


	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 11, 2021	
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

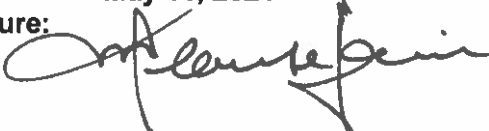
Baffinland Iron Mines Corporation

Oil Pollution Prevention Plan - Milne Inlet (OPPP)

BAF-PH1-830-P16-0058

Revision 1

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	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 3 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

TABLE OF CONTENTS

- 1 General Introduction 9**
 - 1.1 Legislative Requirement9
 - 1.2 Links to Other Baffinland Response Plans9
- 4 Planning Standards 11**
 - 4.1 Facility Category11
 - 4.2 General Planning Guidelines11
- 5 Milne Inlet Shoreline and Marine Characteristics 12**
 - 5.1.1 Shoreline Characteristics and Sensitive Zones 12
 - 5.1.2 Bathymetric and Marine Data 14
 - 5.1.3 Meteorological Data 14
 - 5.1.4 Ice Conditions 15
- 6 Site Activities - Overview 16**
 - 6.1 Bulk Oil Transfer, Ship to Shore16
 - 6.2 Port Operations17
- 7 General Baffinland Response to Emergencies..... 17**
 - 7.1 Level of Emergency18
 - 7.2 Incident Control Centre.....20
 - 7.2.1 Incident Control Centre Equipment/Supplies 20
 - 7.3 Duty Cards.....20
 - 7.4 Notification and Communication.....21
 - 7.4.1 Code 1 Notification 21
 - 7.4.2 Communication 21
 - 7.5 Equipment and Personal Protection22
- 8 Bulk Fuel Transfer..... 23**
 - 8.1 Milne Port Fuel Storage Facility.....23
 - 8.1.1 General Overview and Site Description 23
 - 8.1.2 Fuel Storage Facilities and Infrastructure 23
 - 8.2 Vessel Anchorage24
 - 8.2.1 Hazard Management at Vessel Anchorage 24

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 4 of 32
	Milne Port Fuel Storage Facility	Revision: 1	
		BAF-PH1-830-P16-0058	

- 8.3 Fuel Tanker Vessel Offload Procedures.....24**
- 8.4 Emergency Stop Transfer24**
- 8.5 Transfer Completion25**
- 9 Risk Assessment 25**
- 9.1 Risk Assessment Process25**
- 9.2 Risk Mitigation Procedures and Controls26**
- 10 Training 27**
- 10.1 Training27**
- 11 Oil Pollution Prevention Plan Updates 27**
- 11.1.1 Update Registry..... 28
- 11.1.2 Plan Distribution..... 28
- 11.1.3 Contact Lists 28

List of Tables

- Table 1-1: Contact Information of Baffinland Personnel with Authority to Implement the OPPP..... 6
- Table 7-1 - Levels of Emergency Response Chart 19

List of Figures

- Figure 7-1 – Milne Inlet – Marine Spill Response Organizational Chart 18

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 5 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

List of Appendices

Appendix A – Sustainable Development Policy, and Health, Safety and Environment Policy

Appendix B – Milne Port Site Layout

Appendix C – Milne Port Fuel Storage Facility Layout

Appendix D – Fuel Tanker Offload to Shore Tanks Procedure

Appendix E – Milne Inlet Bulk Fuel Transfer Operation - Risk Assessment Report

Appendix F – Emergency Response Regulations/Environmental Response Standards - Concordance Table

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 6 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

TABLE 1-1: CONTACT INFORMATION OF BAFFINLAND PERSONNEL WITH AUTHORITY TO IMPLEMENT THE OPPP

Role	Primary	Primary Alternate	Secondary Alternate
Emergency Management Team Lead	Sylvain Proulx Francois Gaudreau Martin Beausejour	Andrew Esak Michael Sullivan Deon Pope	Connor Devereaux
	416-364-8820 x 6091 416-364-8820 x 6072 416-364-8820 x 6088	416-364-8820 x 4115 416-364-8820 x 4115 416-364-8820 x 6009	416-364-8820 x 6016
Alternate Phone	416-970-6983 416-704-9053 647-268-9578	647-456-1131 289-834-0930 905-483-0261	647-456-9067
Email	Sylvain.proulx@baffinland.com Francois.gaudreau@baffinland.com Martin.beausejour@baffinland.com	Andrew.esak@baffinland.com Michael.sullivan@baffinland.com Deon.pope@baffinland.com	Connor.devereaux@baffinland.com
Emergency Response Team Command	Kyle Hewey Steve Janknegt Chris MacDonald Dean Metzler	Emergency Response Coordinator	Darryl Finlay Wayne LeDrew Michael Casey
Primary Phone	416-364-8820 x 4047 416-364-8820 x 4048 416-364-8820 x 6145 416-364-8820 x 6117	416-364-8820 x 4145	416-364-8820 x 4122 416-364-8820 x 4153 416-364-8820 x 6798
Email	Kyle.Hewey@baffinland.com Steve.janknegt@baffinland.com Chris.Macdonald@baffinland.com Dean.metzler@baffinland.com		Darryl.finlay@baffinland.com Wayne.ledrew@baffinland.com Michael.casey@baffinland.com
Environmental Superintendent	Connor Devereaux	Dominic Ritgen	Kendra Button Heidi Mettler
Primary Phone	416-364-8820 x 6016	416-364-8820 x 4023	416-364-8820 x 6255 416-364-8820 x 6746
Alternate Phone	647-456-9067		
Email	Connor.devereaux@baffinland.com	Dominic.Ritgen@baffinland.com	Kendra.button@baffinland.com Heidi.mettler@baffinland.com
Health and Safety Manager/Superintendent	Shawn Stevens	Jeff Jamieson Joe Nicholson	
Primary Phone	416-364-8820 x 6006	416-364-8820 x 6115 416-364-8820 x 6891	
Alternate Phone	416-579-8524	365-773-4103 365-292-5821	
Email	Shawn.stevens@baffinland.com	Jeff.jamieson@baffinland.com Joe.nicholson@baffinland.com	

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 7 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

Health and Safety Coordinator	Darryl Finlay Wayne LeDrew Michael Casey	Mario Vottero Blaine Taylor Doug Sulliman	
Primary Phone	416-364-8820 x 4122 416-364-8820 x 4153 416-364-8820 x 6798	416-364-8820 x 6707 416-364-8820 x 6052 416-364-8820 x 6081	
Email	Darryl.finlay@baffinland.com Wayne.ledrew@baffinland.com Michael.casey@baffinland.com	Mario.vottero@baffinland.com Blaine.taylor@baffinland.com Doug.sulliman@baffinland.com	

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 8 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

PREAMBLE

This Oil Handling Facility, Oil Pollution Prevention Plan (OPPP) for the Milne Inlet Port shall be in effect at the commencement of Port operations in 2021.

Formal distribution of the Plan has been made to:

Transport Canada

Box 8550,
344 Edmonton Street (RMW),
Winnipeg, Manitoba, R3C 0P6
Sent via email

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

Baffinland Iron Mines Corporation

2275 Upper Middle Road East, Suite 300
Oakville, Ontario L6H 0C3
Tel: (416) 364-8820
Fax: (416) 364-0193
Via email: contact@baffinland.com

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 9 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

1 GENERAL INTRODUCTION

This Plan, the Oil Pollution Prevention Plan (OPPP), was developed to specifically prevent the discharge of oil during the bulk transfer ship to shore operations at the Mary River Project's (Project) Milne Port Fuel Storage Facility. The Plan identifies the hazards associated with the Oil Handling Facility's (OHF) operations and assesses the risk to the environment from these activities. Routine reviews and updates to this Plan provide a mechanism for continuous improvement in the Project's operations at the Milne Port Fuel Storage Facility.

1.1 LEGISLATIVE REQUIREMENT

The Canada Shipping Act, 2001, Part 8, applies to OHFs engaged in the loading or unloading of oil to or from prescribed vessels. The Environmental Response Standards support and provide context to the Environmental Response Regulations.

Relevant applicable regulations are:

- Environmental Response Regulations (SOR/2019-252)
- Environmental Response Standards (TP14909)
- Vessel Pollution and Dangerous Chemical Regulations (SOR 2012-69)
- Pollutant Discharge Reporting Regulations (SOR/95-351)
- Guidelines for Reporting Incidents Involving Dangerous Goods and Harmful Substances and/or Marine Pollutants (TP 9834 E)

Appendix F provides a table showing concordance of the Plan with the Emergency Response Regulations and the Environmental Response Standards.

1.2 LINKS TO OTHER BAFFINLAND RESPONSE PLANS

The OPPP is required to be used in conjunction with the current revisions of the Project's other emergency plans, including:

- Milne Fuel Storage Facility Oil Pollution Emergency Plan (OPEP; BAF-PH1-830-P16-0013);
- Emergency Response Plan (ERP; BAF-PH1-840-P16-0002);
- Spill Contingency Plan (SCP; BAF-PH1-830-P16-0036);
- Spill at Sea Response Plan (SSRP; BAF-PH1-830-P16-0042);
- Diesel Environmental Emergency (E2) Plan - Milne Port (BAF-PH1-830-P16-0056); and
- Crisis Management Plan (CMP) Level II (Medium) and Level III (High) Emergency (BAF-PH1-840-P16-0001).

This Plan does not supersede existing emergency response plans, rather it was developed to provide additional details on the spill prevention measures and protocols used at the Milne Port Fuel Storage Facility during the transfer of fuels from marine vessels.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 10 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

The OPEP addresses the policies and procedures that provide an effective response mechanism at Milne Port in the event of a discharge of oil during the ship to shore transfer of oil.

The Baffinland ERP identifies potential environmental, health and safety emergencies that could arise during the construction and operation phases of the Project. The ERP establishes the framework for responding to these situations and applies to all aspects of the Project. All Baffinland employees and contractors are required to comply with the requirements of the ERP.

The Baffinland SCP identifies potential spills of hazardous materials on land, ice and/or freshwater that could arise during the construction and operation phases of the Project. Credible spill scenarios of hazardous products and associated protocols for responding to each type of spill are provided in the SCP. The SCP complements Baffinland’s ERP.

The SSRP outlines Baffinland’s emergency response procedures for responding to fuel spills at sea along the Northern Shipping Route from vessels interfacing with Milne Port infrastructure. This includes both marine ore carrier and fuel tanker vessels.

The Milne Port Diesel E2 Plan provides specific guidance and emergency considerations for the management of diesel fuel at Milne Port in order to protect the health and safety of immediate workers, the environment and any members of the public. The E2 Plan addresses the required elements stipulated by Environment and Climate Change Canada (ECCC) under the Environmental Emergency Regulations (2019). The Plan includes worst-case and alternative scenario modelling for diesel releases, including the release from a diesel fuel tank within its secondary containment and the ignition of the vapour cloud causing an explosion or the ignition of pooled fuel resulting in a pool fire. The E2 Plan would be activated in conjunction with the ERP if a Level II or Level III emergency involving diesel fuel occurred at Milne Port.

Baffinland’s CMP provides an organizational and procedural framework for the management of Level III emergency, disaster incidents, or crisis events that affect Baffinland operations. The guidelines outlined in the CMP commence with a specially formed management structure and the activation of procedures to deal with the major emergency situation.

2 BAFFINLAND’S CORPORATE POLICIES

Baffinland’s Sustainable Development Policy identifies Baffinland’s commitment internally and to the public to operate in a manner that is environmentally responsible, safe, fiscally responsible and respectful of the cultural values and legal rights of Inuit. The Sustainable Development Policy is provided in Appendix A.

Baffinland’s Health, Safety and Environment Policy is Baffinland’s commitment to achieve a safe, health and environmentally responsible workplace. The policy is provided in Appendix A.

All employees and contractors are expected to comply with the contents of both above mentioned policies.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 11 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

3 ROLES AND RESPONSIBILITIES DURING INCIDENTS

The ERP fully details the incident response structure including all roles and responsibilities during emergencies.

The OPEP fully details the response to spills, including specific procedures for various spill scenarios and events.

The procedures outlined in the above plans are to be followed during any response to emergencies that involve ship to shore fuel transfer operations.

4 PLANNING STANDARDS

In the preparation of this Plan, the standards as outlined in the Environmental Response Standards (TP 14909) have been employed.

4.1 FACILITY CATEGORY

Based on the ship to shore anticipated pumping rate of up to 380 m³/hr, the Milne Port Fuel Storage Facility is classified as a Level 2 Facility.

4.2 GENERAL PLANNING GUIDELINES

Beyond the requirements of the CSA and the Environmental Response Standards, Baffinland recognizes the unique nature of the Project's geographical location and the challenges inherent in preventing spills during ship to shore transfers.

In the preparation of this Plan, existing documents relating to the site specifications (physical, natural and social conditions) were utilized. In the preparation of this Plan and others, such as the ERP, SCP, and SSRP, extensive consultations with local authorities were undertaken, with the goal of a cooperative response in the event of a significant incident.

The OPPP has been developed through the identification of the hazards associated with ship to shore fuel transfers at Milne Port, an assessment of the risks pertaining to these activities and the risks to the surrounding environment. The resulting goal is the continuous improvement towards the elimination of discharges into the marine environment. Factors considered in the assessment include:

- a) Mooring of vessels at the Facility;
- b) Communications;
- c) Ship to shore fuel transfer procedures using floating hose(s);
- d) Maintaining vessels at established mooring points during transfer;
- e) Emergency procedure, including fuel transfer shutdowns;
- d) Maintaining critical equipment; and,
- e) Environmental conditions.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 12 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

5 MILNE INLET SHORELINE AND MARINE CHARACTERISTICS

5.1.1 SHORELINE CHARACTERISTICS AND SENSITIVE ZONES

A 2007 coastal habitat survey was conducted to document coastal and nearshore habitats in the proposed development area of the Mary River Project. In that oil spills are a potential development issue, the survey extended several hundred kilometers from Milne Port (which was a proposed project at the time of the survey) so as to encompass habitats in the far field as well as the near field Milne Port.

Milne Inlet is a large fjord system off the western portion of Eclipse Sound. The most prominent coastal characteristic is the steep relief that creates dramatic backdrops for the comparatively small and inconspicuous shore zone. Steep rock cliffs plunge into the inlet at many locations. In other areas, talus slopes of approximately one hundred (100) metres in height overlay narrow coarse sediment beaches. Bedrock controls much of the coastal orientation and morphology along the Milne Inlet shores with accretional beach deposits sandwiched between rock headlands. Extensive coastal rebound following deglaciation has created extensive areas of raised beach deposits one hundred (100) meters or more above present sea level. The raised beaches are unvegetated and form prominent coast-parallel lineations throughout the inlet.

The shoreline characteristics in the immediate Milne Port area are composed of varying percentages of rocky cliffs, beach ridge complexes and alluvial fans with a small percentage (1%) of alluvial delta complexes present.

Rock cliffs without beaches occur throughout Milne Inlet. Slopes range from steep (>30°) to ramped. Cliff heights may be several hundred metres. Intertidal zone widths are less than five (5) meters. Biological description show narrow steep intertidal and nearshore tend to be bare of attached macrobiota.

Beach ridges are accretional features and typically contain well-sorted sediment (often pebble-cobble in Milne Inlet). Isostatic rebound results in these deposits being raised above sea level where they form elict beach ridge complexes. Intertidal zone widths are typically less than thirty (30) meters. They are widely distributed throughout Milne Inlet and range from localized to extensive. Biological description shows intertidal generally bare of attached macrobiota, due to sediment mobility. On boulder ridges or on bedrock outcrops, patchy algal assemblages are seen.

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. Boulder ridging tends to be common. Biological description shows intertidal generally bare of attached macrobiota on mobile sediments. Some lower intertidal rockweed type algae is associated with boulder ridges.

Baffinland recognizes several sensitivities in the area and for planning purposes have divided the shoreline at the Facility and adjacent areas susceptible to impact from a spill into zones, which are described below.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 13 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

There is no permanently settled community or human habitation within close proximity to Milne Port infrastructure, however there are several seasonal hunting camps located in the bay east of Milne Port.

