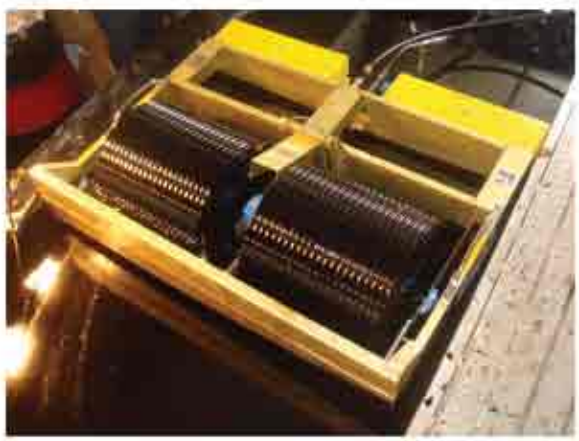


The ELASTEC TDS118 is one of the most popular oil skimmers and is now offered with patented Grooved Drum design that increases the oil recovery rate while still mantaining the shallow draft and lightweight design.

The TDS118G can be supplied fitted with either an air or hydraulic motor. A range of suction pumps are offered.

The ELASTEC TDS118G is suitable for oil spill response or industrial use. Due to its' shallow draft and light weight, this handy skimmer is ideal for clean up in creeks, rivers and lakes. The ELASTEC TDS118G has an oil recovery rate of up to 70 gpm / 15 cu.m per hour.

The pneumatic model can be connected directly to a vacuum truck for an efficient oil spill response unit or routine pit cleanup operations.



ELASTEC Inc.
AmericanMarine Inc.

TDS118G DRUM SKIMMER

ELASTEC drum skimmers are capable of recovering a wide range of oils and sheen, from diesel to crude oils - in only 3 inches of water!

The smooth drum TDS118 is also available in stainless steel for hot or aggressive environments such as industrial pits and installations.

BRUSH AND DISC INSERTS AVAILABLE

The Grooved Drum design has been extensively tested by Ohmsett and researched by the University of Santa Barbara, California. Funding for the research was provided by the U.S. Minerals Management Service.

Specifications - TDS-118G

Oil recover rate:	Up to 70pm / 15 cu.m per hour.
Number of Drums :	2
Frame:	Anodized marine grade aluminum.
Dimensions:	48 x 34 x 18" / 1.22 x 0.86. x 0.46m
Weight :	60lbs / 27kg approx.
Drive:	Pneumatic or hydraulic.
Applications:	Industrial and spill response.
Configurations:	Pnuematic system with diaphragm suction pump. 10hp Diesel hydraulic system with E150 submersible pump. 10hp Electro-hydraulic system with E150 pump.
Pump options:	1" Double Diaphragm or E150 hydraulic submersible.
Hose kits:	according to requirement.
Air requirement:	10 to 35 cfm at 50 to 100 psi.
Hydraulic requirement	Skimmer - 5 gpm, E150 Pump - 3 gpm, max 2,500 psi.
Powerpak	10 hp / 7.5kW diesel or electric.

ISO 9001:2000 Certified Company

Elastec / American Marine Inc,
1309 West Main,Carmi, IL 62821
Tel: +1 (618) 382 2525 Fax : +1 (618) 382 3610

Specification - Baffinland Near Shore Workboat:

Vendor:

Connor Industries
75 Tudhope St. N.
Parry Sound, ON
P2A 2W9

Contact: Brian Higgins (705) 746-5875

Workboat specification:

Model: Predator 18

Standard features:

3/16 inch hull
Semi V hull with lifting strakes
Self bailing floor
Navigation lights
Lockable bow compartment
12 volt power point
4 tie down cleats
2 paddle holders
26 inch side console with rotary steering
Stern storage compartment
Swivel drivers seat
12 gallon carry on fuel tank

Optional features:

Tow bollard
36 inch high side railings
Naval architect Transport Canada stability booklet

Propulsion:

90 HP Yamaha 4 stroke outboard engine with all controls installed including gauges, prop, battery, fuel water separator

Trailer:

Single axle galvanized bunk trailer

Vessel is to be delivered fully functional, commercial registration to be provided to Transport Canada approval. All items as per quotation from Brian Higgins dated May 27, 2008.

Additional safety equipment to meet Transport Canada Regulations:

Heaving Line	CanCord 5/16" x 50' 180696
Anchor Line	Samsom Gold Braid 3/1" x 100' 273864
Dock Lines (2)	Samson Gold Braid 3/8" x 20' 273864
Anchor	Danforth 16 lb S-1300
Flares (6 pack)	Comet Sky-Lite 1228
Flashlight	Rayovac Waterproof
Fire Extinguisher	Huronia Alarm

Also to be included:

10- life vests Helly Hansen model M504 – meeting Transport Canada approvals for small commercial vessels

Additional spare parts:

4 – Propellers, aluminum with nut kits
2 – Water separator cartridges
8 – Spare spark plugs

Annex 5
Bulk Cargo Transfer Procedures / Tug and Ice Management Vessel Fuelling

Procedure:	**2012 Bulk Tanker Fuel Transfer to Steensby Inlet Fuel Farm**			**Procedure No:**	
Revision: 0		**Effective:**		**Replaces:**	
Issued By:	D. McCann				
Business Unit:	Mary River Project				

PURPOSE

To establish a standard procedure for the safe transfer of fuel from bulk fuel tanker ships in Steensby Inlet to Baffinland's fuel farm at Steensby Inlet.

SCOPE

This procedure applies to ship to shore transfer of fuel from bulk tankers in Steensby Inlet to Baffinland's fuel tanks contained in the Steensby Inlet fuel Farm.

The transfer of fuel involves multiple work groups that follow various regulatory laws, guidelines & organizational standards. This procedure ties together the various standards to be followed and details specific roles & accountabilities to ensure a safe transfer of fuel and to prevent cargo/fuel spillage, and the resulting environmental damage.

GENERAL SAFETY

Wear approved P.P.E. - Safety glasses; hard hat; safety boots;

Key Safety Requirements:

1. Ignition sources: Fuels are highly flammable. Smoking or open ignition sources are not permitted within 10 meters of ship to shore connections, fuel manifolds or within the fuel farm berm.