Zone 1: Phillips Creek

Located just to the west of the boundary of Milne Port infrastructure is the outlet of Phillips Creek. This area is characterized as a small creek delta with a shallow entrance and mud flats at low tide. In the event of a spill, diversion booming will be considered to minimize the migration of a spill onto the flats and shallow depth area in this zone.

Zone 2: Milne Facility Beach Zone

The Milne Facility Beach Zone encompasses an area of shoreline approximately 1.6 kilometres (km) in length, extending from the Milne Port western boundary eastwards. The type of shoreline through this zone is primarily sand to pebble/cobble beach and varies through the intertidal zone. This shoreline would be considered as porous, and where possible, protective booming at recovery sites will be considered to limit intertidal zone contamination.

Water depths vary in the immediate area in front of the beach zone, however are considerably shallow close to shore. A 30 foot contour is noted at a distance of approximately 200 feet from shore where the depth of water increases very abruptly.

Zone 3: Milne Eastern Beach

At the eastern end of the Milne Beach, a second smaller bay like area extends eastwards over several hundred meters. This beach is also primarily sand to pebble/cobble beach and varies through the intertidal zone. This shoreline would be considered as porous, and where possible, protective booming at recovery sites will be considered to limit contamination. In addition, there is a hunters cabin present along this section of the beach and therefore presents an additional sensitivity. Going eastwards, the beach turns in a northerly direction and the topography becomes steeper, characterized by a higher fiord like coastline with limited or no beaches.

Zone 4: Adjacent Areas

Based on the mooring positions of vessels and the prevailing winds, Zones 1 through 3 present the highest probability of impact from spills. The remaining area and shoreline adjacent to Milne Port is largely characterized by higher relief fiord shorelines, primarily constituted of rock and are considered to be higher energy areas. Generally, response to spills impacting these shores will focus on monitoring as booming and mechanical recovery may be difficult or impossible. In addition, the net environment benefit for attempted restoration of these shores would be detrimental.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 14 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

5.1.2 BATHYMETRIC AND MARINE DATA

Limited bathymetric and marine data is available for Milne Inlet where Milne Port is located. Harbour Chart 7212 covers most of the area; however, data within the shallow beach areas is limited.

Marine Data, Milne Inlet

Tidal Corrections:	HW -1h07, LW -0h43 on Resolute (Z+4)
Range of Tide:	1.6 - 2.3 metres (m)
Harbour Chart No.	7212
Approach Chart No.(s):	7566
Approximate Mooring Position (Lat/Long):	71°53.4'N 080°54.5'W (East of Philips Creek)
Nature of the Bottom	Mud

The marine environment at Milne Inlet is characterized as a sheltered waters environment. Weather data collected at Milne Port indicates that prevailing winds generally provide sea conditions of onshore waves, varying in height from flat calm to less than one (1) meter in average winds of less than 30 km/hr. Ship to shore fuel transfer procedures established by shipping contractors preclude the transfer of bulk product when conditions become excessive (e.g. wave heights greater than approximately 0.7 m). This enhances the possibility of deploying pollution gear should an incident occur.

5.1.3 METEOROLOGICAL DATA

There is currently no Environment Canada meteorological station at Milne Inlet, the closest being Pond Inlet. Extensive data exists for Pond Inlet. Between 2005 and 2006, weather stations were established at Projects sites, including Milne Port, and continue to collect data to inform Project operations.

The North Baffin region is located within the Northern Arctic Ecozone. 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

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 15 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

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. Marine operations at Milne Port will generally occur following ice-break up between July through October.

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

Data accumulated indicates that winds from the northeast occur most frequently (nearly 13% of the time), followed by winds from the north-northeast (about 12% of the time). The wind data indicates that “light air” conditions (0.3 to 1.6 m/s) occur most frequently at 23% of the time, followed by “light breeze” conditions (1.6 to 3.4 m/s), which occur 21% of the time. The data indicates that strong breezes (10.8 to 13.9 m/s) occur 6% of the time. Near gale winds (13.9 to 17.2 m/s) occur 2% 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.

5.1.4 ICE CONDITIONS

Ice conditions at Milne Inlet have been studied in detail and are well documented. A report on ice conditions and ship access to Milne Port was completed by Enfotec Technical Services (Enfotec; a former subsidiary of FedNav). The purpose of the report was to update the summary of ice conditions and ship access along the approaches to the Milne Inlet. The analysis was based on historical ice conditions from 1983 to 2016, derived from ice charts and satellite imagery. Other data sources were also used, including climatic data and technical or scientific publications covering sea ice and Arctic navigation.

Year-round conditions along the route to Milne Inlet were assessed, including potential shipping hazards. The average open water season is from August 5th to October 15th, resulting in a shipping window of seventy-one (71) days. In the channels close to Milne Inlet (Pond Inlet, Milne Inlet, Navy Board Inlet and Eclipse Sound), a typical timeframe has been noted between the first signs of ice formation (October 14) and the consolidation into land fast ice over 30 cm thick (November 18).

By early June, ice begins to decay and clears away completely by early August. At that time, drifting ice with inclusions of old ice can be expected, especially close to the entrance to Pond Inlet and Navy Board Inlet.

The impacts of climate change on Arctic sea ice were also considered in the Enfotec study. The report is in line with the scientific community as it recognizes that there is indeed a trend of decreasing seasonal ice cover over the Arctic. Nonetheless, changes in sea ice also bring additional challenges related to ice movement.

The final study has determined that the average open water season is from August 5th to October 15th (71 days). Ship to shore fuel transfers will be planned to coincide with the open water season accordingly.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 16 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

Should ice conditions deem it necessary, the tanker vessels may also be moored at the Milne Port’s Ore Dock(s) and a direct transfer into an overland Arctic grade hose may be implemented. This procedure is described in Section 6 and further detailed in the Project’s Fuel Tanker Offload to Shore Tanks Procedure provided in Appendix D of this Plan.

6 SITE ACTIVITIES - OVERVIEW

6.1 BULK OIL TRANSFER, SHIP TO SHORE

Multiple fuel transfers from ship to shore are anticipated during the open water season. It is anticipated that the total volume of the bulk fuel transfers shall be in the order of up to 100 ML and will take place during the months of July through October. The open water fuel transfers shall take place by means of either a single or double 4” diameter floating hose with an approximate length of approximately 1,000 m deployed between the vessel and the shore manifold. From the manifold, fuel products will transferred through the pipeline to the Milne Port Fuel Storage Facility. A 6” diameter steel pipeline connects the manifold to the Milne Port Fuel Storage Facility, situated at approximately 465 meters from the shoreline.

Late season fuel deliveries and transfers are also possible into early October. While the preference is to perform these fuel transfers via a floating hose operation, it is possible, when significant ice is present that tankers may be moored at the Milne Port Ore Dock(s). The vessel shall be moored at the ore dock allowing for a direct transfer of product from ship to receiving manifold via a single or double over ground 4” diameter Arctic hose. During such transfers the tanker shall have exclusive use of the ore dock. The hose is selected expressly for the purpose of transfer of petroleum products in arctic conditions and shall be an approximate length of up to 850 m. The entire hose length shall be tested and certified to 1.5 times the maximum working pressure. Certificates are retained at the Milne Port Fuel Storage Facility in accordance with the regulatory requirements.

The overland trajectory and security of the hose is addressed in the Project’s Fuel Tanker Offload to Shore Tanks Procedure provided in Appendix D of this Plan. These procedures have been updated to reflect the possibility of an overland fuel transfer between ship and the receiving manifold.

The tides are not a major risk factor in this part of Milne Inlet. Wind force and direction are the dictating environmental factors during fuel transfers and criteria for acceptable conditions for discharge are outlined in the Fuel Tanker Offload to Shore Tanks Procedure (Appendix D).

The ship to shore transfer operations at Milne Inlet is similar to other cargo discharge operations in the North and involves filling the shore tanks with two types of fuel, Jet-A and Arctic Diesel (Ultra-Low Sulfur Diesel). It is expected that once cargo operations are underway, the ship will discharge at a rate of up to 380 m³/hour depending on the number of hoses used and also final obtainable pumping rate. This discharge rate is applicable to either the floating hose or overland discharge option.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 17 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

The tanks shall take varying times to fill, depending on which tank is filled and also the final pumping rates obtained. Accurate reconciliation of discharge & fill volumes through regular communication between ship & shore personnel is required to ensure the safe transfer of fuel and prevent any overfilling that could result in a spill.

6.2 PORT OPERATIONS

Other than the planned fuel transfers, no other port operations involving fuel transfer are anticipated at Milne Inlet.

Dry cargo sealift (including backhaul) and ore vessel loading and shipping operations occur during the open water season (July - October). Tug employment in support of shipping operations will be provided via two tugs. While these activities are scheduled to take place at various times, often occurring at the same time, they will be completed independent of the Milne Port Fuel Storage Facility and transfer operations and are therefore not considered in this Plan. For additional information pertaining to Milne Port Marine Facility operations, refer to the Milne Port Marine Facility Security Plan (BAF-PH1-310-P16-0001).

7 GENERAL BAFFINLAND RESPONSE TO EMERGENCIES

In order to effectively manage emergency response, Baffinland has implemented a detailed emergency response structure that is applicable to all emergencies. This emergency response structure is fully outlined in the ERP and all spill response shall be in conformance with those procedures. Figure 7-1 outlines the marine spill response organizational chart.

Milne Inlet – Marine Spill Response Organizational Chart

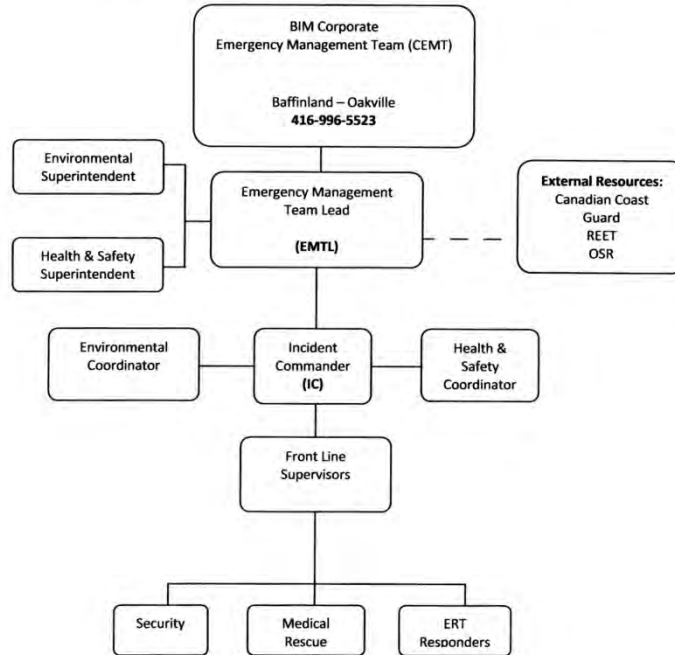


FIGURE 7-1 – MILNE INLET – MARINE SPILL RESPONSE ORGANIZATIONAL CHART

7.1 LEVEL OF EMERGENCY

To effectively manage emergency response, Baffinland has adopted a tiered classification system that includes three (3) levels of emergency. Each level of emergency, based on the significance of the event, requires varying degrees of response, effort and support. The impact on normal business operations will also differ as will the requirements for investigation and reporting. The process used to determine which emergency response(s) to activate in the case of an emergency is provided in Table 7-1 below.

TABLE 7-1 - LEVELS OF EMERGENCY RESPONSE CHART

Level	Personnel	Asset Damage Downtime	Environmental Impact	Company Reputation	Management Impact	NOTIFICATION AND ACTIVATION REQUIRED
Level III	Single or multiple fatalities	Uncontrolled hazard Major fire	Uncontrolled hazard Polar bear or wolf in camp or work area	Adverse media campaign Investigation from external authorities National or International impact on reputation	Requires significant senior management attention	The EMT and Crisis Management Team (CMT) are Activated. The situation is not under control
Level II	Serious or multiple injuries	Fire in a facility or uncontrolled fire involving equipment	Major reversible environmental impact No threat to land tenure Polar bear or wolf within 1.5 km of camp or work area	Local/regional media interest/coverage Local impact on reputation	Can be managed by targeted senior management attention	Activation of the Incident Command Centre (ICC) required by the EMTL
Level I	Medical treatment Injury that may require Medivac	Minor fire that is not growing in size or has been controlled Loss of generators (less than 4) or power	Extreme weather conditions force shutdown of activities Minor accidental spill or release Wildlife interaction with minor risk, aggressive fox, Polar bear within 8km of camp/worksite	Short term (1 media cycle) negative media articles or internet activity resulting in minor changes in key stakeholder perceptions	Can be managed by targeted management attention Impact of event can be absorbed into normal activities	The ERT and EMT at the site and may be required to respond EMT meets to review plans and procedures for events that could cause the emergency Level to increase Emergency response may be required with notification of line management

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 20 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

7.2 INCIDENT CONTROL CENTRE

The Incident Control Centre (ICC) functions to provide a place for the coordination and direction of response efforts during an emergency. In the event of no senior operations managers being available at the Project site experiencing the emergency, the location of the senior operations manager will host the ICC.

The conference room at the main office in the Mine Site Complex (MSC) is the primary ICC for incidents occurring at the Mine Site. The conference room at the Port Site Complex (PSC) is also used for ICC activities. Both ICCs may be activated during a crisis emergency, or in response to an emergency along the Tote Road where both ERT would respond. In this case, the Mine Site ICC will be the primary centre unless changed by the direction of the EMTL. Alternative ICCs are properly stocked and available should the primary location be unavailable due to the emergency. The secondary ICC is the maintenance garage boardroom. For incidents where the ICC must be established in the Corporate Office, Mary River Conference Room shall be designated for use.

7.2.1 INCIDENT CONTROL CENTRE EQUIPMENT/SUPPLIES

The ICC has all the necessary tools for organizing response to an emergency - dispatching internal/external emergency services, directing strategic deployment of emergency resources and equipment, monitoring response efforts and establishing critical communications with the Baffinland Corporate Office.

The ICC contains:

- Duty Cards and Emergency Response Action Guides.
- The most current version of the ERP along with supporting response plans.
- Log book.
- Stationary.
- Mary River and Milne Inlet Layouts (Appendix C)
- Emergency Contact Information (ERP).
- 2-way radio communication (base station or handheld).
- Satellite phone system.
- VOIP phone system.
- Network connections.

7.3 DUTY CARDS

Duty Cards act as prompts and are used by personnel as an aid in the event of an emergency. Duty cards provide guidance for emergency response roles and responsibilities, and assist in decision making. Duty Cards are located in the Incident Command Centre (ICC). First person that enters the ICC, during a significant event and retrieves all Duty Card clipboards out of the ICC cupboard and hands them out to appropriate personnel.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 21 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

7.4 NOTIFICATION AND COMMUNICATION

7.4.1 CODE 1 NOTIFICATION

For an emergency response to occur, notification has to reach the ERT. This initial notification should occur quickly and provide essential information. Most often, the first person on-scene is the individual that provides this information.

An individual involved in, or witnessing, as first person on-scene, shall make every effort to quickly initiate the emergency “Code 1” notification procedure as follows:

1. Employ the site radio or call site Security at extension 6911 (MSC) or 4911 (PSC) and announce:

“Code 1, Code 1, Code 1”

Nature of the emergency (Fire/Rescue, Medical, Environmental)

Location of the emergency

Your name

Pause and repeat

During the “Code 1” notification:

- Remain calm and in a safe location
- Stay on radio/phone
- Give all requested information
- Follow instructions given by Security personnel

2. The site Security Department will initiate their Code 1 protocol, announcing Code 1 on the main radio channels and calling out the ERT and EMT.

7.4.2 COMMUNICATION

Effective communication systems are critical to the success of emergency responses. Personnel involved, from the first person on-scene to the ERTC and EMTL rely on the ability to quickly relay accurate information.

During an emergency, the primary communications link between all emergency response personnel is through radio communication. ERT members will be issued radios. Additionally, other individuals involved in emergency response will also carry hand-held radios as part of their regular work requirement.