2. High pressure piping: The pressurization of fuel transfer lines, manifolds and fuel farm piping can reach pressures of 700 kPa (100 psi). No person is permitted to create a break in a pipe or open any part of the pressurized system without the written consent of the Baffinland fuel transfer Master once the Pre-Transfer Operation (Section 4.0) has been initiated.

3. Environmental spill response: Prompt and correct local response are required in the event of a spill to safeguard life and property; and lessen the environmental impact of the spill.

4. Communication: Good communication between all parties involved in the fuel transfer is essential for a smooth transfer, and are vital in the event of an incident.

Summary of Operation.

The ship to shore transfer operation at Steensby Inlet is similar to other cargo discharge operations in the North, however, there are some unique aspects that require specific procedures be followed and understood by all personnel involved in the discharge operation.

The transfer operation involves filling 1 ML with two types of fuel (Jet A and P50 (diesel)). It is expected that once cargo operations are underway, the ship will discharge at a rate of 400 m3/hour and that each tank will take approximately 2.5 hours to fill. Accurate reconciliation of discharge & fill volumes through regular communication between ship & shore personnel is required to ensure the safe transfer of fuel & prevent the overfilling & over pressurization of the fuel tanks that could result in a spill.

There are a number of work groups involved in the transfer of fuel. The workgroups and applicable procedures are listed below:

Work Group	Description of Applicable Regulation, Guideline or Procedure	Regulation, Guideline or Procedure
Baffinland Iron Mines/Petro-Nav/SEI	2007 Bulk Tanker Fuel Transfer To Steensby Inlet Fuel Farm	This document applies
Baffinland Iron Mines	Mary River Project Bulk Sample Emergency Spill Contingency Plan	BIM Spill Response Plan 08 09
Baffinland Iron Mines/SEI	SEI – Steensby Set Up & Operating Manual	SEI - Milne Set Up & Operating Manual
Petro-Nav	Cargo Operations at Steensby Inlet	Petronav-MI Cargo Ops
Petro-Nav	Arctic, General Port Operation Guidelines	Petronav Arctic Port Operation Guidelines
Baffinland Iron Mines/Petro-Nav	Transport Canada – Arctic waters oil transfer guidelines.	Transport Canada - Artic waters oil transf
Petro-Nav	Arctic shipping pollution prevention regulations (ASPPR), under the Arctic Waters Pollution Prevention Act (AWPPA). This covers ship standards and activities in waters north of the 60th parallel.	
Petro-Nav	Arctic Waters Pollution Prevention Regulations (WAPPR) under the AWPPA. This covers the ship	

	owner's liability provisions regarding spillage of waste	
Petro-Nav	Oil Pollution Prevention Regulations (OPPR), under the Canada Shipping Act.	
Petro-Nav	Shipboard oil pollution emergency plan	Petro-Nav Spil Response ToC

RESPONSIBILITY

Role	Accountability	By When	Comments
BIM Operations Manager or Designate	Complete PHA on Draft Procedure	In advance of annual Bulk Fuel Sealift	
BIM Fuel Transfer Master	Implementation of all supplier accountabilities as described in this procedure, all regulatory requirements and organization procedures	As specified	
BIM Shift Inspector	Inspection of shore fuel transfer system piping	Every 2 hours upon start of fuel transfer	
Supplier Oil Transfer Supervisor	Notify Prairie & Northern Region, Maritime in Ottawa, via NORDREG of the plans for oil transfer operations in arctic waters	In advance of Bulk Fuel Sealift	
	Implementation of all supplier accountabilities as described in this procedure, all regulatory requirements and organization procedures	As specified	
All personnel involved in Bulk Fuel Transfer	Initiate Stop Transfer or Emergency Stop Transfer upon identification of conditions listed in this procedure	As required immediately	

DEFINITIONS

Supplier: The owner and the operations personnel of the bulk fuel tanker ship engaged under contract to Baffinland Iron Mines to ship & transfer fuel to the Steensby Inlet fuel farm shore manifold

Receiver: Baffinland Iron Mines (BIM)

PROCEDURE

1.0 GENERAL

1.1 Do to the general high risk nature of fuel transfer in Canada's high Arctic; a Process Hazard Analysis (PHA) will be conducted annually on this procedure by all parties involved in the Bulk Fuel Transfer Procedure in advance of the Bulk Fuel Sealift. The purpose of the PHA is to identify potential hazards not already covered in this procedure or with the methodology and to implement the appropriate controls commensurate with the level of risk associated with the hazard.

1.2 Upon arrival of the bulk tanker at Steensby Inlet and prior to commencement of any operation including supplier equipment mobilization, all organizations & work groups involved in the Bulk Tanker Fuel Transfer to the Steensby Inlet Fuel Farm will meet to:

- Identify the supplier fuel transfer supervisor and BIM fuel transfer master to all personnel involved in the operations
- Review this procedure.
- Inform each party involved of the dimensions of the other's key facilities, such as manifold/fuelling station location, maximum & minimum draught, shore manifold connections, and jetty/shore characteristics such as tides, bollards, mooring and positioning aids, hidden hazards
- Inform all participating personnel of their duties and responsibilities during the transfer, and ensure they are versed in emergency procedures, and know the fuel spill contingency plan to be followed in the even of an incident.
- Upon completion of the meeting, the ship Captain and/or 1st mate will come ashore to inspect the installation.

1.3 Communication: Reliable, clear and consistent communication is essential for a smooth transfer operation, and is vital in a crisis situation. The following communication standards are to be followed:

- The language of the workplace at Baffinland is English. All communication is to be in English.
- A dedicated radio frequency will be used by personnel directly involved in the transfer. The supplier will provide radio's on the ship's dedicated frequency to the receiver's shore personnel.
- The radio is only to be used for fuel transfer communication
- All cargo volumes are to communicated in cubes or cubic meters
- The following standard signals should be used in all transfer operations
  - STANDBY TO START TRANSFER
  - START TRANSFER
  - SLOW DOWN TRANSFER
  - STAND BY TO STOP TRANSFER
  - STOP TRANSFER
  - EMERGENCY STOP OF TRANSFER
    If any of the following conditions occur, the transfer should be stopped immediately:
    - LOST COMMUNICATIONS
    - LOSS OF ABILITY TO MONITOR HOSE TO SHORE
    - SIGN OF SPILLAGE, OR DAMAGE TO HOSES AND COUPLINGS
    - ANY DETECTION OF ACCUMULATED GASES
    - MAJOR INCREASE IN WIND AND/OR SWELLS (SUPPLIER)

- WHEN AN ELECTRICAL STORM IS PRESENT OR PREDICTED
- SEVERE DETERIORATION IN ICE OR VISIBILITY CONDITIONS (SUPPLIER)
- HELICOPTER LANDINGS OR TAKE OFFS WITHIN 500 METERS
- ANY OTHER SITUATION DEEMED DANGEROUS BY THE FUEL TRANSFER SUPERVISOR OR BAFFINLAND FUEL TRANSFER MASTER.

.

2.0 LAND / SHORE - SAFETY AND ENVIRONMENTAL CONTROLS

2.1 The receiver will ensure the following safety controls are in place prior to and during fuel transfer:

- "No smoking/no naked lights or flames" warning signs will be posted at all the shore manifolds and at the entrance to and around the perimeter of the fuel farm berm.
- Fire extinguishers will be prepared for rapid deployment in the area of the shore manifold and the fuel farm before commencing transfer
- The shore hose landing, handling and manifold area is free of obstructions and hazards
- Road access to the beach area will be restricted to prevent vehicles from crossing the hose
- Manifolds, bollards and deadmen are adequate and clearly marked for visibility
- All personnel involved in the fuel transfer using radios will be on the same channel or frequency
- Ensure that all personnel know they have the right to suspend operations at any time, if they decide it is necessary.
- Fuel Transfer Piping Isolation: The pressurization of fuel transfer lines, manifolds and fuel farm piping can reach pressures of 700 kPa (100 psi). No person is permitted to create a break in a pipe or open any part of the pressurized system without the written consent of the Baffinland fuel transfer Master.
    - Each time the fuel transfer system requires a break in the line, flange to be opened, a component to be removed or any other service that requires the opening of a line even downstream of a valve, a non-routine JSA must be conducted by the BIM Fuel Transfer Master and the workgroups doing the work.
    - The work may only proceed upon written confirmation by the BIM Fuel Transfer Master.
- Burning & Welding is not permitted on any component associated with shore manifold, pipeline, or fuel farm equipment without the written consent of the Baffinland fuel transfer Master. A non-routine JSA must be conducted by the Baffinland fuel transfer master and the personnel involved in the hot work.

2.2 The receiver will ensure the following environmental controls will be in place prior to and during fuel transfer:

- Ensure that all personnel know they have the right to suspend operations at any time in the event of a spill or, any loss of control or potential loss of control that may result in a spill
- Fuel transfer will be stopped immediately in the event of any drip, flow, leak or seep in to soil or water during fuel transfer. Fuel transfer operations will cease until leaks to soil or water have been eliminated.
- Emergency spill response kits will be positioned at the shore manifold, along the pipeline and at the fuel berm
- The BIM emergency spill response sea cans will be positioned in close proximity to the shore manifold at the beach area with boom (and towing bridle attached) ready to deploy.
- As an additional contingency, a front end loader, excavator or other appropriate earth moving equipment will be readily available to the BIM transfer master at Steensby Inlet during the fuel transfer.
- All personnel directly engaged in the fuel transfer are familiar with the Baffinland Iron emergency spill response protocol.
- Baffinland Iron will initiate & implement all land based spill response plans.
- A drip tray or lined berm will be place under the shore manifold connection.

3.0 SEA / SHIP - SAFETY & ENVIRONMENTAL CONTROLS

3.1 The supplier will implement all safety controls as are required under the applicable regulation, guideline or supplier procedure documented in the “Summary of Operation” above.

3.2 Land / shore – safety & environmental controls (Section 2.0) will be reviewed with the supplier’s oil transfer supervisor and shore crew.

3.3 The supplier is accountable under the following circumstances for the implementation of their fuel spill contingency plan (including containment and remediation) during the bulk fuel sealift:

- All spills to salt water
- The salt water component of all spills that originate from land and make their way to salt water.

3.4 Prior to the commencement of fuel transfer operations, the supplier will conduct an emergency spill response simulation/training exercise

3.5 The supplier is accountable for completing the Arctic Oil Transfer Guideline Checklist and will provide a copy to Baffinland Iron upon completion of the fuel transfer to Steensby Inlet.

4.0 PRE-TRANSFER PREPARATION & OPERATIONS

4.1 Pre-transfer preparation may commence at any time during the day – However, cargo transfer operation may only start during daylight hours.

4.2 Prior to the supplier connecting the hose to the shore manifold, the supplier oil transfer supervisor and BIM fuel transfer master will complete and sign off on the appropriate pre-transfer preparation & operations checklist to confirming all requirements are completed.

4.3 Once the ship hose is connected to the shore manifold the following tasks can be completed:

- The supplier will complete and certify a pressurized air test of the transfer hose.
- The receiver may request the supplier to conduct an air pressure test on the shore manifold, piping and distribution piping in the berm. **It is critical that all tank isolation valves be closed prior to pressurizing the line.** The shore lines must hold pressure for 1 minute. If pressure cannot be held, an inspection of the entire line must be made to determine the location of the leak prior to discharging cargo. The receiver will certify that an air pressure test was completed.

5.0 TRANSFER OPERATIONS

5.1 The cargo transfer operation may only start during daylight hours.

5.2 Baffinland fuel transfer master will announce impending fuel transfer on ship to shore communication and to other personnel at Steensby inlet

5.3 Baffinland will follow the fuel tank farm manufacturer's recommended filling procedure as described in the vendor (SEI) Steensby Inlet Set Up Manual – Section 5.24, pages 51-59.

- Cargo hose/shore line pigging procedures
  - Great care must be taken to ensure that NO air be allowed to blow unrestricted into the shore cargo tanks. When pigging the cargo hose and clearing it of product, all stations must be coordinated to determine when the pig reaches the shore manifold and when the pig reaches the tank farm.

  - Drain the air pressure off the cargo hose back into a dry drip pan (it is the preferred method). In order to prevent air being splashed onto personnel a canvas or plywood screen can be set up. Where it is impracticable to drain into a Manifold drip tray or an empty drum, we may then drain the air pressure off the cargo hose back into an empty cargo tank or slop tank onboard ship. Under no circumstances shall air be bled off in any great quantity into the shore tanks as this operation could lead to failure and collapse of the shore tank.