During an emergency, radio communications should be kept to a minimum. If radio silence is requested on other channels, Security personnel, upon receiving instruction by the EMTL or ERTC will announce this. This ensures open and free communications among personnel involved in the actual response. For example, if resources have to be requested on any channel other than the designated emergency channel, then this request will be unaffected by other conversation.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 22 of 32
	Milne Port Fuel Storage Facility	Revision: 1	
		BAF-PH1-830-P16-0058	

The following information should never be communicated over open channels and should only be released by authorized personnel:

- Names of third parties who may have been involved in the incident;
- Identification of fatalities or injured personnel;
- Cause of the incident and liability; and,
- Statements that may infer negligence.

During an emergency, other site radio channels may be used to:

- Locate ERT personnel;
- Obtain additional internal resources;
- Emergency notification;
- Evacuation of employees from work areas; and
- Maintain communications with aircraft/marine vessels.

During an emergency, telephone communications will be used to:

- Notify internal personnel and resources; and
- Notify external personnel and resources.

To supplement radio communications, the site telephone system may be used to alert site personnel during an emergency response. Communications links with the Corporate Emergency Management Team (CEMT) may also be required during some emergency situations. Constant communications links will be established by telephone where offsite assistance is required.

7.5 EQUIPMENT AND PERSONAL PROTECTION

To prevent spills and to provide adequate response in case of spill events, Baffinland maintains the appropriate type and quantity of response equipment and materials on site.

Spill kits are strategically placed primarily in areas of fuel handling to facilitate immediate first response in the event of a hydrocarbon release to land. Emergency spill kit supplies and locations and an inventory of emergency response supplies in the Emergency Response Trucks is found in the SCP. A complete list of emergency response equipment available at the Project is found in in the OPEP.

In addition to the spill response equipment, a variety of mobile heavy equipment including excavators, front end loaders, bull-dozers, haul trucks, zodiac boats for in land water use, and marine support vessels are available to aid in spill response and recovery efforts.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 23 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

8 BULK FUEL TRANSFER

The following subsections describe the Project's established protocols used to ensure all shore preparations, emergency preparedness, equipment and personnel are in place to coordinate a ship to shore fuel transfer at the Milne Port Fuel Storage Facility. The Fuel Tanker Offload to Shore Tanks Procedure, provided in Appendix D of this Plan, outlines all the steps involved from vessel mooring, loading hose placement, hose-tank connection, communications, fuel transfer, fuel line monitoring, and hose disconnection to ensure clear instructions are in place to prevent potential incidents from occurring during a ship to shore fuel transfer. Environmental and safety measures are addressed throughout the procedure.

8.1 MILNE PORT FUEL STORAGE FACILITY

8.1.1 GENERAL OVERVIEW AND SITE DESCRIPTION

The Milne Port Fuel Storage Facility is situated on the northeastern coast of Baffin Island (71° 52' 57" North, 80° 53' 51" West), approximately 131 km southwest of Pond Inlet. A site overview plan is presented in Appendix B.

8.1.2 FUEL STORAGE FACILITIES AND INFRASTRUCTURE

The Milne Port Fuel Storage Facility consists of a steel tank farm, similar to those found elsewhere in the Arctic region. A detailed site plan of the Fuel Storage Facility is provided in Appendix C. The Milne Port Fuel Storage Facility has a total system diesel capacity of approximately 50,480 tonnes (62,000,000 litres [L]) and a total system Jet-A capacity of approximately 2,496,000 tonnes (3,000,000 L). The Milne Port Fuel Storage Facility consists of the following:

- Two (2) 5 ML steel tanks containing diesel;
- Three (3) 12 ML steel tanks containing diesel;
- One (1) 13 ML steel tank containing diesel;
- One (1) 3 ML steel tank containing diesel; and
- Four (4) 750,000 L steel tanks containing Jet-A fuel.

The Milne Port Fuel Storage Facility is equipped with lined secondary containment berms, engineered to comply with the Canadian Council of Ministers of the Environment (CCME) *Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products* (2015). The construction is in compliance with building codes and best practices for tank farm facilities. The low point of the containment area is fitted with a sump and pumping system for capture/disposal of storm water retained within the secondary containment. The same pumping system is used to recover large spills, should they occur. The secondary containment has a large enough capacity to contain the complete volume of the largest tank, as well as 10% of the volume of all the remaining tanks. The placement and current configuration of the tank farm is detailed in the drawings provided in Appendix C of this Plan.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 24 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

The Milne Port Fuel Storage Facility is connected to a shore receiving manifold by a 6” diameter steel pipeline. The pipeline is of welded construction and is supported on appropriate stands and blocking. The pipeline is fully pressure tested and inspected each year prior to commencement of ship to shore fuel transfer operations.

Lighting provided at the shore receiving manifold and the Milne Port Fuel Storage Facility meet the regulatory requirements of the Vessel Pollution and Dangerous Chemical Regulations (SOR 2012-69).

The Milne Port Fuel Storage Facility is a “restricted area” as defined under the Marine Transportation Safety Regulation. The Facility is fenced and access is restricted to only personnel authorized by a Marine Facility Security Officer.

8.2 VESSEL ANCHORAGE

Upon arrival at Milne Inlet and depending on timing of the season, tanker vessels will be either moored by the stern of the vessel or tied to the ore dock berth. Two (2) stern lines will run from the vessel to existing shore restraints if moored at an anchorage point in the inlet. Upon arrival, actual mooring positioning will be agreed upon between the Captain of the vessel and the Baffinland Shore Representative or designate. All Transport Canada Regulations are to be followed. Stern mooring will allow vessels to deploy the shortest possible amount of hose for discharge, as it will negate the requirement for extra hose lengths to accommodate vessel swing.

8.2.1 HAZARD MANAGEMENT AT VESSEL ANCHORAGE

The tanker mooring position is clearly determined in advance of the fuel transfer in accordance with the criteria noted in Section 8.2 above.

All departments are notified of the vessel position, duration of stay and any other pertinent details. Unauthorized vessel traffic within the areas surrounding the tanker vessel and the ship to shore floating hose is prohibited during the entire transfer operation. During the transfer, the tanker vessel crew will perform routine floating hose inspections using the vessel’s workboats to respond to any incidents with the floating hose or unauthorized vessel traffic. Due to the stern line mooring the vessel, swing is not anticipated during transfer operations. Vessel position is monitored at all times by bridge watch crew onboard the tanker vessel.

8.3 FUEL TANKER VESSEL OFFLOAD PROCEDURES

Comprehensive fuel tanker vessel offload procedures have been developed pertaining to the reception of fuel at the Milne Port Fuel Storage Facility and are provided in Appendix D of this Plan.

8.4 EMERGENCY STOP TRANSFER

Without exception, upon detection of a spill, all transfer operations are immediately shut down and not restarted in any manner that would interfere with the immediate, effective and sustained response to an

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 25 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

oil pollution incident. The emergency stop transfer protocol is detailed in Section 6.2.2 of the Fuel Tanker Offload to Shore Tanks Procedure (refer to Appendix D).

The tanker vessel's horn signal system includes a signal for emergency stop transfer which is easily identifiable by the constant ringing of the general alarm or series of short blasts by the whistle, horn and/or siren.

8.5 TRANSFER COMPLETION

The transfer completion protocol is outlined in detail in Section 6.11 of the Fuel Tanker Offload to Shore Tanks Procedure (refer to Appendix D).

9 RISK ASSESSMENT

Despite a constant effort to identify and manage risks, incidents can occur through natural events, breakdown of mitigation measures, accidents and/or human error.

The ship to shore fuel transfer operation involves coordinated efforts between the tanker vessel(s) and the Milne Port Fuel Storage Facility, with both parties having both separate and joint responsibilities during the operation. The tasks and procedures involved are fully documented in the Fuel Tanker Offload to Shore Tanks Procedure provided in Appendix D.

Although the likelihood or probability of incidents is low, incidents could have environmental, health, or safety repercussions. An analysis of the potential for malfunctions and accidents associated with ship to shore fuel transfers is a valuable exercise in identifying appropriate prevention and mitigation measures.

Baffinland and the fuel delivery contractor have jointly participated in a documented risk assessment process with the goal of identifying the hazards pertaining to the transfer operation and the probability of accidents and malfunctions that, although unlikely, could have a significant impact (e.g., major fuel spills, etc.) to the environment. Mitigation and processes have been implemented in the Fuel Tanker Offload to Shore Tanks Procedure (Appendix D) accordingly in order to primarily reduce incidents of all kinds and to ensure adequate response to mitigate the impacts of any incidents that may occur. The risk assessment will be jointly reviewed by Baffinland and the fuel delivery contractor on an annual basis prior to the commencement of transfer operations to ensure the risk assessment continues to accurately reflect current operations and protocols.

9.1 RISK ASSESSMENT PROCESS

A Failure Mode Analysis Type Risk Assessment was carried out on ship to shore fuel transfer operations at Milne Port. This involved identification of potential failure modes and their effects, then risk ranking the failure mode in terms of probability and severity. Existing controls in place to reduce the severity or probability of each failure mode are then identified. Any unacceptable risks are highlighted in order to detail recommendations that could further reduce the risk ranking of the failure mode.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021	Page 26 of 32
	Milne Port Fuel Storage Facility	Revision: 1	BAF-PH1-830-P16-0058

The Risk Assessment carried out for the purpose of this Plan takes into consideration the tanker vessel mooring and the actual bulk cargo transfer operations. Other risk assessment activities involving sub-systems relating to the fuel carrier such as the tanker vessel itself, crew, navigation etc. are carried out by the carrier and were not considered for the purposes of this assessment.

The risk ranking of each failure mode was plotted on the Risk Assessment Matrix. The risk ranking is the product of an incident's probability of occurring by the severity of the respective consequences. Each failure mode was plotted on the risk matrix. Risks with a ranking value of 8 or higher required additional corrective actions (e.g. additional controls, changes in protocol) to reduce the risk's ranking value below 8. The Risk Assessment Summary and Ranking Matrix are found in Appendix E of this Plan.

9.2 RISK MITIGATION PROCEDURES AND CONTROLS

Normal operation procedures at the Project include many inspections that are performed regularly and documented. The Milne Port Fuel Storage Facility, pipeline and all related equipment and infrastructure are inspected prior to ship to shore fuel transfers. Inspection methods are documented as a standard operating procedures. Any discrepancies noted during the inspections are documented, investigated and corrected, as required.

The following procedures, controls and mitigation measures have been established to minimize the risk of spills during ship to shore fuel transfers:

- Complete bulk cargo transfer procedures have been established, a copy of which is found in Appendix D of this OPPP;
- As required by the applicable legislation, the tanker vessels servicing the Milne Port Fuel Storage Facility have comprehensive Shipboard Oil Pollution Emergency Plans (SOPEPs). Copies of vessels' SOPEPs are reviewed annually by Baffinland;
- In addition to the legislative requirements, the tanker vessels have implemented a shipboard spill response training program and perform routine exercises in spill response operations to ensure crews have the necessary skillsets and knowledge base to effectively respond to a spill;
- Tanker vessels carry a compliment of spill response equipment as listed in the Baffinland OPEP and this equipment is ready at the ship's rail at all times for deployment during fuel transfer operations;
- Prior to fuel transfer operations, the Project's resident marine oil spill response equipment is positioned near the Milne Inlet shoreline, ready for immediate deployment at all times during fuel transfer operations;
- The workboats and trained responders are available at all times during cargo operations for spill equipment deployment;
- Standard transfer procedures include floating hose inspections, completed by the tanker vessel crew with workboats every four (4) hours, to detect any leaks or defects during the fuel transfer;
- During transfer operations the shore manifold is manned at all times by shore personnel;

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 27 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

- A low pressure alarm is installed at the receiving manifold to detect changes in pipe/hose pressure resulting from a rupture or leak in the hose. Such drops in pressure will result in an audible alarm that will immediately be relayed to the tanker vessel by manifold personnel;
- The Milne Port Fuel Storage Facility is monitored at all times by Baffinland personnel during ship to shore fuel transfers; and,
- The pipeline and any overland hose are inspected hourly on foot during transfer operations.

10 TRAINING

10.1 TRAINING

Fuel tanker offloading to the Milne Port Fuel Farm is completed by employees with appropriate training to enable them to competently conduct their tasks. Supervisors identify training needs and the resources required to provide the necessary skills to those personnel tasked with various duties involving bulk fuel offloading and training materials will be developed and implemented as necessary to ensure employees can safely and effectively conduct their work. Employees involved in fuel tanker offloading operations are required to review this Procedure and sign a training sheet documenting they have read the procedure. In addition, personnel involved in fuel tanker offloading operations receive specific on the job training as necessary in activities such as transfer hose placement, routing and monitoring, shore tank preparedness, emergency communication signals, and emergency shut down of fueling procedures. Training records for all formal training are maintained onsite and will be made available as requested.

Revisions to the Fuel Tanker Offload to Shore Tanks – Milne Inlet procedure and associated emergency plans will be made as warranted and appropriate updates to training programs will be developed and implemented.

11 OIL POLLUTION PREVENTION PLAN UPDATES

The OPPP will be reviewed at least once a year to take into consideration any amendments of applicable legislation, new characteristics of the site, available equipment, new policies, environmental issues and current staff. Furthermore, following an exercise or an incident, the OPPP will be evaluated and modified accordingly.

Even if there is no change to be brought to the OPPP 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 the team at the site always has an updated version of the plan in case their intervention is needed.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	Page 28 of 32
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

11.1.1 UPDATE REGISTRY

The OPPP 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 header of each page of the Plan. If amendments result in a reprinting, all old versions of the Plan shall be recalled and destroyed accordingly.

11.1.2 PLAN DISTRIBUTION

In addition to distribution within Baffinland Iron Mines, all modified versions of the Plan will be submitted to Transport Canada.

11.1.3 CONTACT LISTS

11.1.3.1 INTERNAL CONTACTS

Position	Name	Phone# T: +1 647 253 0596
President/Chief Executive Officer	Brian Penney	Ext 5038 C:416-427-6907
Chief Operating Officer	Sylvain Proulx	Ext 6091 C:416-970-6983
Chief Financial Officer	Fernando Ragone	Ext 5086 C:416-904-0439
Chief Procurement Officer	Mark Scherer	Ext 5098 C:416-553-0062
Executive Vice President Corporate Development	Stephanie Anderson	Ext 5001 C:416-200-6744
Executive Vice President, General Counsel	Mark O'Brien	Ext 5114 C:416-364-8820
Vice President Corporate Sustainability	Megan Lord Hoyle	Ext 5050 C:416-346-4533
General Manager	Martin Beausejour Francois Gaudreau	Ext 6088 C:647-268-9578 Ext 6072 C:416-704-9053
Mine Manager – Mine Operation	Simon Fleury	Ext 6099 C:289-937-9699
Mine Superintendent	Ben Emery Tim Nehring	Ext 6044 C:289 834 2422 Ext 6044 C:709-693-4548

Site Services/Road maintenance Manager	Shawn Parry	Ext 6057 C:416-209-6444
Site Services Superintendent	James Martin Norm Hilliard	Ext 6886/6002 C:647-709-3465 Ext 6002/6892
Road Maintenance Superintendent	Remi Pelletier Ryan Edwards	Ext 6705 C:416-919-1735 Ext 6275 C:289-795-8974
Manager Site Coordination, Supply & Logistics	Deon Pope	Ext 6009 C:905-483-0261
Port & Logistics Superintendent	Michael Sullivan Andrew Esak	Ext 4115 C:289-834-0930 Ext 4115 C:647-456-1131
Mobile Maintenance Manager	Lee Dixon	Ext 6038 C:416-526-7785
OHT & Shiploading Manager, Operations	Sangjin Yun	Ext 4156 C:647-278-4842
Ore Handling Superintendent	Lyle Hemmerling Drew Blais	Ext 6106 C:289-795-8689 Ext 6106
Shiploader Superintendent	Raymond Poulin Matthew Mayo	Ext 4081 C:647-580-8428 Ext 4712 C:365-292-1537
Director Corporate Human Resources Manager	Annu Sira	Ext 5083 C:416-433-6261
Manager of Human Resources & Labour Relations	Jason Brown	Ext 5119 C:289-218-5650
Senior Director of Health, Safety, Environment, Security and Training	Tim Ray Sewell	Ext 5054 C:647-828-3432
Manager of Health, Safety, Environment and Security	Shawn Stevens	Ext 6006 C:416-579-8524
Health, Safety and Security Superintendent	Jeff Jamieson Joe Nicholson	Ext 6115 C:365-773-4103 Ext 6891 C:365-292-5821
Environmental Superintendent	Connor Devereaux	Ext 6016 C:647-456-9067
Health and Safety Coordinator – Milne Port	Darryl Finlay Wayne LeDrew	Ext 4122 Ext 4153

Health and Safety Coordinator – Mary River	Mario Vottero Blaine Taylor Doug Sulliman Michael Casey	Ext 6707 Ext 6052 Ext 6081 Ext 6798
Emergency Response Team Trainer	Steve Janknegt Kyle Hewey Chris MacDonald Dean Metzler	Ext 4048 Ext 4047 Ext 6145 Ext 6117
Primary Incident Command Centre – Mine Site		Ext 6078 Conference Phone Ext 6074 Desk Phone
Primary Incident Command Centre – Port Site		Ext 4902 Conference Phone Ext 4905 Desk Phone
Secondary Incident Command Centre – Sailiivik Camp H102		Ext 6078 Conference Phone Ext 6074 Desk Phone
Secondary Incident Command Centre – Port Site		Ext 4904 Conference Phone Ext 4906 Conference Phone
Mary River Fire Hall		Ext 6882
Milne Port Fire Hall		Ext 4098
Physician Assistant - Mine		Ext 6008
Physician Assistant - Milne		Ext 4107


* To reach an extension dial 647-253-0598 followed by the extension, unless otherwise noted by a phone number

11.1.3.2 EXTERNAL CONTACTS

Y – Required	N – Not Required							M – More information required to determine reporting **refer to notes	
	Serious Injury	Fatality	Fire	SAR	Dangerous Occurrence	Spill – Reportable	Spill or Anticipated Spill - Ocean	Telephone/Fax Numbers	
Workplace Safety and Compensation Commission (WSCC)									
24 – hour phone line Mines Inspector Chief Mines Inspector	Y	Y	Y	N	Y	N	N	(800) 661-0792 (24hr) (867) 979-8527 (867) 669-4430	
Royal Canadian Mounted Police									
Iqaluit – Headquarters Iqaluit Arctic Bay Clyde River Hall Beach Pond Inlet Igloolik	N	Y	Y	Y	N	M ₁	M	(867) 975-4409 (867) 979-0123 (867) 439-0123 (867) 924-0123 (867) 928-0123 (867) 899-0123 (867) 934-0123	
Spill Reporting									
Qikiqtani Inuit Association (QIA)	Y	Y	Y	Y	M	Y	Y	(867) 975-8422	
NT-NU 24-hour Spill Report Line	N	N	N	N	N	Y	Y	(867) 920-8130	
CIRNAC Water Resources Division	N	N	N	N	N	Y	Y	(867) 222-9278	
CIRNAC-Field Operations								(867) 975-4295	
DFO-Iqaluit	N	N	N	N	N	Y	Y	(613) 925-2865 Ext. 131	
Environment Canada - Iqaluit								(867) 975-4644	
GN- DOE								(867) 975-5907	
Nunavut Emergency Services						M ₁	M	1-800-693-1666	
Canadian Coast Guard (Arctic region)							Y ₃	1-800-265-0237 (24-hr)	
Medical Services									
Medical Director – Advanced Medical Solutions (Dr. Rahul Khosla)	Y	Y	N	N	N	N	N	(867) 445-7225	
VP Medical Operations – Kara Livy	M	M						(867) 446-2000	
Qikiqtani General Hospital – Iqaluit Emergency Room	Y ₂							(867) 975-8600 ext. 1539	
Pond Inlet Health Clinic								(867) 899-7500 (867) 899-7538 (fax)	
Iqaluit								(867) 975-4800 (867) 975-4830 (fax)	
Igloolik								(867) 934-2100 (867) 934-2149 (fax)	
Hall Beach								(867) 928-8827 (867) 928-8847 (fax)	
Arctic Bay								(867) 439-8816 (867) 439-8315 (fax)	
Clyde River								(867) 924-6377 (867) 924-6244 (fax)	

Y – Required	N – Not Required						M – More information required to determine reporting **refer to notes	
	Serious Injury	Fatality	Fire	SAR	Dangerous Occurrence	Spill – Reportable	Spill or Anticipated Spill - Ocean	Telephone/Fax Numbers
Transport Canada								
National 24-hour Number Duty officer Canadian Transportation Emergency Centre								(613) 996-6666 (24hr) (613) 954-5101 (fax) (613) 996-9439 (fax)
Search and Rescue								
Nunavut Emergency Services								1 800 693-1666 (24hr) (867) 975-5403
RCMP								
Joint Rescue Coordination Centre (CFB Trenton)								(867) 979-1111 1 800 267-7270 (24hr) (613) 965-3870

1. In the event of a spill or an anticipated spill of hazardous materials (exceeding the quantities listed in Part 8.1 (1) of the TDGR) during transport, the shipping company will immediately report the incident to the RCMP and the Nunavut Emergency Services. The immediate report must include as much of the information listed in Part 8.2, TDGR, as is known at the time of the report. A follow-up report must be made, in writing, to the Director General within 30 days after the occurrence of the accidental release, the "dangerous goods accident" or the "dangerous goods incident". The follow-up report must include the information listed in Part 8.3, TDGR.
2. In the event of an injury requiring Baffinland provided evacuation to Government of Nunavut (GN) Health Services or GN provided Medevac (air ambulance medical evacuation) the on-site medical professional shall contact the Emergency Department at the Qikitqani General Hospital in Iqaluit. The protocols provided in Appendix D and E of the ERP shall be used in communicating with the GN.
3. Reporting of actual or anticipated marine spills shall be in accordance with Transport Canada Guideline TP- 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 Appendix H of this plan.

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

Appendix A

Sustainable Development Policy, and Health, Safety and Environment Policy

Sustainable Development Policy



At Baffinland Iron Mines Corporation (Baffinland), we are committed to conducting all aspects of our business in accordance with the principles of sustainable development & corporate responsibility and always with the needs of future generations in mind. Baffinland conducts its business in accordance with the Universal Declaration of Human Rights.

Everything we do is underpinned by our responsibility to protect the environment, to operate safely and fiscally responsibly and with utmost respect for the cultural values and legal rights of Inuit. We expect each and every employee, contractor, and visitor to demonstrate courageous leadership in personally committing to this policy through their actions. The four pillars of our corporate responsibility strategy are:

1. Health and Safety
2. Environment
3. Upholding Human Rights of Stakeholders
4. Transparent Governance

Health and Safety

- We strive to achieve the safest workplace for our employees and contractors; free from occupational injury and illness, where everyone goes home safe everyday of their working life. Why? Because our people are our greatest asset. Nothing is as important as their health and safety. Our motto is "Safety First, Always"
- 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, awareness and promoting active courageous leadership. We allow our employees and contractors the right to stop any work if and when they see something that is not safe

Environment

- Baffinland employs a balance of the best scientific and traditional Inuit knowledge to safeguard the environment
- We apply the principles of pollution prevention, waste reduction 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 more sustainable practices. We strive to develop more sustainable practices
- Baffinland ensures that an effective closure strategy is in place at all stages of project development to ensure reclamation objectives are met

Upholding Human Rights of Stakeholders

- We respect human rights, the dignity of others and the diversity in our workforce. Baffinland honours and respects the unique cultural values and traditions of Inuit
- Baffinland does not tolerate discrimination against individuals on the basis of race, colour, gender, religion, political opinion, nationality or social origin, or harassment of individuals freely employed
- Baffinland contributes to the social, cultural and economic development of sustainable communities in the North Baffin Region

Sustainable Development Policy




- 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
- We expect our employees and contractors, as well as community members, to bring human rights concerns to our attention through our external grievance mechanism and internal human resources channels. Baffinland is committed to engaging with our communities of interest on our human rights impacts and to reporting on our performance

Transparent Governance

- Baffinland will take steps to understand, evaluate and manage risks on a continuing basis, including those that may impact the environment, employees, contractors, local communities, customers and shareholders.
- Baffinland endeavours to 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 safety, health, environmental, socio-economic commitments and set annual targets and objectives.
- Baffinland conducts all activities in compliance with the highest applicable legal & regulatory requirements and internal standards.
- We strive to employ our shareholder's capital effectively and efficiently and demonstrate honesty and integrity by applying the highest standards of ethical conduct.

A handwritten signature in black ink, appearing to read "Brian Penney".

Brian Penney
Chief Executive Officer
March 2016

	Health, Safety and Environment Policy	Issue Date: May 3rd, 2019	Page 1 of 4
	Company Wide	Revision: 3	Document #: BAF-PH1-800-POL-0001

Baffinland Iron Mines Corporation

Health, Safety and Environment Policy

BAF-PH1-800-POL-0001

Rev 3

Approved by: Brian Penney

Title: Chief Executive Officer

Date: May 3rd, 2019

Signature: 

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 Baffinland	Health, Safety and Environment Policy	Issue Date: May 3rd, 2019	Page 3 of 4
	Company Wide	Revision: 3	Document #: BAF-PH1-800-POL-0001

This Baffinland Iron Mines Corporation Policy on Health, Safety and Environment is a statement of our commitment to achieving a safe, healthy and environmentally responsible workplace. We will not compromise this policy for the achievement of any other organizational goals.

We implement this Policy through the following commitments:


- Continual improvement of safety, occupational health and environmental performance
- Meeting or exceeding the requirements of regulations and company policies
- Integrating sustainable development principles into our decision-making processes
- Maintaining an effective Health, Safety and Environmental Management System
- Sharing and adopting improved technologies and best practices to prevent injuries, occupational illnesses and environmental impacts
- Engaging stakeholders through open and transparent communication.
- Efficiently using resources, and practicing responsible minimization, reuse, recycling and disposal of waste.
- Reclamation of lands to a condition acceptable to stakeholders.

Our commitment to provide the leadership and action necessary to accomplish this policy is exemplified by the following principles:

- As evidenced by our motto “Safety First, Always” and our actions Health and Safety of personnel and protection of the environment are values not priorities.
- All injuries, occupational illnesses and environmental impacts can be prevented.
- Employee involvement and active contribution through courageous leadership is essential for preventing injuries, occupational illnesses and environmental impacts.
- Working in a manner that is healthy, safe and environmentally sound is a condition of employment.
- All operating exposures can be safeguarded.
- Training employees to work in a manner that is healthy, safe and environmentally sound is essential.
- Prevention of personal injuries, occupational illnesses and environmental impacts is good business.
- Respect for the communities in which we operate is the basis for productive relationships.

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	Health, Safety and Environment Policy	Issue Date: May 3rd, 2019 Revision: 3	Page 4 of 4
	Company Wide	Document #: BAF-PH1-800-POL-0001	

We have a responsibility to provide a safe workplace and utilize systems of work to meet this goal. All employees must be clear in understanding the personal responsibilities and accountabilities in relation to the tasks we undertake.

The health and safety of all people working at our operation and responsible management of the environment are core values to Baffinland. In ensuring our overall profitability and business success every Baffinland and business partner employee working at our work sites is required to adhere to this Policy.



Brian Penney
Chief Executive Officer
May 2019

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

Appendix B
Milne Port Site Layout



SAVED: C:\Users\kellie\OneDrive\Documents\4 - ImpactReporting\1_Areals\SVAMP\2021\BIM - Fig 1 MilnePort SNP.mxd; 24-Mar-21

LEGEND

- Foreshore Lease Boundary
- Project Development Area
- Commercial Lease Boundary
- Borrow Area
- Quarry Area
- Infrastructure
- Drainage Direction
- SNP Monitoring Station**
- Active
- Inactive

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MARY RIVER PROJECT

**Milne Port Drainage and Water Licence
Monitoring Stations**


Projection: NAD 1983 UTM ZONE 17N.
Base Map: © 2020 Digital Global, Inc.
Imagery and Infrastructure are representative
as of August 2020.

0 25 50 100 150 200 Meters
Scale 1:8,000

N

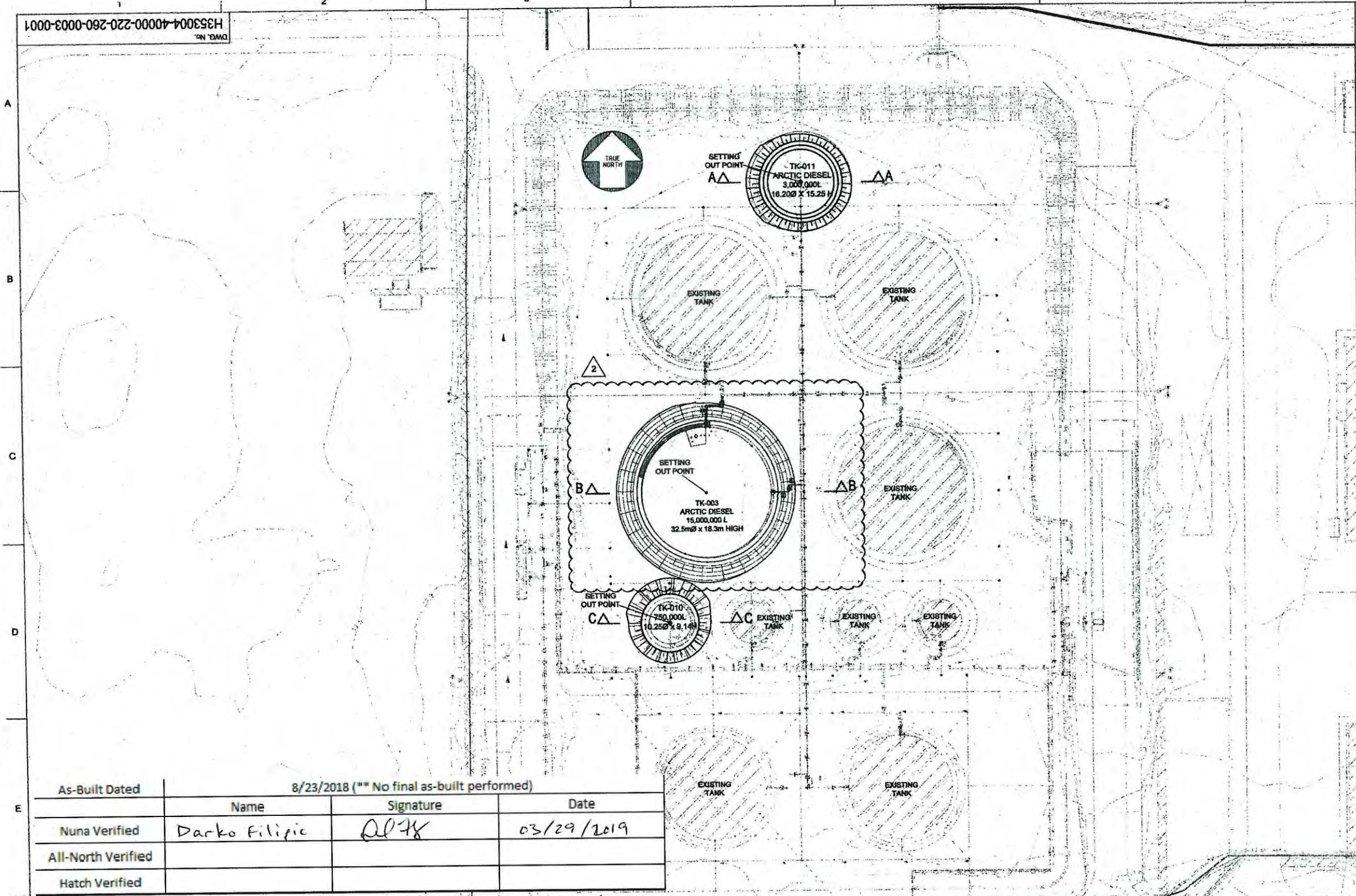
Baffinland

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FIGURE 1

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

Appendix C

Milne Port Fuel Storage Facility Layout



MATERIAL VOLUMES:

CRUSHER FINES MATERIAL (-2mm) = 180m³
 FILL MATERIAL (TYPE 5) = 3822m³
 TOTAL FILL MATERIAL REQUIRED = 3982m³

TOTAL SURFACE AREA = 2490m²

TANK EARTHWORKS SETTING OUT POINT (CENTRE OF TANK)

TANK No.	N	E	TANK PERIMETER LEVEL (EL)
TANK 011	7978273.168	509641.393	11.95
TANK 003	7978198.948	503817.533	12.55 12.45
TANK 010	7978184.948	503808.208	12.30

NOTES:

- LIDAR SURVEY PROVIDED BY PHOTSAT (2016)
- COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METERS.
- CONTOURS ARE IN METERS. CONTOUR INTERVAL IS 0.5m.
- FOR TYPICAL CROSS SECTIONS REFER TO DRAWING No. H353004-40000-220-273-0001-0001

Tank Pad 003 final grade was laid out by All-North survey and spot elevations were picked up for quantity purposes. Final grading was done using a laser level to achieve consistent elevation of 12.45m all around the perimeter.