  - Normal operations would have the gas discharged ashore first. The hose will then be blown with a pig until the pig reaches the shore manifold or tank farm. (This point is determined by prior arrangement with the ship and shore personnel). The hose will then be bled off and the hose will then be cleared. The pigs will be retrieved from the hose up in the tank farm, or, where no receiver is available at the tank farm, the pig will be retrieved at the shore manifold pig-catcher.

  - This procedure will ensure that the hose/shore line has been cleared of all traces of gasoline. The diesel and/or jet fuel will then be discharged ashore as the last cargo. The shore line must be left empty with only traces of diesel/jet in the line for reasons of safety. At no time will the shore line be left with gas or gasoline residue inside of it because this will result in a hazardous situation.

- Upon completion of discharge of a cargo the pigging of the hose/shore line should be done as follow:

1. Cargo pump stop
2. Cargo manifold close
3. Squeeze the cargo hose about 3ft from the manifold
4. Drain that section of the cargo hose
5. Ensure the hose is well secure
6. Disconnect the hose, insert the pig, reconnect the hose
7. Notified the tank farm that you are ready to launch the pig
8. When the tank farm is ready to received the pig, open the air
9. When the air pressure is at 70psi, release the pig by opening the hose squeezer
10. The air pressure should be maintain at approximately 70psi
11. If the pig get stuck, notified the farm then increase the air pressure by 10psi and wait 2 to 5 minutes
12. If the pig is still stuck repeat the above but do not exceed 100psi
13. Once the pig is at the tank farm shut the air immediately
14. Bled the air from the hose and change the hose of manifold to the next grade
15. If the pig is heavily damage after the operation or if you believe there is still product in the hose/line, bled the air and send a second pig.

- There are two methods of measuring fuel levels/contents in the tank that may be used in conjunction with this filling procedure:
  - Option 1 – Volume measurement from the fuel farm header flow meter
  - Option 2 - Visual physical measurement of the height of the tanks

- One of two options may be used for transferring fuel to the tanks:
  Option A – Fill one tank at a time
    - Under this option, the valve to one tank is opened and fuel transfer begins
    - Once the maximum amount of fuel has been added to the tank as measured by one of the level measuring options,
    - The subsequent tank fill valve is opened and the now filled tank valve is closed
    - This procedure is repeated until all but the last tank is filled.
    - The supplier will inform the receiver at a point no later than this in the transfer the remaining quantity of fuel to transfer.
    - The receiver will determine how much more fuel can be added to tanks and will top up as capacity allows
    - The last tank will be used to drain the calculated/or measured volume of fuel in the transfer hose, pipeline, and tank headers

  Option B – Fill groups of four tanks at once
    - Under this option, the valves to a group of four tanks is opened and the fuel transfer begins
    - Once the maximum amount of fuel has been added to a tank as measured by physical measurement, the fill valve is closed to that tank
    - The fill valves to one or more tanks on the next group of four tanks can now be opened.
    - This procedure is repeated until all but the last tank is filled
    - The supplier will inform the receiver at a point no later than this in the transfer the remaining quantity of fuel to transfer.
    - The receiver will determine how much more fuel can be added to tanks and will top up as capacity allows
    - The last tank will be used to drain the calculated/or measured volume of fuel in the transfer hose, pipeline, and tank headers

5.4 Fuel transfer rates should initially start off low in the 30-40m3/hr range and then ramp up slowly as the fill methodology advances. The maximum fuel transfer rate allowed the Steensby Inlet tanks is 90m3/hr

5.5 Upon commencement of fuel discharge to the fuel farm tanks, the entire length of the Steensby Inlet fuel transfer piping system from the shore manifold to the fuel berm will be inspected for leaks, and every hour thereafter so long as the fuel transfer system is charged. The Fuel Transfer Piping System Inspection Log will be submitted to the BIM fuel transfer master at the end of each shift.

5.6 Jet A fuel will be transferred first to prevent contamination with P50

5.7 The fuel transfer hose and shore pipe will be cleared of Jet A with a Pig following the completion of Jet A fuel transfer

5.8 P50 fuel will be transferred to the fuel farm.

5.9 Upon completion of the fuel transfer operations, the ship will push a 4” pig through the hose and pipeline to displace all remaining fuel in to the last tank and eliminate the potential for a fuel spill when disconnecting the hose from the shore manifold

6.0 POST-TRANSFER OPERATIONS

6.1 The shore manifold open end will be capped to prevent any accidental discharge of fuel.
6.2 Upon completion of the fuel transfer operation, the hard pipe line will be isolated from the fuel farm at a point inside the fuel farm through the installation of a spade or by physically breaking & installing a blank flange or cap on both ends
6.3 The hard piped transfer line will be opened at the shore manifold to drain any remaining fuel that may have accumulated.
6.4 The BIM fuel transfer master will sign off the Steensby Inlet Fuel Transfer Checklist indicating that this procedure has been completed and the Bulk Fuel Transfer To the Steensby Inlet Fuel Farm is Complete
6.5 The supplier will provide Baffinland Iron with a copy of the Suppliers statement of facts (record of ship activities) from the fuel transfer process.

7.0 REFERENCES AND RELATED DOCUMENTS

7.1 PHR Forms


PHR Form

7.2 Non-Routine JSA


Non-Routine JSA

7.3 Fuel Transfer Checklists


Fuel transfer checklist

7.4 Fuel Farm Tank Layout


Fuel Farm Bladder numbering

Annex 6
Spill Response Equipment – Onboard Ship

POLLUTION CONTROL EQUIPMENT – PETRO-NAV STAR SHIPS - 2010

3 boom baskets each consisting of:

8 lengths oil boom 50’ (feet) 24 inches with connectors
1 x 600’ rope 5/8 ”,
2 anchors with chain and rope
2 marker buoys with ropes
5 spare shackles
1 paravane with tow bridle
2 spare boom connectors
1 tarp for basket
1 sling

1 skimmer container including:

1 MI-30 oil skimmer
1 diesel driven power pack
3 hydraulic hoses
3 discharge hoses
1 sling
1 jerry can
1 tightening strap
1 spare belt for power pack
Absorbant
5 drum liners
2 spare skimmer discs

Annex 7
Training Register

Baffinland
Iron Mines Corporation

OIL HANDLING FACILITY - OIL POLLUTION EMERGENCY PLAN TRAINING REGISTRY

Course Title	Participant Name	Organization	Date	Completion Y/N	Comments

Annex 8
Standard Operating Guideline (SOG), Emergency Response Code 1 Situations, Steensby Inlet

STANDARD OPERATING GUIDELINE (SOG)
EMERGENCY RESPONSE
CODE ONE SITUATIONS
Steensby Inlet

In the Event of an Emergency

In the event of an emergency reported, the person reporting will call on the radio; **CODE 1 – CODE 1 - CODE 1**. Upon hearing this call all radio traffic must cease. The person calling in the code 1 will give the details of the emergency as follows:

1. The person's name making the announcement.
2. The nature of the emergency.
3. The location of the emergency
4. The information or individuals involved in the emergency

Medical Emergency:

In the event that a call comes in for a medical aid, the medic will assemble with his designated driver for the shift, or whoever the medic feels fit and confident to drive the Mobile Treatment Center (MTC) to the incident scene.