No final as-built by survey to confirm grades was able to be performed before Tank building contractor began placing base plates for the Tank-003.

As-Built Dated 8/23/2018 (** No final as-built performed)

Name	Signature	Date
Nuna Verified Darko Filipic	<i>[Signature]</i>	03/29/2019
All-North Verified		
Hatch Verified		



PERMIT TO PRACTICE
 HATCH LTD.
 Signature: *[Signature]*
 Date: 2018-02-22
 PERMIT NUMBER: P 512
 The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

FOR CONSTRUCTION

HATCH

Baffinland

BAFFINLAND IRON MINES LP
 MARY RIVER EXPANSION PROJECT


MILNE PORT
 FUEL TANKS 003, 010 & 011 SETTING OUT
 EARTHWORKS

NAME	SIGNATURE	ENG REG NUMBER	REVISION DATE	ORIGINAL DATE	REG. PROFESSIONAL	DESCRIPTION	BY	CHK'D	DATE	ROLE	NAME	SIGNATURE	DATE
			2	15M DIESEL TANK ADDED			IHB	RG	13/02/2018	AREA MANAGER	V LAVRIC		2018-02-22
			1	APPROVED FOR CONSTRUCTION			KT	MB	21/08/2017	PROJ. MANAGER	D STANGER		2018-02-22
			0	APPROVED FOR CONSTRUCTION			FH	MB	30/06/2017	CLIENT			

DRAFTSPERSON	DESIGNER	CHECKER	DESIGN COORD.	RESP. ENG.	LEAD DISC. ENG.	AREA MANAGER	PROJ. MANAGER	CLIENT
K TEFFU	F HUGO	F HUGO	R GOOSEN	R HALIM	A GROBBELAAR	V LAVRIC	D STANGER	

SCALE: 1:500 OR AS NOTED
 DWG. No. H353004-40000-220-260-0003-0001
 REV 2
 SHEET SIZE: D

REFERENCE DRAWINGS

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

Appendix D

Fuel Tanker Offload to Shore Tanks Procedure

	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 1 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

Baffinland Iron Mines Corporation

Fuel Tanker Offload to Shore Tanks- Milne Inlet

BAF-PH1-310-PRO-0011

Rev 5

Prepared by: Deon Pope
Department: Port and Logistics
Title: Port and Logistics – Senior Superintendent
Date: March 1, 2019
Signature:

Approved by: Francois Gaudreau
Department: Operations
Title: General Manager
Date: March 1, 2019
Signature:

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 3 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

TABLE OF CONTENTS

1	PURPOSE	5
2	SCOPE.....	5
3	REQUIREMENTS.....	5
3.1	Documents/Permits.....	5
3.1.1	Vessel Contractor Required Documents.....	5
3.1.2	Internal Required Documents	5
3.2	Equipment.....	6
4	ROLES AND RESPONSIBILITES.....	6
5	DEFINITIONS.....	7
6	PROTOCOL.....	7
6.1	Ship Arrival.....	7
6.2	Pre-Transfer Meeting and Communications.....	8
6.2.1	Agreed Fuel Transfer Volume	8
6.2.2	Communications	8
6.2.3	Standard Communications Signals	8
6.2.4	Personnel Safety.....	9
6.2.5	Delay, Cancel or Emergency Shut-Down Conditions	9
6.2.6	Site Emergency Response Roles – Rapid Response System.....	9
6.3	Pre-Transfer Fuel and Tank Verification.....	9
6.4	Transfer Hose Placement	10
6.4.1	TRANSFER HOSE PLACMENT FOR ARCTIC FLEXPING LINE ON LAND	10
6.5	Grounding for Management of Static Electricity	11
6.6	Transfer Area Preparedness.....	11
6.7	Shore Tank Preparedness.....	12
6.8	Fuel Transfer	13
6.9	Hose Monitoring.....	14
6.10	Cease transfer Operations	14

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 4 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

6.11	Fuel Transfer Completion and Hose Disconnection	15
6.12	Fuel Settlement Period	16
7	REFERENCES AND RECORDS	16

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 5 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

1 PURPOSE

To establish a comprehensive standard to ensure all shore preparations, emergency preparedness, equipment and personnel are in place to co-ordinate between Baffinland, the Vessel and Vessel Captain, to offload fuel from ocean going tanker to the Milne Inlet bulk tank farm. This procedure contains all steps involved from vessel mooring, loading hose placement, hose-tank connection, communications, fuel transfer, fuel line monitoring, and hose disconnection to ensure clear instructions are in place to prevent potential incidents from occurring. Environmental and safety measures are addressed throughout the process.

2 SCOPE

This procedure applies to all Baffinland employees, contractors and their employees, alliance partners and visitors during the preparations, offloading operations and completion of bulk fuel offload.

3 REQUIREMENTS

3.1 DOCUMENTS/PERMITS

3.1.1 VESSEL CONTRACTOR REQUIRED DOCUMENTS

Declaration of Readiness
Bulk Oil Loading/Offloading Sequence Checklist
Bulk Oil Check Sheet "A"
Bulk Oil Check Sheet "B"
Oil Pollution Prevention Regulations and Sequence Check Sheet
Hose Hydrostatic Test Certifications
Arctic Waters Transfer/Discharge Certificates
Pre-delivery Spill Equipment Verification Checklist

3.1.2 INTERNAL REQUIRED DOCUMENTS

Assigned Roles and Responsibilities Schedule (Appendix A)
Pre-Transfer Equipment Checklist (Appendix B)
Baffinland Bulk Fuel Offloading Sequence Checklist (Appendix D)
Tanker certifications/registrations

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 6 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

3.2 EQUIPMENT

As the tank fuelling procedure may require long periods of monitoring, all personnel will be dressed in appropriate clothing for the weather conditions. Appropriate PPE will be worn as per Baffinlands PPE requirements.

General equipment requirements should be assessed well in advance of the fuel offload to rectify any deficiencies. Verification should be documented on the Pre-Transfer Equipment Requirements Checklist. (Appendix B). Equipment requirements, in addition to verifying all preparedness and procedural steps, can be documented internally on the Bulk Fuel Off-Loading Sequence Checklist (Appendix D).

4 ROLES AND RESPONSIBILITIES

While it is the responsibility of the Vessel and Vessel Captain to pump the fuel from the ship to the tank with vessel contractor equipment and manpower, the role and Baffinland as the Shore Terminal Operator is to ensure that all advance preparations and contingency resources are in place for the operation, and that communications with the Vessel and Vessel Captain are clear and understood for the entire fueling process. The major roles involved and numbers of individuals per shift required for the operation are outlined below:

FUELING PREPARATION AND OFFLOAD OPERATION	
Title and Number of Individuals	Responsibility
Vessel Captain or designate	Per Vessel Contractor Bulk Fuel Offloading/Transfer Procedures
Baffinland Shore Representative/Site Manager	To ensure all shore preparations have been completed in advance of arrival of tanker and fuel transfer, proper documentation is sent to Vessel Contractor, volume and transfer procedures are agreed upon, and the necessary assistance is provided throughout the offload process including supervision of shore crews and any stand-by and contingency personnel as needed
Loading Supervisor	Overall operation of offloading. As tanker is being discharged, regular inspections will be conducted, as well as performing volume calculations with tanker at regular intervals.
Pump Operator	Operates, monitors pressures and maintains pump during loading operations,

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 7 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

Tank Farm Helpers	Assist tank farm crew as required. Move hoses as required.
Hose Monitors	To conduct inspections of the entire length of hose and all couplings before and during the fuel transfer process
Vessel Operators crew	Per Vessel Contractor Bulk Fuel Offloading/Transfer Procedures

Stand-By Positions	
Title and Number of Individuals	Responsibility
Flag Persons – Traffic Control	If required flag persons will be deployed to ensure any vehicular/mobile equipment traffic is controlled
Site Emergency Response Team	Available for emergency response. Also in the event of a wildlife emergency requiring intervention, designated response team member will be available.
Medic/PA	On-standby to handle medical emergencies
Heavy Duty Equipment Operator	As required in the event of emergency

Roles and responsibilities will be assigned in advance of the fuel transfer and documented on the Assigned Roles and Responsibilities Schedule (Appendix A). Multiple schedules may be required to ensure all shifts are covered during the entire loading period and take into account contractor and Baffinland site shift changes that may occur over the transfer period.

5 DEFINITIONS

N/A

6 PROTOCOL

6.1 SHIP ARRIVAL

Upon arrival at Milne Inlet and depending on timing of the season, tanker will be either moored by stern of vessel or tied to the ore dock berth. Two stern lines will be ran from the vessel and attached to existing shore restraints if moored at an anchorage point in the inlet. Actual mooring is to be verified with the

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 8 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

Tanker Captain upon arrival with the Baffinland Shore Representative or designate. All Transport Canada Regulations are to be followed. Stern mooring will allow vessel to deploy the shortest possible amount of hose for discharge, as it will negate the requirement for extra lengths to accommodate vessel swing.

6.2 PRE-TRANSFER MEETING AND COMMUNICATIONS

6.2.1 AGREED FUEL TRANSFER VOLUME

Vessel Contractor, Vessel Captain and Baffinland Shore Representative will agree on the volume of product to be transferred and the Maximum flow rate must not exceed 380M³/hr.

6.2.2 COMMUNICATIONS

Baffinland, the Vessel Contractor and Vessel Captain will meet to review the roles, responsibilities and pumping procedures. Warning signals and safety procedures are to be agreed upon by both parties.

Radio communication will be discussed and coordinated as to what channel is to be used, and air horn signals will be agreed upon. All workers participating in the back loading process will be presented with a quick reference sheet for emergency communications.

The horn signal system includes a signal for emergency stop transfer:

- 1. Emergency stop transfer- Constant ringing of the general alarm or series of short blasts by the whistle, sounding of horn or siren.**

As a precaution, in the event of radio communication failure, Baffinland personnel will be instructed in the use of and follow the Vessel Contractor's manual air horn signals. Each shift that is involved with the fuel transfer process will be trained in radio communication, air horn communication and all emergency communications with the Vessel Contractor before going on shift. Refer to Appendix C for a summary of emergency communications to be utilized during the loading process.

6.2.3 STANDARD COMMUNICATIONS SIGNALS

The Vessel Contractor and supervisor of a transfer operation on board a vessel must ensure that the communication signals for the transfer operation include:

- Standby to start transfer,
- Start transfer,
- Slow down transfer,
- Stand by to stop transfer,
- Stop transfer,
- Emergency stop of transfer, and
- Emergency shutdown of transfer.

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 9 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

6.2.4 PERSONNEL SAFETY

Pre-shift meetings will be held for all personnel to review the Standard Operating Procedure relevant to the operation.

6.2.5 DELAY, CANCEL OR EMERGENCY SHUT-DOWN CONDITIONS

Conditions that will prevent or shut down fuelling should be agreed to between the Vessel Contractor, Vessel Captain and the Baffinland Shore Representative. They are as follows:

- There is an electrical storm
- Fire occurs
- Leakage occurs which cannot be stopped
- Product spill (system failure, tank overflow, etc.)
- Conditions develop which jeopardize the mooring of the ship. This includes yarding and other vessel movements that could result in binding or pinching of the fuel hose.
- Other possible issues of human safety or serious environmental concern
- If the vessel is unable to contact Baffinland shore representative in a timely manner.

6.2.6 SITE EMERGENCY RESPONSE ROLES – RAPID RESPONSE SYSTEM

The Vessel Contractor and Baffinland will determine in advance Site Emergency Response Team roles in the event of spill, fire or other emergency.

Prior to starting the pumping process, a Site Emergency Response Team (ERT) will be identified. They must be readily available 24 hours a day while the fuel is being pumped into the tank. The communications channel must remain open and the use of “Code 1” three times will be implemented in the event of an uncontrolled fire or large spill.

There will be 24-hour medical coverage in case of any injuries.

6.3 PRE-TRANSFER FUEL AND TANK VERIFICATION

Prior to any pumping, the tanker must be dipped (Ullage) and volumes to be loaded calculated and verified for the entire product quantity by both Vessel Contractor and Baffinland Shore Representative/Management.

The temperature of the product is measured and recorded.

At this time the JETA must be tested for Electrical Conductivity. The Electrical Conductivity must be tested by a professional fuel surveyor using Method ASTM D2624. If conductivity is found to be lacking, additive must be added to the JetA fuel PRIOR to the discharge from the vessel. The reading suitable for discharge is 50-600Ps/M.

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 10 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

The Vessel Contractor and Vessel Captain will also regularly gauge/check the tanker compartments being filled on a regular basis during the transfer operation.

The length, configuration (number of hoses) and volume of the hose(s) from the ship to the shore manifold is to be agreed upon by both parties and the volume (litres) contained therein calculated.

As well as verification of the vessel volumes the shore tanks must also be verified for volumes and capacity. All shore tanks must be physically dipped prior to the BIM shore rep going aboard for the Pre Transfer Meeting. This will allow the BIM shore representative to accurately set a discharge plan with the Master of the vessel and First Mate. Further to this each tank shall be gauged prior to switching to it during the course of the discharge.

6.4 TRANSFER HOSE PLACEMENT FOR FLOATING LINE ON WATER

The Transfer fuel hose route will be as follows for floating lines:

- The fuel offload floating hose(s) will be running from the ship to the shore manifold located inside the manifold building.
- Hose(s) will be running in such a manner to eliminate heavy lifting and possible damage to the hose(s) from excessive pulling strain.
- Baffinland representative will walk and inspect the transfer hose route between the tank farm and Manifold. Vessel Contractor will monitor the floating hose(s) that runs from shoreline to the ship.
- Baffinland personnel will clear, the agreed transfer hose route, of any sharp objects that would chafe the hose(s). The hose(s) shall follow a clear and unobstructed path.
- Baffinland and Vessel Contractor personal will inspect the pressure-tested and/or certified fuel transfer hose as per their procedures. Each hose is marked with the annual inspection date of testing to 1.5 times the pressure rating of the hose, or documentation of same testing will be provided for each section of hose to be used in the fuel transfer.
- All hose couplings will be locked/ wired shut by Baffinland and Vessel Contractor personnel and Baffinland will wrap the hose couplings that run from the shoreline to the tank farm with oil absorbent pads. Cam-locks may be utilized in conjunction with the above. Drip trays will be placed under couplings for extra protection. Caches of sorbent spill pads will be placed strategically along the hose line for quick access.

6.4.1 TRANSFER HOSE PLACMENT FOR ARCTIC FLEXWING LINE ON LAND

- The fuel offload Arctic flex wing hose will be running from the ship to the shore manifold located inside the manifold building following the traffic route outlines in Appendix E.
- Hose will be running in such a manner to eliminate heavy lifting and possible damage to the hose from excessive pulling strain.

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 11 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

- Hose traffic pattern will be running in avoidance of all vehicle & pedestrian traffic and the route of travel will only be open to authorized personnel only.
- Baffinland representative or delegated contractors will walk and inspect the transfer hose route between the Vessel and Manifold every hour and record in a log book. Vessel Contractor will monitor the hose connection on the Vessel.
- Baffinland personnel will clear, the agreed transfer hose route, of any sharp objects that would chafe the hose. The hose shall follow a clear and unobstructed path.
- Baffinland and Vessel Contractor personal will inspect the pressure-tested and/or certified fuel transfer hose as per their procedures. Each hose is marked with the annual inspection date of testing to 1.5 times the pressure rating of the hose, or documentation of same testing will be provided for each section of hose to be used in the fuel transfer.
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- Ball valves will be inserted along the hose for emergency shutdowns if required.
- Preventers will be installed along the hose to eliminate stored energy.
- Vessel personnel will be station at the fuel manifold 24hrs while discharge is taking place monitoring the flow.
- The hose will be connected to the shore manifold. low pressure alarm will be installed and a pig catcher to accept the pig after completion of discharge.

6.5 GROUNDING FOR MANAGEMENT OF STATIC ELECTRICITY

The Bulk Fuel Tanks are grounded as per engineered drawings.

The fuel transfer hoses are integrally grounded.

Pumping Procedures include identified means to eliminate static to ensure the safety of the process.

6.6 TRANSFER AREA PREPAREDNESS

Required signage and exclusion of specific activities within the fuel transfer area, in accordance with the Bulk Fuel Procedures, will be adhered to.

“Hot work” (welding or cutting) is not permitted anywhere in the area of transfer.

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 12 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

Red flag(s) signifying “Transfer Operation in Progress” will be displayed where transfer operation may intersect with other activities.

“No smoking or open fire” signs will be posted in the vicinity of the hoses and tank farm.

Fire extinguishers will be strategically placed and the ERT Equipment will be positioned in a location easily accessible for deployment.

Appropriately stocked and easily accessible spill response kits will be strategically placed along the hose length within the operations area.

The spill response kits are stored in Sea-cans, which are located at the beach and ready to be deployed in case of a spill on the water. The can contains the following:

- Spill containment booms
- sorbent pads
- skimmer
- bladders
- pump intake and discharge hoses
- first aid kits
- containment berms
- life buoy rings
- Zodiac boat.

A vacuum truck is also available for spills close to shore

Heavy equipment, tarps, shovels, pumps and suction hoses are readily available on site.

Boat operators and boom deployment personnel will be identified and be in readiness in case of a spill on the water.

Fully equipped boats will be made ready with full fuel tanks, ropes, oars, pike poles and any additional required safety gear.

Any special local requirements will be discussed and agreed upon by Vessel Contractor, Vessel Captain and the Baffinland shore representative.

6.7 SHORE TANK PREPAREDNESS

Baffinland representative will prepare the tank farm to ensure it is compatible with the Vessel Contractor hose fittings.

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 13 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

Baffinland Shore Representatives will ensure that connections including pig catcher are attached and locked upon installation. Low pressure warning system will be tested and set to 75 psi.

All valves are to be closed, locked, blind flanged (electric valves will have breakers locked off) except the discharge line valve, that will remain closed and locked, until such time as Vessel Contractor and the Baffinland Shore Representative sign the Baffinland Declaration of Readiness.

This shall include all Pressure relief valves (PRV) valves in the system on both the intake and discharge sides. Failure to do so will prevent the ability to develop proper pressure required for the discharge and will prevent the tanks from equalizing via head pressure through the discharge (outlet) sides.

Upon ensuring that all tank inlet valves are closed and locked and all PRV valves have been closed a pressure test shall be conducted prior to the start of the discharge. This test is to ensure that all valves are properly closed and there is no opportunity for pressure loss during discharge leading to a condition that may require stoppage. This will also ensure that there is no potential for undesired fuel level equalization between tanks due to head pressure forces. The pressure test shall consist of the following steps

- 1) Ensure valve at entry to tank farm is open.
- 2) Ensure all tank valves including PRV's are closed
- 3) Have the vessel start the on board air compressor and build air to 80PSI
- 4) Once 80PSI has been achieved have the manifold building valve opened to allow the pressure to the tanks.
- 5) Have the vessel crew monitor the pressure for a period of 5 minutes to verify the pressure holds at 80PSI.
- 6) During the 5-minute period the BIM tank farm rep. will walk the line to listen and look for any potential issues.
- 7) After 5 minutes without pressure loss the air compressor can be shut down, the air released and the fuel discharge can move forward.

This test is to be completed only after the pressure test from the vessel to the manifold has been completed.

6.8 FUEL TRANSFER

The Vessel Contractor and Baffinland Management will review and sign Oil Pollution Prevention Regulations and Sequence Check Sheet prior to commencement.

If both parties are satisfied that pumping can begin, the valve at the tank is unlocked and opened by the Baffinland designate, who remains at the tank and monitors pump and tank discharge. Baffinland

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 14 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

Designate shall be in contact by radio with the Tanker loading personal and the Hose Line Monitors and are responsible to shut off the supply valve and pump if a leak develops.

Discharge will begin at a slow rate to allow checks to be completed along the length of the hose and at the pump for leaks, and to reduce build-up of static electricity

The Pump gauge is monitored until conditions indicate positive pressure such that transfer speed can be increased.

Rate of flow should remain constant to prevent surges.

Designated Baffinland representatives will walk and monitor the line for leaks and blisters or any other irregularity every hour and this needs to be recorded in the log book.

The Vessel Contractor workboat crew will inspect the portion of hose from the shoreline to the tanker upon commencement of pumping and regularly throughout loading operation. This is performed and recorded every hour.

6.9 HOSE MONITORING

The monitors will not be able to leave their post without someone relieving them. (Coffee, snacks and a warm refuge will be available).

During the night shift, if required, personnel will be supplied flashlights, and light plants will be placed in strategic locations to illuminate the work area.

Workers should be familiar with their surroundings and perform an inspection of the whole area prior to nightfall to ensure tripping hazards are removed.

Bear kits will be provided for all hose monitor teams with air horns, pepper spray and non-flare bear bangers. In the event of a wildlife emergency a Code One Wildlife Alert must be called and the Wildlife Response Team will respond.

In the event of a Nuisance Bear requiring intervention, a licensed, pre-designated standby Bear Response Team member will be deployed and stationed in and around the fuel discharge area.

6.10 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.

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 15 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

6.11 FUEL TRANSFER COMPLETION AND HOSE DISCONNECTION

Volume calculations by tanker crew will be performed on a regular basis and passed on to Baffinland Shore representative for comparison / reconciliation with the product pumped out of the ship and what has been received into the shore tank.

Notice will be given to the tanker officers that loading is nearing completion and that pump should be slowed down. After completion of required quantity to be offloaded pumping will stop; valves will be closed on the tank and documented on the checklist.

The fuel pump will be put in reverse to empty the line/relieve pressure as per pumping procedure.

A pig will then be run through the line from the tanker to the shore tank to sweep the line clean of fuel. The pig will be recovered at the shore manifold fitting.

Upon recovery of the pig the shore representative will close the intake valve on the tanks being filled. The vessel will start their air compressor and charge the hose to approximately 60PSI. When that pressure is reached shore representative will be advised to open the valve incrementally of the last tank being filled to allow the air pressure to push the remaining fuel into the tank. Once the pressure has dropped the valve will once again be closed. This process will be repeated twice more to ensure the lines from the manifold building to the tanks have been emptied of any remaining fuel.

Once this has been completed the Baffinland shore representative will re-open all PRV valves and ensure they are in locked open position.

Drip trays will be placed under couplings as they are disconnected to catch any leakage.

All hoses will be capped and rolled up.

Any minor spills will be immediately cleaned up, soiled material will be disposed of appropriately and equipment put away.

Once the discharge has been safely and completely finished Baffinland shore representative and Inspectorate rep will board fuel vessel for Post discharge meeting, debriefing and exchange of all pertinent documents.

Baffinland and Vessel Contractor will sound all barge tanks and take temperature readings, and will perform volume calculations.

Amount of product transferred will be verified by both parties and all necessary paperwork will be completed.

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	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	Page 16 of 15
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

Vessel lines removed and ship departs.

6.12 FUEL SETTLEMENT PERIOD.

To prevent usage of fuel with particulate there will be a period of time immediately following filling that each tank will not be available to be drawn from. As the tanks at Milne Port tank farm are of varying size the standard shall be based on the largest volume tank.


The readiness for usage cannot be provided unless a period of 1 (one) hour per foot of fuel added in the tank has been allowed for settlement of the new fuel. This period must be registered in bulk oil check sheet "A" or "B" or another specific register.

In all cases a registered validation of settlement times must be transmitted to Site Services Superintendent or his designate, checked and signed by said person prior to unlocking any discharge valve.

At the end of the fuel discharge a completed copy of all registered settlement records must be transmitted to Site Services department by the party responsible for the loading.

7 REFERENCES AND RECORDS

N/A

	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: August 31, 2018 Revision: 3 Review date: August 31, 2019	
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

APPENDIX A


Assigned Roles and Responsibilities Schedule

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ASSIGNED ROLES AND RESPONSIBILITIES SCHEDULE						
Position	Date:					
	Shift #:	Start:	End:	Shift #:	Start:	End:
	Name	Baffinland/ Contractor		Name	Baffinland/ Contractor	
Baffinland Shore Representative/ Site Manager						
Loading Supervisor						
Pump Operator						
Tank Farm Helpers						
Hose Monitors						
Vessel Operators Crew (if stationed on shore)						
Flag Persons-Traffic Control						
Site Emergency Response Team						
Medic/Physician's Assistant						
Heavy Duty Equipment Operator						
Wildlife Response Team Member						
Other						

	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: August 31, 2018 Revision: 3 Review date: August 31, 2019	
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

APPENDIX B

Pre-Fuel Transfer Equipment Requirement Checklist

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PRE-FUEL TRANSFER EQUIPMENT REQUIREMENT CHECKLIST
 For Offload Date: _____

	EQUIPMENT REQUIREMENTS	Checked	Date	Signature
General Personnel Equipment Requirements	PPE, plus PFD's as needed for work			
	Radios – 1 per person			
	Airhorns			
	Bear Kits – 1 per Team			
	Flashlights, spare batteries			
Vessel and Crew Requirements	Mustang Floater Suits or PFD's			
	Small Vessel Safety Equipment			
	Pylons			
Transfer Area Preparedness Equipment	Night Lighting			
	Fire Extinguishers			
	Caches of Absorbent Pads/Sheets along fuel line			
	Drip trays under hose connections			
	Signage – "No Smoking" and "No Hot Work"			
	Sorbent Boom			
	Sorbent Pads			
Spill Response Equipment	Skimmer, bladder, Insta-berm			
	PPE for Spill Responders			
	Heavy Equipment prepared to mobilize			
	Tarps			
	Shovels			
	Pumps			
	Welding equipment			
	Suction hoses			
	Vacuum Truck			

Comments _____

	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: August 31, 2018 Revision: 3 Review date: August 31, 2019	
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

APPENDIX C

Emergency Communications Signals


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EMERGENCY COMMUNICATIONS SIGNALS				
	FLAG SIGNALS BY DAY OR NIGHT		AIR HORN/SHIP'S HORN	RADIO
	WHITE FLAG	RED FLAG		
STAND BY TO START	Moved up and down vertically	-	-	CH. 72 "STAND BY TO START"
START TRANSFER	Moved in circular motions	-	-	"START TRANSFER"
SLOW DOWN	Moved left to right horizontally	-	-	"SLOW DOWN"
STAND BY TO STOP	-	Held stationary	-	"STAND BY TO STOP"
STOP TRANSFER	-	Moved left to right horizontally	-	"STOP TRANSFER"
EMERGENCY STOP	-	MOVED IN CIRCULAR MOTIONS VERTICALLY	1 LONG BLAST	"STOP TRANSFER, STOP TRANSFER"
EMERGENCY START	-	-	2 short blasts	"START TRANSFER, START TRANSFER"

ALL SIGNALS SHALL BE ANSWERED (RETURNED) TO MEAN, "SIGNAL UNDERSTOOD AND CARRIED OUT"

	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: August 31, 2018 Revision: 3 Review date: August 31, 2019
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011

APPENDIX D

Bulk Fuel Off-Loading Sequence Checklist

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BULK FUEL OFF-LOADING SEQUENCE CHECKLIST

	YES	NO	N/A	INITIAL	COMMENTS
Date of Transfer Start:	Start Time:				
Date of Transfer Stop:	Stop Time:				
PRIOR TO FUEL TRANSFER					
Tanker Preparation	Skirted-boom deployed around Barge? (if deemed required) Aluminium boat / Zodiac and applicable required gear present? Tanker dips (gauging) verified? Any contamination present? Temperature of product measured? Bulk Fuel Tank gauged? Fill level calculated as per gauge? Verification of transfer hoses (inspected and certified)? Hose couplings wired/locked shut? Hose couplings wrapped in absorbent pads?				
Tanker Dips / Tank Prep	Drip trays placed under couplings? Spill kits/corncob particulate present along transfer hose line? Spill kits/corncob particulate present at Bulk Fuel Tank? Cam-locks in place on all flanges? Inspect flange bolts to verify line markings that bolts are tight? *Nozzle clearly identified on tank?				
Hose, Couplings and Flanges	Hose attached to tank at Nozzle? All valves closed? Locked? Blinded? In-fill line valve closed and locked? (until Declaration of Readiness signed)				
Nozzles and Valves					

REQUIRED PAPERWORK		YES	NO	N/A	INITIAL	COMMENTS
	Declaration of Readiness					
	Bulk Oil Loading/Offloading Sequence Checklist					
	Bulk Oil Check Sheet "A"					
	Bulk Oil Check Sheet "B"					
	Oil Pollution Prevention Regulations and Sequence Check Sheet					
	Hose hydrostatic test verifications?					
	Any fuel transfer agreements ie: volume?					
	Assigned Roles and Responsibilities Schedule					
	Pre-Fuel Transfer Equipment Requirement Checklist					
	Final volume signoff?					

	Fuel Tanker Offload to Shore Tanks- Milne Inlet	Issue Date: March 1, 2019 Revision: 5 Review date: August 31, 2019	
	Port & Logistics	Document #: BAF-PH1-310-PRO-0011	

APPENDIX E

TRAVEL ROUTE FOR FLEXWING HOSE



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	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

Appendix E

Milne Inlet Bulk Fuel Transfer Operation - Risk Assessment Report



MILNE INLET BULK FUEL TRANSFER OPERATION RISK ASSESSMENT REPORT

April 20, 2020

Table of Contents

Part I. Summary

1. Background
2. Objectives
3. Findings and Recommendations

Part II- Milne Inlet Cargo Operations

1. Approaches and Navigation to Port
2. Cargo Operations

Part III- Description of Milne Port Risk Assessment Project

1. Methodology
2. Likelihood or probability of an event occurring
3. The severity of incidents.
4. Preparation of a library of standard Effects Categories.
5. Risk Library (Risk Propeller)
6. Risk Propeller Systems and Sub-systems
7. Risk Assessment Matrix
8. Risk Mitigation (Recommendations)

Appendices

- Appendix 1- Risk assessment Worksheets

Part I - Summary

1. Background

Milne Port offers generally favorable conditions for bulk cargo . Emergency hose and jettisoning of the hose is rare at this location. The Sealift however is a very unique marine cargo operation which requires competent and experienced crews to successfully handle the challenges.

2. Objectives

The objectives of the Milne Port - Risk Assessment Project were to:

- a) document failure modes and effects;
- b) calculate risk rankings for each failure mode/ effect identified;
- c) assess present levels of risk in the Sealift cargo discharge/transfer activities;
- d) make recommendations if required to mitigate risk reductions to an acceptable level;
- e) develop a plan to implement the recommendations where applicable.

3. Findings & Recommendations

The risk assessment identified 86 failure modes and estimated the effect and risk ranking of each failure mode.

- A risk ranking of ≥ 15 was determined to be high risk, 0 were identified;
- A risk ranking of ≥ 9 was determined to be medium risk-, 0 were identified;

The project team committed to make recommendations to mitigate risk on all failure modes with a risk ranking ≥ 8 . Thus no new recommendations were brought forward at this time. Failure modes of risk ranking < 8 were not examined with a view to reduce risk ranking.