The designated emergency response radio channel (Channel 88) shall be available as a priority to the ERT and updates should be ongoing between the scene and the response crew at frequent intervals.

On scene first aiders will initiate first aid until the medic arrives. If there are ERT members on the scene, they and the foreman on site will take charge of the situation, until a higher level of command is on scene.

Additional recommendations will be made as to whether or not the patient needs to be flown out for further medical services.

Fire Response:

In the event of a fire response called in through the radio or the alarm panel the Team Leader will go directly to the location of the incident, and become on scene command. A designate from the ERT will get the radios and Muster at the southeast entrance of the camp (Milne Inlet) to distribute radios and get gear as required.

At this time there are 4 sets of bunker gear, these will be for the ERT members that will be required to be a front line attack crew. Other members of the team will be classified as support team to the attack teams. A safe approach to a fire attack response is to send a

two man crew in and to have two members stay back as a second response and safety to the front line crew. This is to the IFSTA standard, which is the level that the Baffinland ERT will be trained to.

At the beginning of the shift all ERT members will size themselves to be familiar with what size they well need to dawn in the event of an emergency. At that time they well also tag their gear with the IC command tags which would be turned into the incident command at the scene.

All tags well be marked with a wax pencil only NO ink, NO jiffy marker.

Aircraft Response:

The safety of emergency responders is of the utmost importance for this type of situation! First the plane needs to be secured prior to approaching it, which means that the engines need to be shut down to minimize any type of injuries to ERT members and people on the aircraft.

In the event of a fire on an aircraft, the 350 lb extinguisher will be charged and ready to discharge as soon as it is staged in the hot zone area. A layer of dry chem should be laid down to minimize any fuel or fuel vapor on the ground as you approach the aircraft. The 150 lb wheeled extinguisher should also be considered as a back up for this type of situation. A fire truck application will follow this SOG when a truck is acquired for the site.

Equipment and Haul Truck Extrication:

In the event of a response for an equipment rollover/extrication call, heavy equipment may be required to help get the person out of the cab. Welders may also be required to assist the ERT crew in cutting supports out of equipment to allow the retrieval of an operator.

With heavy equipment, the roll cage will often stay intact. Breaking glass to safely remove an operator may be required. Kenworth haul trucks that have experienced a roll over may have a severely damaged cab, requiring dismantling and/or disentanglement of the operator from the wreckage.

The worst case situation is entrapment of a body part that has gone through a window and become trapped under the equipment. A loader, crane or excavator may be required to lift heavy equipment off trapped people.

In any type of emergency situation, being level headed and controlling your emotions will help get through a situation with more ease. All incidents responded to should be debriefed and reviewed by incident command and management to help develop the effectiveness of the ERT for future situations.

Annex 9
Transport Canada – TP 9834E – "Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and / or Marine Pollutants

Transport Canada Transports Canada

TP 9834E
(07/2009)

Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants

2ND EDITION
JULY 2009

TC-1003421

Canada

Responsible Authority	Approval
The Director Operations and Environmental Programs is responsible for this document, including any change, correction, or update.	Director Operations and Environmental Programs Marine Safety

Original Date Issued: December, 1995 **Date Revised: July, 2009**

TP 9834E
(07/2009)

TC-1003421

DOCUMENT INFORMATION

Title	**Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants**		
TP No.	**9834E**	**Edition 2**	**RDIMS #5036260**
Catalogue No.	**T29-61/2009E**	**ISBN**	**978-1-100-13801-5**
Originator	Environmental Protection (AMSEE)	**Telephone**	613-991-3168
	Tower C, Place de Ville	**Fax**	613-993-8196
	330 Sparks Street, 10th Floor	**E-mail**	MarineSafety@tc.gc.ca
	Ottawa, Ontario K1A 0N8	**URL**	http://www.tc.gc.ca/MarineSafety

REVISIONS

Last Review **May 2009**

Next Review **May 2010**

Revision No.	Date of Issue	Affected Pages	Author(s)	Brief Description of Change
1	**July 2009**	**All**	**T. Morris**	Updated to reflect the *Canada Shipping Act, 2001* and the amendments to IMO Resolution A.851(20) in Resolution MEPC.138(53).

TABLE OF CONTENTS

INTRODUCTION

These Guidelines comply as far as practicable with the general principles and standard reporting format procedures described in Resolution A.851(20) of the 20th Session of the Assembly of the International Maritime Organization (IMO), adopted 27 November 1997, as amended by Resolution MEPC.138(53).

The intent of these Guidelines is to enable the proper authorities to be informed without delay so that appropriate action may be taken when:

1. any incident occurs involving the loss, or likely loss, overboard of packaged dangerous goods in the sea; or
2. any incident occurs giving rise to pollution, or threat of pollution to the marine environment, as well as of assistance and salvage measures; or
3. any oil pollution incident occurs involving the loading or unloading of oil to or from a vessel at an oil handling facility.

The *Pollutant Discharge Reporting Regulations, 1995* stipulate that a vessel's master or owner must make reports required under the Regulations in the manner described in these Guidelines or IMO Resolution A.851(20). The Regulations also stipulate that the operator of an oil handling facility must make reports in a manner described in these Guidelines. These Guidelines should then be used in conjunction with the *Pollutant Discharge Reporting Regulations, 1995* when harmful substances and/or marine pollutants are involved. Where any discrepancy exists between the regulations and the Guidelines, the requirements of the regulations shall prevail.