Tide cycles at Milne Port do not present issues such as found in other Nunavik ports and have low impact on the safety of the Milne Port bulk fuel transfer operations. Previous Risk Assessments at other ports have resulted in many recommendations that have been adopted for this port thus reducing Risk Ratings throughout the operation.

Part II – Milne Inlet Cargo Operations

1. Approaches and Navigation to Port

In general, the approach to Milne Port is straight forward by either day or night. Because of the risk of encountering ice it is recommended that the passage from the head of Milne inlet to the seaward approaches to Pond Inlet be made during daylight hours. Draft is no restriction. Water depth is not a problem for the port discharge anchorage.

The water depth prevents the usage of a stern anchor. Mooring using a stern line has been implemented with a permanent structure for attaching the mooring line shoreside having been installed.

While at anchor a slight tidal current of less than 0.5 kts is experienced. The current's set is along the shore line (west to east and east to west) and changes direction with the tide.

2. Cargo Operations

The discharge operation at Milne inlet is similar to other cargo discharge operations in the North. A set of anchors and drums is used to secure the hose as in other northern discharges. Hose operations should be started about 1 ½ hour before High water. Hose retrieval must also take place near High water in order to assure that there is sufficient water for the motor boat to operate close to the beach.

Baffinland have developed concise bulk fuel transfer procedures and these are reviewed annually in cooperation with Petro-Nav. These procedures establish a comprehensive standard to ensure all shore preparations, emergency preparedness, equipment and personnel are in place to co-ordinate between Baffinland, the Vessel and Vessel Captain, to offload fuel from ocean going tanker to the Milne Inlet bulk tank farm. This procedure contains all steps involved from vessel mooring, loading hose placement, hose-tank connection, communications, fuel transfer, fuel line monitoring, and hose disconnection to ensure clear instructions are in place to prevent potential incidents from occurring. Environmental and safety measures are addressed throughout the process.

Part III- Description of Milne Port Risk Assessment Project

1. Methodology

The Milne Inlet - Bulk Fuel Transfer Risk Assessment is based Petro-Nav developed risk assessment methodology which has been standardized for several Arctic ports of call. This risk analysis includes a wide range of subsystems pertaining not only to port operations but also vessel management, navigation, crewing and many other elements. The risk assessment for the purposes of this project are limited to subsystems relating to the cargo operations and vessel mooring only, both of which are the elements pertinent to the actual bulk fuel transfer at the Milne Inlet Oil Handling Facility.

A Failure Mode Analysis type Risk Assessment was therefore carried out on the Milne Port cargo discharge operation. This involved identification of potential failure modes and their effects, then risk ranking the failure mode in terms of probability and severity. Existing controls in place to reduce the severity or probability of each failure mode are identified.

2. Probability

Probability of an incident or event occurring is detailed below and is based on a 4-month Arctic season.

	Probability Categories	Occurrences per season*	Return Period
5	Almost certain	>10	Weekly or less
4	Likely	1-4	Monthly
3	Moderate	1	Each season
2	Unlikely	0.1-0.9	1-10 seasons
1	Rare	0-0.09	>10 seasons

* 4 month shipping season: July-October.

3. Severity

Severity of incidents has been calculated using the following criteria:

- P = People
- A= Assets
- E=Environment
- R=Reputation

	Severity Categories		Operational Consequence Categories
1	Insignificant	P A E R	No Human impact No monetary loss, business as usual No damage or change to environment No client rapport harm or public concern
2	Minor	P A E	Minor injury/illness Loss up to 25k\$--business interruption < 1 day Minor local environmental effect

			R	Slight client rapport harm, some local public concern & media attention
3	Moderate		P A E R	Lost time < 1 day/ restricted work case Loss of 25k\$ to 100k\$--business interruption (1day -1 week) Local effect damaging environment-no long term effect Client rapport harmed ,local media/political attention with potential adverse affects for company
4	Major		P A E R	Lost time > 1 day, action by Workmen Compensation Loss of 100k\$ to 1M\$/ business interruption 1 week - 1 month Severe damage, extensive measures required to restore environment Potential loss of client, regional public/political concern/ adverse stance of local gov't and action groups
5	Catastrophic		P A E R	Permanent disability, terminal illness, fatal injury. Loss > 1M\$/business interruption > 1 season Persistent damage over large area, loss of commercial or recreational use Loss of client, national public concern, Extensive adverse attention in Nat'l media/ regional or national policies with potentially restrictive measures / mobilization of action groups

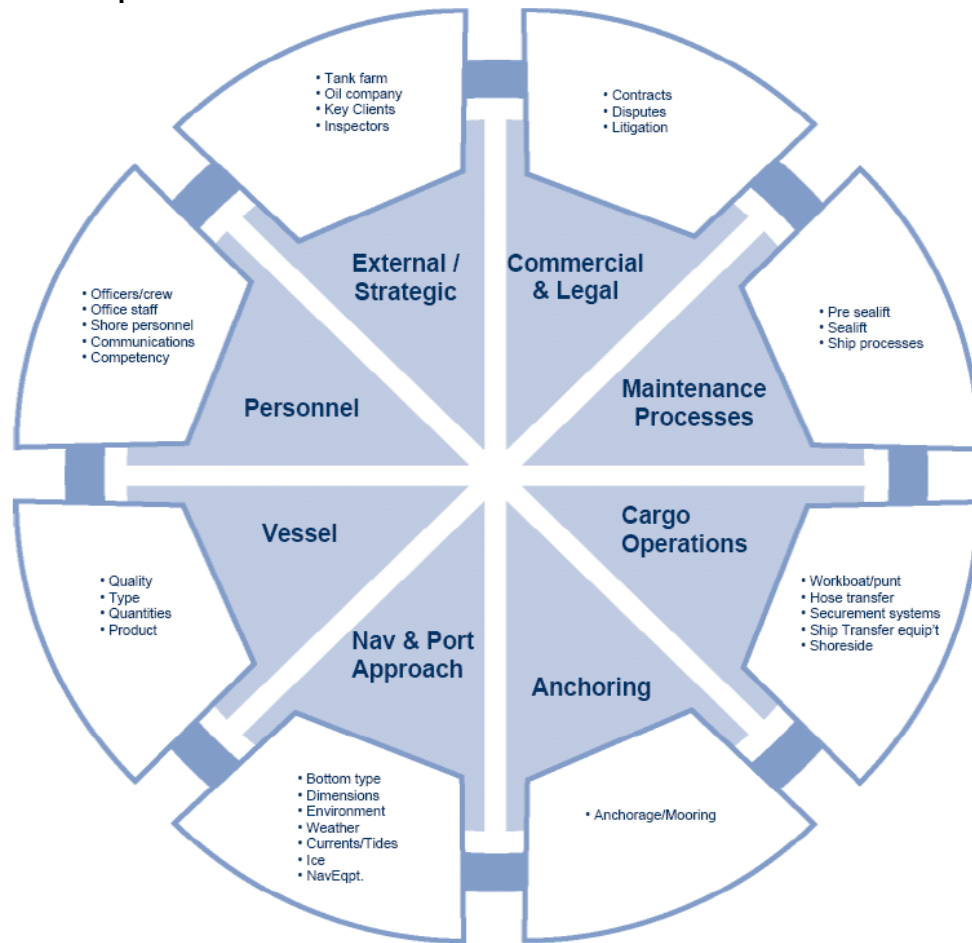
4. Effects Categories

The effects categories below was developed by detailing specific effects resulting from a failure mode and assigning a standard severity (or in cases, a range a severity levels)

Effects Categories: Port Risk Assessment

Category	Description	Severity
Operational Delay	1-2 tide cycles	2
Business interruption	Cannot complete port call	3
Coupling Leak	Less than 1 litre	2
Coupling Leak with environmental impact	10 litres to 20m3	3-4
Hose rupture	Less than full hose 8-10m3	4
Pumped release with environmental impact	Greater than 1 hose full >10m3	4
Grounding and cargo tank release	>400m3, <1000m3	5
Collision/striking & cargo tank release	>150m3, <500m3	5
Total loss/ catastrophic release	Entire vessel	5
Human injury	Minor injury to broken bone	2-4
Human Injury or death	catastrophic	5
Damage with environmental impact	Scenario related	3-4
Ship Damage	Tripped frames to holed	3-4
Tank farm overflow	Product escapes via tank vent	2-3
Tank farm release	Due to pig or exceed pumping rate (oil in water)	3
Equipment damage	Equipment dependent	2-4
Oil spill release event	Product and quantity dependent	2-4
Litigation cost/fines	Nature of fine or AMP	2-4
Grounding and bunker release	1m3-100m3 HFO	5
Collision/striking & bunker release	1m3-100m3 HFO	5
Cargo contamination	Product in wrong tank-tank farm	3-4

5. Risk Propeller



The risk propeller is a simple visual method to track the risks that are posed to personnel, vessel, company and clients. Utilizing the risk propeller worksheets were developed documenting failure modes, their effects, risk ranking, and existing controls to mitigate against risk in the following systems and subsystems . See Appendix 1 for the Risk Assessment Worksheets

6. Risk Propeller Systems and Subsystems

System 1	Personnel
Subsystem	<ul style="list-style-type: none"> 1 Officers-Crew 2 Office Staff 3 Communication 4 Competency

System 2	Vessel
Subsystem	<ul style="list-style-type: none"> 1 Quality 2 Quantities 3 Products

System 3	Navigation Port Approach
Subsystem	<ul style="list-style-type: none"> 1 Bottom Type

	2	Dimensions
	3	Environment
	4	Weather
	5	Currents-Tide
	6	Ice
	7	Equipment
	8	Communication
System 4	Anchoring, Berthing	
Subsystem	1	Anchorage-Mooring
System 5	Cargo Operations	
Subsystem	1	Workboat & punt
	2	Hose transfer equipment
	3	Strain relief and securement systems
	4	Vessel cargo transfer systems
	5	Shore side
System 6	Maintenance, Ship processes	
Subsystem	1	Pre-sealift maintenance
	2	Sealift maintenance
	3	Ship processes
	4	Competency
System 7	Commercial and Legal	
Subsystem	1	Contracts
	2	Disputes
	3	Litigation
System 8	External-Strategic	
Subsystem	1	Tank farm operator
	2	Oil Company
	3	Key Clients
	4	Inspectors

The joint Petro-Nav/Baffinland risk assessment addresses the cargo operations and vessel mooring elements and subsystems only. The other subsystems are beyond the scope of this assessment.

7. The Risk Assessment Matrix

The risk ranking of each failure mode was plotted on the Risk Assessment Matrix. The risk ranking is the product of probability of the occurrence of a given undesired hazardous event (incident) by the severity of the respective consequences. Each failure mode was plotted on the risk matrix. The following ranking system developed after reviewing the risk ranking of each failure mode:

Risk ranking	Treatment
1-4	Managed by regular on board operations
5-8	Monitored and managed by Master and vessel crew

Risk ranking	Treatment
9-12	Monitored and assessed by Master and shore staff 3 Yellow events =Shut Ops Down—No Go
13-25	Transfer Risk(shut down) until mitigation is effective---- No Go

Risk Ranking

i) High Risk AFI's ≥ 15

High Risk failures or AFI's are coloured red in the matrix and should be considered as NO GO SITUATIONS until the risk ranking can be reduced by implementing a strategy to mitigate either the probability or severity (or both) of an incident.

ii) Medium Risk AFI's ≥ 9

Medium Risk failures or AFI's are coloured yellow in the matrix and should be considered as a situation where caution and vigilance are required and efforts should be made to reduce the risk ranking out of the yellow zone into the green or blue zone. The vessel Master and office will have to work together to reduce the risk ranking. Three or more yellow AFI's = a red AFI and should be considered as a NO GO SITUATION until the risk ranking can be reduced by implementing a strategy to mitigate either the probability or severity (or both) of an incident

iii) Low Risk AFI' ≥ 5

Low –medium risk AFI's are coloured green on the matrix . In the risk assessment project we have made recommendations to reduce all failure modes of Risk Ranking 8 or above. In general sealift operations an AFI falling in this zone should be managed by the vessel Master

iv) Lowest Risk AFI's ≤ 4

Low risk AFI's are coloured blue in the matrix and can in general be dealt with by the vessel Master and Crew with vessel procedures

Failure Mode Ranking

A total of 80 failure modes or AFI's (Areas for Improvement) were indicated on the matrix with none being identified in the High Risk or Medium Risk Zones (**0% of the total**).



Part V - Review and Implementation of Recommendations

As noted, no Risk Ratings in the medium or high category were noted for this Port. Therefore, no new recommendations or controls are recommended at this time.

Petro-Nav and Baffinland Iron Mines are committed to constant improvement and reduction of risks as an ongoing management principle. Tankers in the Petro-Nav fleet maintain a high level of training and thorough standardized operating procedures that are reviewed on an ongoing basis.

Baffinland Iron Mines maintain an Oil Pollution Prevention Plan (OPPP) and Oil Pollution Emergency Plan (OPEP) which are both reviewed annually.



APPENDICES



APPENDIX 1

RISK ASSESSMENT WORKSHEETS

Reference	Workshop reference	Failure Modes	Effects	Current Controls	Risk Rating		
					S	L	RR
1	1.1.1.1	Insufficient personnel are available for transfer operations exacerbating crew vigilance, leading to human error and potential for oil spill.	1. damage with environmental impact	1. extended shift arrangements 2. fly in additional crew 3. Improved automation to reduce demands on existing crew 4. If required, shut down cargo operations after crew has worked 16 hours to ensure correct hours of work and rest	3	2	6
2	1.1.2.1	Crew fatigue, failure to comply with rest period requirements & fatigue management sets up a potential for spill event and/or human injury.	1. human injury	1. work/rest cycles - Fed-TC 2. If crew circumstances warrant - suspend operations during hours of darkness or after 16 hours.	2	2	4
3	1.1.2.2	Crew fatigue, failure to comply with rest period requirements & fatigue management sets up a potential for spill event and/or human injury.	2. damage with environmental impact	see 1.1.2.1	2	2	4
4	1.1.3.1	Crew incident occurs during personnel transfer between vessel and workboat, failure to use full safety gear & PFDs no watch person in attendance, leads to injury, investigation, fines and operational delay	1. human injury	- Pilot ladder - Gangway - Deck & bridge watch - Lighting - PPE - Fall arrestors used with training provided - Boarding on leeward side - Ensure no clutter in boarding area	2	1	2
5	1.1.3.2	Crew incident occurs during personnel transfer between vessels, failure to use full safety gear & PFDs no Master/OTS in attendance, leads to injury, investigation, fines and operational delay	2. operational delay	See 1.1.3.1.	1	1	1
6	1.1.6.1	Spill response protocols coordinating ship and shore personnel are not adhered to and thus spill impacts escalate.	1. damage with environmental impact	1. spill response exercises 2. Spill response meeting with client to agree upon emergency measures.	3	2	6

Reference	Workshop reference	Failure Modes	Effects	Risk Rating			
				Current			
7	1.2.1.1	Individuals are not accountable for their respective tasks and/or responsibilities. Accordingly, oil transfer procedures are not respected, resulting in potential delays.	1. operational delay	- PNI supervises equipment maintenance so equipment is ready for use - Key meeting with client prior to discharge - PNI procedures and training for critical tasks implemented extensively	2	2	4
8	1.3.1.1	Misunderstanding in verbal commands, failure to establish common language between shore and vessel before commencing operations causes a release incident, environmental impact, investigation and fines.	1. pumped release with environmental impact	1. key meeting (pre-transfer) & Arctic water checklist and back up signals reviewed 2. low pressure alarm 3. discharge orders are repeated back 4. PNI Operations Manual	4	1	4
9	1.3.1.2	Misunderstanding in verbal commands, failure to establish common language between shore and vessel before commencing operations causes a release incident, environmental impact, investigation and fines.	2. cargo contamination	1. key meeting (pre-transfer) & Arctic water checklist 2. low pressure alarm 3. discharge orders are repeated back 4. Experienced Arctic crew onboard	3	1	3
10	1.3.2.1	Misunderstanding of backup signals between vessel crew members sets up an overfill event with environmental impact, investigation and possible fines.	1. tank farm overfill - oilspill release event	1. Petro-Nav guidelines 2. Agreed back up signals key meeting	2	1	2
11	1.3.3.1	Loss of communication between shore and vessel due to hand-held radio failure (i.e. dead batteries and no replacements available) leads to possible delay in oil transfer or a release occurrence.	1. operational delay	1. If in doubt shutdown - AWOTG & Port Manual 2. No. 21 of Ops Manual Presently 3 radios are ashore: 1 at manifold, 2 with client at TK farm 3. Extra radios with chargers	2	1	2
12	1.3.3.2	Loss of communication between shore and vessel due to hand-held radio failure (i.e. dead batteries and no replacements available) leads to possible delay in oil transfer or a release occurrence.	2. tank farm overfill - oilspill release event	In doubt, shut down AWOTG & Port Manual Extra radios with batteries and chargers. Ship & Shore must have same type radios. Emergency signals	2	1	2