1. ABBREVIATIONS

HF	High Frequency
IMO	International Maritime Organization
MARPOL	*The International Convention for the Prevention of Pollution from Ships*, 1973, and the *Protocols* of 1978 and 1997, as amended from time to time
MF	Medium Frequency
UN	United Nations
UTC	Coordinated Universal Time
VHF	Very High Frequency

2. DEFINITIONS

2.1 In these Guidelines,

"dangerous goods" means goods that by reason of their nature, quantity or mode of stowage are either singly or collectively liable to endanger the lives of the passengers or imperil the vessel and includes all substances determined by the Governor in Council, in regulations made by him, including the *Cargo, Fumigation and Tackle Regulations*, to be dangerous goods; *(marchandises dangereuses)*

"harmful substance in packaged form" means any substance which is identified as a marine pollutant in the International Maritimes Dangerous Goods Code (IMDG Code); *(substance nuisible en colis)*

"in bulk" means in a hold or tank that is part of the structure of the vessel, without any intermediate form of containment; *(en vrac)*

"incident" includes the discharge of a pollutant, a dangerous good or a harmful substance in packaged form or their anticipated discharge; (*incident)*

"marine safety inspector" means a person appointed as a marine safety inspector under section 11 of the *Canada Shipping Act, 2001; (inspecteur de la sécurité maritime)*

"marine communications and traffic services officer" means a person designated as a marine communications and traffic services officer by the Minister of Fisheries and Oceans under subsection 126(2) of the *Canada Shipping Act, 2001; (fonctionnaire chargé des services de communications et de trafic maritimes)*

"packaged form" means the forms of containment specified for harmful substances or dangerous goods in the International Maritimes Dangerous Goods Code (IMDG Code); *(en colis)*

"pollution prevention officer" means a person designated as a pollution prevention officer pursuant to section 14 of the *Arctic Waters Pollution Prevention Act*; *(fonctionnaire chargé de la prévention de la pollution)*

"waters under Canadian jurisdiction" means the internal waters of Canada as described in section 6 of the *Oceans Act*, the territorial sea of Canada as described in section 4 of the *Oceans Act* and the exclusive economic zone of Canada as described in section 13 of the *Oceans Act*, , and includes the shipping safety control zones prescribed pursuant to section 11 of the *Arctic Waters Pollution Prevention Act*. *(eaux de compétence canadienne)*

3. HOW TO MAKE A REPORT

3.1 The report should be transmitted in the following manner:

1. when an incident occurs involving a vessel in waters under Canadian jurisdiction, the report shall be made with the highest possible priority and using the quickest means available to a marine safety inspector, or for incidents occurring in a shipping safety control zone, to a pollution prevention officer;
2. when the vessel referred to in paragraph 3.1.1 is in a radio telecommunications area that is covered by Canadian Coast Guard Marine Communications and Traffic Services, the report should, where expedient, be routed through that system to a marine communications and traffic services officer;
3. when an incident occurs involving a Canadian vessel outside waters under Canadian jurisdiction, the report should be made to the nearest coastal State through an appropriate coast station, preceded by the safety signal (if the incident affects the safety of navigation), or by the urgency signal (if the incident affects the safety of the vessel or persons);
4. on appropriate frequencies (in the bands 405-525 kHz, 1605-2850 kHz or 156-174 MHz);
5. when the vessel is not within reach of a MF or VHF coast station, to the most appropriate HF coast station or on the relevant maritime satellite communication system;
6. when the vessel is within or near an area for which a vessel reporting system has been established, to the designated shore establishment responsible for operation of that system;
7. the format and procedures should, when practicable, comply with the relevant requirements of Section A2 in the Appendix, *Standard Reporting Format and Procedures*; and
8. in addition to any report referred to in paragraph 3.1.1, when an oil pollution incident occurs involving a vessel at a designated oil handling facility, the operator of the oil handling facility shall:
    1. report with the highest possible priority and using the quickest means available, to the federal emergency telephone number identified in the facility's oil pollution emergency plan;
    2. report in writing any incident involving oil to the Transport Canada Marine Safety office nearest to the facility; and
    3. report, when practicable, in compliance with the relevant requirements of Section A2 of the Appendix, *Standard Reporting Format and Procedures*.

4. CONTENT OF REPORT

4.1 Reports should contain the specific information listed in Section A3 of the Appendix, *Detailed Reporting Requirements*.

5. SUPPLEMENTARY REPORT

5.1 Particulars not immediately available should be inserted in a supplementary message or messages.

5.2 When harmful substances and/or marine pollutants are involved, a supplementary message should follow immediately or as soon as possible after the initial report. Information that is essential for the protection of the marine environment, as appropriate to the incident, should be included. That information should include Items P, Q, R, S and X, as listed in Section A2 of the Appendix.

6. PROBABILITY OF DISCHARGE

6.1 The probability of a discharge resulting from damage to the vessel or its equipment is a reason for making a report. In judging whether there is such a probability and whether a report should be made, the following factors, among others, should be taken into account:

1. the nature of the damage, failure or breakdown of the vessel, machinery or equipment; and
2. sea and wind state and also traffic density in the area at the time and place of the incident.

6.2 It is recognized that it would be impracticable to lay down precise definitions of all types of incidents involving probable discharge which would warrant an obligation to report. Nevertheless as a general guideline, the master of the vessel should make reports in cases of:

1. damage, failure or breakdown which affects the safety of vessels. Examples of such incidents are collision, grounding, fire, explosion, structural failure, flooding, cargo shifting; and
2. failure or breakdown of machinery or equipment which results in the impairment of the safety of navigation. Examples of such incidents are failure or breakdown of steering gear, propulsion plant, electrical generating system, essential shipborne navigational aids.

7. REPORT ON ASSISTANCE OR SALVAGE

7.1 The master of any vessel engaged in or requested to engage in an operation to render assistance or undertake salvage should report, as far as practicable, Items A, B, C (or D), E, F, L, M, N, P, Q, R, S, T, U, X of the *Standard Reporting Format* (Appendix). The Master should ensure that the coastal State is kept informed of developments.

APPENDIX

A1. PROCEDURES

A1.1 Reports should be sent as follows:

Dangerous Goods Report - Packaged form (DG)	When an incident takes place involving loss, or likely loss overboard of packaged dangerous goods, including those in freight containers, portable tanks, road and rail vehicles and shipborne barges, into the sea.
Harmful Substances Report in Bulk (HS)	When an incident takes place involving the discharge or probable discharge of oil (Annex I of MARPOL) or noxious liquid substances in bulk (Annex II of MARPOL).
Harmful Substances Report - packaged form (MP)	In the case of loss or likely loss overboard of harmful substances in packaged form, including those in freight containers, portable tanks, road and rail vehicles and shipborne barges, identified in the *International Maritime Dangerous Goods Code* as marine pollutants (Annex III of MARPOL).

A2. STANDARD REPORTING FORMAT AND PROCEDURES

A2.1 Sections of the reporting format which are inappropriate should be omitted from the report.

A2.2 Where language difficulties may exist, the languages used should include English, using where possible the *Standard Marine Navigational Vocabulary.*

A2.3 Alternatively, the *International Code of Signals* may be used to send detailed information. When the International Code is used, the appropriate indicator should be inserted in the text, after the alphabetical index.

A2.4 For route information, latitude and longitude should be given for each turn point, expressed as in Item C below, together with type of intended track between these points, for example “RL” (rhumb line), “GC” (great circle) or “coastal”, in the case of coastal sailing the estimated date and time of passing significant points expressed by a 6 digit group as in Item B below.

Telegraphy	**Telephone (alternative)**	**Function**	**Information Required**
Name of system (e.g., AMVER/ MAREP/ ECAREG/ NORDREG/ WESTREG)	Name of system (e.g., AMVER/ MAREP/ ECAREG/ NORDREG/ WESTREG)	System Identifier	Ship Reporting system or nearest appropriate coast radio station
DG	Dangerous goods report – packaged form	Type of report	Dangerous goods report – packaged form

Telegraphy	Telephone (alternative)	Function	Information Required
HS	Harmful substances report - in bulk	Type of report	Harmful substances report - in bulk
MP	Harmful substances report - packaged from	Type of report	Harmful substances report - packaged from
A	Vessel (alpha)	Vessel identity	Name, call sign or ship station identity, and flag
B	Time (bravo)	Date and time of event	A 6 digit group giving day of month (first two digits), hours and minutes (last four digits). If other than UTC state time zone used
C	Position (charlie)	Position	A 4 digit group giving latitude in degrees and minutes suffixed with N (north) or S (south) and a 5 digit group giving longitude in degrees and minutes suffixed with E (east) or W (west); or
D	Position (delta)	Position	True bearing (first 3 digits) and distance (state distance) in nautical miles form a clearly identified landmark (state landmark)
E	Course (echo)	True course	A 3 digit group
F	Speed (foxtrot)	Speed in knots & tenths of knots	A 3 digit group
G	Departed (golf)	Port of departure	Name of last port of call
H	Entry (hotel)	Date, time and point of entry into System	Entry time expressed as in (B) and entry position expressed as in (C) or (D)
I	Destination and ETA (india)	Destination and estimated time of arrival	Name of port and date time group expressed as in (B)
J	Pilot (juliet)	Pilot	State whether a deep sea or local Pilot is on board
K	Exit (kilo)	Date, time and point of exit from system or arrival at the vessel's destination	Exit time expressed as in (B) and exit position expressed as in (C) or (D)
L	Route (lima)	Route information	Intended track
M	Radio communications (mike)	Radio communications	State in full names of stations/frequencies guarded

Telegraphy	**Telephone (alternative)**	**Function**	**Information Required**
N	Next report (november)	Time of next report	Date time group expressed as in (B)
O	Draught (oscar)	Maximum present static drought in metres	4 digit group giving metres and centimetres
P	Cargo (papa)	Cargo on board	Cargo and brief details of any dangerous cargoes as well as harmful substances and gases that could endanger persons or the environment (See *Detailed Reporting Requirements*)
Q	Defect, damage, deficiency, limitations (quebec)	Defects/damage deficiencies/ other limitations	Brief details of defects, damage, deficiencies or other limitations (See *Detailed Reporting Requirements*)
R	Pollution/ dangerous goods lost overboard (romeo)	Description of pollutant or dangerous goods lost overboard	Brief details of type of pollution (oil, chemicals, etc.) or dangerous goods lost overboard; position expressed as in (C) or (D) (See *Detailed Reporting Requirements*)
S	Weather (sierra)	Weather conditions	Brief details of weather and sea conditions prevailing
T	Agent (tango)	Vessel's representative and/or owner	Details of name and particulars of vessel's representative or owner or both for provision of information (See *Detailed Reporting Requirements*)
U	Size and type (uniform)	Vessel size and type	Details of length, breadth, tonnage, and type etc. as required
V	Medic (victor)	Medical personnel	Doctor, physician's assistant, nurse, no-medic
W	Persons (whiskey)	Total number of persons on board	State number
X	Remarks (x-ray)	Miscellaneous	Any other information - including as appropriate brief details of incident and of other vessels involved either in incident, assistance or salvage (See *Detailed Reporting Requirements*)

Telegraphy	Telephone (alternative)	Function	Information Required
Y	Relay (yankee)	Request to relay report to another system e.g., AMVER, AUSREP, JASREP, MAREP etc.	Content of report
Z	End of report (zulu)	End of report	No further information required

A3. DETAILED REPORTING REQUIREMENTS

A3.1 Dangerous Goods Reports - Packaged Form (DG)

A3.1.1 Primary report should contain Items, A, B, C (or D), M, Q, R, S, T, U, X of the *Standard Reporting Format*; details for Item R should be as follows:

R

1. Correct technical name or names of goods.
2. UN number or numbers.
3. IMO Hazard class or classes.
4. Names of manufacturers of goods when known, or consignee or consignor.
5. Types of packages including identification marks. Specify whether portable tank or tank vehicle, or whether vehicle or freight container or other cargo transport unit containing packages. Include official registration marks and numbers assigned to the unit.
6. An estimate of the quantity and likely condition of the goods.
7. Whether loss floated or sank.
8. Whether loss is continuing.
9. Cause of loss.

A3.1.2 If the condition of the vessel is such that there is danger of further loss of packaged dangerous goods into the sea, items P and Q of the *Standard Reporting Format* should be reported; details for P should be as follows:

P

1. Correct technical name or names of goods.
2. UN number or numbers.
3. IMO Hazard class or classes.
4. Names of manufacturers of goods when known, or consignee or consignor.
5. Types of packages including identification marks. Specify whether portable tank or tank vehicle, or whether vehicle or freight container or other cargo transport unit containing packages. Include official registration marks and numbers assigned to the unit.
6. An estimate of the quantity and likely condition of the goods.

A3.1.3 Particulars not immediately available should be inserted in a supplementary message or messages.

A3.2 Harmful Substances Reports - In Bulk (HS)

A3.2.1 In the case of actual discharge, primary HS reports should contain Items A, B, C (or D), E, F, L, M, N, Q, R, S, T, U, X of the *Standard Reporting Format*. In the case of probable discharge, item P should also be included. Details for P, Q, R, T and X should be as follows:

P

1. Type of oil or the correct technical name of the noxious liquid substances on board.
2. UN number or numbers if available.
3. Pollution category (X, Y or Z), for noxious liquid substances.
4. Names of manufacturers of substances if appropriate and known, or consignee or consignor.
5. Quantity.

Q

1. Condition of the vessel as relevant.
2. Ability to transfer cargo/ballast/fuel.

R

1. Type of oil or the correct technical name of the noxious liquid substances discharged into the sea.
2. UN number or numbers if available.
3. Pollution category (X, Y or Z), for noxious liquid substances.
4. Names of manufacturers of substances if appropriate and known, or consignee or consignor.
5. An estimate of the quantity of the substances.
6. Whether loss floated or sank.
7. Whether loss is continuing.
8. Cause of loss.
9. Estimate of the movement of the discharge or loss, giving current conditions if known.
10. Estimate of the surface area of the spill if possible.

T

1. Name, address, telex and telephone number of the vessel's owner and representative (charterer, manager or operator of the vessel or their agent).

X

1. Action being taken with regard to the discharge and the movement of the vessel.
2. Assistance or salvage efforts which have been requested or which have been provided by others.
3. The master of an assisting or salvaging vessel should report the particulars of the action undertaken or planned.

A3.2.2 Particulars not immediately available should be inserted in a supplementary message or messages.

A3.3 Harmful Substance Reports - Packaged Form (MP)

A3.3.1 In the case of actual discharges, primary MP reports should contain Items A, B, C (or D), M, Q, R, S, T, U, X of the *Standard Reporting Format*. In the case of probable discharge, Item P should also be included. Details of P, Q, R, T and X should be as follows:

P

1. Correct technical name or names of goods.
2. UN number or numbers.
3. IMO Hazard class or classes.
4. Names of manufacturers of goods when known, or consignee or consignor.
5. Types of packages including identification marks. Specify whether portable tank or tank vehicle, or whether vehicle or freight container or other cargo transport unit containing packages. Include official registration marks and numbers assigned to the unit.
6. An estimate of the quantity and likely condition of the goods.

Q

1. Condition of the vessel as relevant.
2. Ability to transfer cargo/ballast/fuel.

R

1. Correct technical name or names of goods.
2. UN number or numbers.
3. IMO Hazard class or classes.
4. Names of manufacturers of goods when known, or consignee or consignor.
5. Types of packages including identification marks. Specify whether portable tank or tank vehicle, or whether vehicle or freight container or other cargo transport unit containing packages. Include official registration marks and numbers assigned to the unit.
6. An estimate of the quantity and likely condition of the goods.
7. Whether lost goods floated or sank.
8. Whether loss is continuing.
9. Cause of loss.

T

1. Name, address, telex and telephone number of the vessel's owner and representative (charterer, manager or operator of the vessel or their agent).

X

1. Actions being taken with regard to the discharge and movement of the vessel.
2. Assistance or salvage efforts which have been requested or which have been provided by others.
3. The master of an assisting or salvaging vessel should report the particulars of the action undertaken or planned.

A3.3.2 Particulars not immediately available should be inserted in a supplementary message or messages.

A4. PRIMARY REPORT FORMS

A4.1 Dangerous Goods Report - Packaged Form (DG)

Function		**Report**
DG	Type of report	/DG//
A	Vessel identity	A/ /__ __ __ __//
B	Date and time of event	B/ __ __ __ __ __ __ Z //
C	Position	C/__ __ __ __N S __ __ __ __ __ E W//
D*	Position	D/ //
M	Radio communications	M/ //
P**	Cargo on board	P/*** //
Q**	Defect, damage, deficiency, other limitations	Q/ //
R	Description of dangerous goods lost overboard	R/*** //
S	Weather conditions	S/ //
T	Agent	T/ //
U	Vessel size and type	U/ //
X	Remarks	X/ //

* Report either Item C or D.

** Include if the condition of the vessel is such that there is danger of further loss of packaged dangerous goods into the sea.

*** See *Detailed Reporting Requirements* (Appendix A3.1).

A4.2 Harmful Substances Report - In Bulk (HS)

Function		**Report**
HS	Type of report	/HS//
A	Vessel identity	A/ /__ __ __ __//
B	Date and time of event	B/ __ __ __ __ __ __ Z //
C	Position	C/__ __ __ __N S __ __ __ __ __ E W//
D*	Position	D/ //
E	True course	E/ __ __ __ //
F	Speed in knots and tenths of knots	F/ __ __ __ //
L	Route information	L/ //
M	Radio communications	M/ //
N	Next report	N/__ __ __ __ __ __ Z//
P**	Cargo on board	P/*** //
Q	Defect, damage, deficiency, other limitations	Q/*** //
R	Description of dangerous goods lost overboard	R/*** //
S	Weather conditions	S/ //
T	Agent	T/*** //
U	Vessel size and type	U/ //
X	Remarks	X/*** //

* Report either Item C or D.

** Include in the case of a probable discharge.

*** See *Detailed Reporting Requirements* (Appendix A3.2).

A4.3 Harmful Substances Report - Packaged Form (MP)

Function		**Report**
MP	Type of report	/MP//
A	Vessel identity	A/ /__ __ __ __//
B	Date and time of event	B/ __ __ __ __ __ __ Z //
C	Position	C/__ __ __ __N S __ __ __ __ __ E W//
D*	Position	D/ //
M	Radio communications	M/ //
P**	Cargo on board	P/*** //
Q	Defect, damage, deficiency, other limitations	Q/*** //
R	Description of dangerous goods lost overboard	R/*** //
S	Weather conditions	S/ //
T	Agent	T/*** //
U	Vessel size and type	U/ //
X	Remarks	X/*** //

* Report either Item C or D.

** Include in the case of a probable discharge.

*** See *Detailed Reporting Requirements* (Appendix A3.3).