Reference	Workshop reference	Failure Modes	Effects	Current	Risk Rating		
				discussed and agreed at key meeting			
13	1.4.3.1.	1.4.3.1 Workboat and deck crews are not vigilant with respect to hose deployment, positioning and need for rapid decoupling depending on the ship's dynamic position. Reaction time is delayed and the hose is tensioned beyond design limits leading to hose rupture and product spillage, resulting in an investigation and fines.	1. hose rupture	2 workboats and crews- oversight by Mate on watch- Mflid watch - Training for workboat crews - Ensure crews follow hours of work & rest, and arrive well rested- - Ensure experienced crew is on board	4	1	4
14	1.4.3.2	Workboat and deck crews are not vigilant with respect to hose deployment, positioning and need for rapid decoupling depending on the ship's dynamic position. Reaction time is delayed and the hose is tensioned beyond design limits leading to hose rupture and product spillage, resulting in an investigation and fines.	2. potential loss of client	see 1.4.3.1	4	1	4
15	1.4.4.1	During night oil transfer, a coupling leak goes undetected leading to significant spilled product accumulation in the waterway, with environmental impact, fines and loss of goodwill.	1. coupling leak with environmental impact	- Refer to Petro-Nav Ops Manual, Section 1 General port guidelines - Hose check is logged hourly or more frequently if situation demands - Visible connections During night (darkness) at Spring tides or if in doubt stop cargo ops. Resume when total length can be inspected - Search lights from shore & boat, supply binoculars to workboat - Low pressure alarm monitored	2	2	4
16	2.1.1.2	Inadequate routine preventative maintenance leads to equipment failure, contravening the owner's quality system, causing major delays, and a possible oil transfer spill incident.	2. damage with environmental impact	- QSSE Manuals - PMS in effect - Routine maintenance - Trends in equipment failure monitored, QA tracking PMS in place	3	1	3

Reference	Workshop reference	Failure Modes	Effects	Current	Risk Rating		
17	2.3.1.1	Without WHIMIS training procedures and the relevant MSDS in place for receipt of diesel, jet fuel, delay in spill response results with heightened environmental risk.	1. damage with environmental impact	- MSDS in place - All BIM Personnel have WHIMIS training	2	2	4
18	2.3.1.2	Without WHIMIS training and the relevant MSDS in place for receipt of diesel, jet fuel, and gasoline a delay in spill response results with heightened environmental risk.	2. human injury	- MSDS in place - QSSE - Deck Ops Manual - Petro-Nav Guides - All BIM Personnel have WHIMIS training	1	1	1
19	2.3.2.1	Gap in transfer procedures results in unsequenced valve or line openings aboard ship.	1. cargo contamination	1. Detailed cargo plans 2. Deck settings by C/O & cross check 3. experienced arctic crews	1	1	1
20	3.4.2.1	An inadequate emergency foul weather plan could delay the oil transfer and lead to environmental impact.	1. operational delay	- PNI guides - Foul weather plan in place for Milne Inlet	2	2	4
21	3.4.2.2	An inadequate emergency foul weather plan could lead to environmental impact.	2. hose rupture	- PNI guides - Foul weather plan in place for Milne Inlet	4	1	4
22	3.4.3.1	Failure to invoke port specific standards and guidelines for the approach and mooring at the offloading facilities during all weather conditions increases navigation uncertainty raising casualty potential and environmental impact.	1. damage with environmental impact	1. Port Manual 2. VCP	3	1	3
23	3.4.3.2	Failure to invoke port specific standards and guidelines for the approach and mooring at the offloading facilities during all weather conditions increases navigation uncertainty raising casualty potential and environmental impact.	2. operational delay	See 3.4.3.1	2	2	4
24	3.4.4.1	Vessel incident during heavy weather; Failure to cease operations when seas/winds are overly rough leads to loss of equipment and the potential for oil spill, and loss of life.	1. oilspill release event	1. VCP, QSSE	2	1	2
25	3.4.4.2	Vessel incident during heavy weather; Failure to cease operations when seas/winds are overly rough leads to loss of equipment and the potential for oil spill, and loss of life.	2. human injury or death	1. Port Manual 2. Experienced Masters observance of good seamanship 3. Foul weather plan for Milne Inlet	5	1	5
26	4.1.1.1	Lack of adequate anchor holding ground during transfer operations leads to vessel drift and subsequent transfer hose failure with product spillage.	1. hose rupture	1. Bridge & deck watches 2. Engines on short notice 3. Anchor position put in electronic chart as overguard event 4. Turning circle input into radar Foul weather is	2	2	4

Reference	Workshop reference	Failure Modes	Effects	Risk Rating			
				Current			
				in guidelines 5. Stern line mooring at Milne is proven and employed each season			
27	4.1.1.2	Lack of adequate anchor holding ground during transfer operations leads to vessel dragging anchor subsequent transfer hose failure with product spillage.	2. operational delay	1. Port Manual 2. Experienced arctic Masters 3. Experienced Arctic personnel 4. Training on op's manual	2	2	4
28	4.1.2.1	Master/OTS fails to properly configure the anchor(s) as per specific Arctic port conditions (wind, currents, ice loads...) and the transfer operation is compromised with potential product spillage, related investigation and business interruption.	1. business interruption	1. Port Manual - Experienced Arctic Masters - Experienced crew	2	2	4
29	4.1.2.2	Master fails to properly configure the anchor(s) as per specific Arctic port conditions (wind, currents, ice loads...) and the transfer operation is compromised with potential product spillage, related investigation and business interruption.	2. hose rupture	1. Port Manual - Experienced Arctic Masters - Experienced Arctic personnel	3	2	6
30	4.1.3.1	Vessel is not anchored at prescribed position, adverse weather conditions cause ship to run aground or create excessive strain on the cargo hose.	1. grounding and bunker tank release(< 100 c.m.)	- Bridge watch - Deck watch - Engine on short notice - No cargo ops in adverse weather - VCP - PNI and OHF agreed anchorage position - Take precautions for foul weather - QSSE - PNI guideline indicates recommended anchorages	5	1	5
31	4.1.3.2	Vessel is not anchored at prescribed position, adverse weather conditions cause ship to run aground or create excessive strain on the cargo hose.	2. grounding & cargo hold release(< 1,000 c.m.)	see 4.1.3.1	5	1	5
32	4.1.3.3	Vessel is not anchored at prescribed position, adverse weather conditions cause ship to run aground or create excession on the cargo hose.	3. coupling leak with environmental impact	See 4.1.3.1	2	2	4
33	5.1.1.1	Workboat related failure event (i.e. hose guillotines not readily available to crimp transfer conduit) causes delay in oil transfer operations, investigation and potential for release event & fines arise.	1. operational delay	1. Two guillotines per workboat 2. Checklist in op's manual 3. Key meeting on shore	2	2	4

Reference	Workshop reference	Failure Modes	Effects	Current	Risk Rating		
34	5.1.1.2	Workboat related failure event (i.e. hose guillotines not readily available to crimp transfer hose) causes delay in oil transfer operations, investigation and potential for release event & fines arise.	2. coupling leak with environmental impact	See 5.1.1.1	2	3	6
35	5.1.2.1.	Workboat or punt grounds on shoal - person overboard and loss of craft	1. operational delay	1. Monitor water levels 2. Bridge watch 3. Training for workboat and punt crews	2	2	4
36	5.1.2.2	Workboat or punt grounds on shoal - person overboard and loss of craft	2. human injury	See 5.1.2.1	2	2	4
37	5.1.3.1	Workboat abandonment/damage due to failure to manage tidal cycles causes operational delay.	1. operational delay	1. See 5.1.2.1 2. Bridge watch to carefully monitor tides 3. ensure workboat echo sounder functioning 4. Training for Arctic Bosuns and crews	2	2	4
38	5.1.3.2	Workboat abandonment/damage due to failure to manage tidal cycles causes operational delay.	2. human injury	See 5.1.3.1	2	2	4
39	5.2.1.1	Poorly organized (i.e. lack of hose reel) or wrong hose type, hose lengths, fittings & couplings, leads to hose failure with potential oil spill, delays and possible fines.	1. hose rupture	1. Effective hose reels throughout fleet 2. Modern and tested couplings 3. testing protocols and checks 4. Back up hoses 5. eliminate short hose lengths, older hoses	3	1	3
40	5.2.1.2.	Poorly organized (i.e. lack of hose reel) or wrong hose type, hose lengths, fittings & couplings, leads to conduit failure with potential oil spill, delays and possible fines.	2. operational delay	See 5.2.1.1	2	1	2
41	5.2.2.1	Weather changes and related currents/wind render station keeping extremely difficult. Loss of ship position occurs during offloading/transfer compromising the transfer hose - spill event occurs.	1. Coupling release with environmental impact	1. butterfly valves 2. PNI Operations Manual 1 man on deck 1 man in bridge Workboat crew 1 man CCR 3. release preventers, cap and jettison hose 4. Port Manual - suspend ops	2	2	4

Reference	Workshop reference	Failure Modes	Effects	Risk Rating				
				Current				
				5. Axe stowed at ship's manifold 6. Experienced Masters and crew 7. Op's training program 8. workboat and punt crew training Milne tides are minimal influence on operation				
42	5.2.2.2	Weather changes and related currents/wind render station keeping extremely difficult. Loss of ship position occurs during offloading/transfer compromising the transfer hose - spill event occurs.	2. operational delay	see 5.2.2.1	2	2	4	
43	5.2.2.3	Weather changes and related currents/wind render station keeping extremely difficult. Loss of ship position occurs during offloading/transfer compromising the transfer hose - spill event occurs.	3. business interruption	See 5.2.2.1	2	2	4	
44	5.2.2.4	Weather changes and related currents/wind render station keeping extremely difficult. Loss of ship position occurs during offloading/transfer compromising the transfer hose - spill event occurs.	4. human injury	See 5.2.2.1.	2	2	4	
45	5.2.4.1	Hose develops a leak on rocks at low tide daytime - environmental impact	1. coupling leak with environmental impact	1. low pressure alarm 2. Man on deck 3. Workboat inspections with binoculars 4. Inspection from manifold 5. Short intertidal zone at Milne beach and mostly pebble/sand	2	2	4	
46	5.2.5.1	Hose develops a leak on beach at low tide nighttime - environmental impact	1. coupling leak with environmental impact	See 5.2.4.1 Searchlights on tanker and workboats	2	2	4	
47	5.2.6.1	Hose jettisoned during emergency disconnect, valve and or cap leak develops - daytime	1. coupling leak with environmental impact	1. Workboat patrol with trained operator 2. Observe from bridge 3. Detailed hose jettison procedure in op's manual 4. Trained crews	2	2	4	

Reference	Workshop reference	Failure Modes	Effects	Current	Risk Rating		
48	5.2.8.1	Hose jettisoned during emergency disconnect, valve and or cap leak develops - night ops	1. coupling leak with environmental impact	See 5.2.6.1 Bridge deck & workboat watches - Emergency shutdowns - Revised operational guidelines include hose Jettison procedure	2	2	4
49	5.2.10.1	Pig stuck in hose during cargo operation (pinched hose bunn) - operations delayed, coupling leak	1. operational delay	Workboat on stacon	2	2	4
50	5.2.10.2	Pig stuck in hose during cargo operation (pinched hose bunn) - operations delayed, coupling leak	2. coupling leak with environmental impact	See 5.2.10.1	2	2	4
51	5.2.11.1	Overpressure while executing pigging operation - pig disintegrates - excessive air to tank farm	1. tank farm overflow - oilspill release event	1. Tank Dike 2. Pigging guidelines and training	1	1	1
52	5.2.12.1	Overpressure while executing pigging operation - pig disintegrates - excessive air to tank farm	1. tank explosion	See 5.2.12.1	5	1	5
53	5.3.1.1	Improper hose anchoring leads to sinking and breakage	1. operational delay	1. Cargo hose monitoring 2. Hose repositioning 3. Training for officers and crew 4. PNI standard op's manual and critical tasks	2	2	4
54	5.3.1.2	Improper hose anchoring leads to sinking and breakage	2. equipment damage	See 5.3.1.1	2	2	4
55	5.3.2.1	Foul weather - Strain relief fault - improper preventer configuration or missed procedure during vessel movements due to current/wind effects	1. pumped release with environmental impact	1. PNI guidelines 2. Bridge, deck & workboat watches 3. Operations manuals 4. Trained officers and crew Milne tides are minimal influence on operation	2	2	4
56	5.3.2.2	Foul weather - Strain relief fault - improper preventer configuration or missed procedure during vessel movements due to current/wind effects	2. equipment damage	see 5.3.2.1 Milne tides are minimal influence on operation	2	2	4

Reference	Workshop reference	Failure Modes	Effects	Current	Risk Rating		
57	5.4.2.2	Mistimed equipment demobilization - equipment stranded and delays incurred	2. equipment damage	1. Op's manual 2. Trained Master and crew 3. Tides are minimal influence at Milne Inlet.	2	2	2
58	5.4.3.1	Cargo/ballast plan not defined or completely inadequate, leading to human error, poor decision process, delaying or halting oil transfer operations.	1. operational delay	Checklist shipping company QSSE procedures Trained officers and crew	1	1	1
59	5.4.4.1	Ballasting during oil transfer operations is not properly conducted, leading to loss of stability, possible operational delay or capsize event (extreme case).	1. operational delay	1. VCP, QSSE Vessels stability calculated at different stage of cargo operations	1	1	1
60	5.4.4.2	Ballasting during oil transfer operations is not properly conducted, leading to loss of stability, possible operational delay or capsize event (extreme case).	2. damage with environmental impact	See 5.4.4.1	5	1	5
61	5.4.5.1	Tank level monitoring (vessel & shore side) procedures are not executed, and/or level sensors are defective. Backup is not operational thus overflowing or leakage not detected, spill event occurs leading to investigation and fines.	1. pumped release with environmental impact	1. low pressure alarm - Emergency shutoff on ship - UTI's on board - Monthly checks on ship - Transfer checklists filled out each hour - experiences officers and crews/training	2	1	2
62	5.4.6.1	Coupling leak not detected due to ship-shore personnel not following level check procedures	1. pumped release with environmental impact	1. low pressure alarm -Workboat inspection	3	1	3
63	5.4.7.1	Failure to use approved "intrinsically safe" flashlights results in an ignition source for a fire or explosion event, destroying equipment and building assets and possible loss of life with environmental impact.	1. total loss; catastrophic release	Ship should only carry "intrinsically safe" flashlights - experienced crews - Crew training - op's manuals	5	1	5
64	5.4.7.2	Failure to use approved "intrinsically safe" flashlights results in an ignition source for a fire or explosion event, destroying equipment and building assets and possible loss of life with environmental impact.	2. human injury or death	See 5.4.7.1	5	1	5
65	5.4.8.1	Failed hydraulic power pack during hose deployment or recovery - hose sections lost	1. equipment damage	- Compressor running - Windlass is on standby - Back up hydraulic supply from Framo system available - Op's manual	2	2	4

Reference	Workshop reference	Failure Modes	Effects	Risk Rating			
				Current			
				has procedures for coupling Framo system to reel			
66	5.5.1.1	Tank level monitoring (vessel & shore side) procedures are not executed, and/or level sensors are defective. Backup is not operational thus overflowing or leakage not detected, spill event occurs leading to investigation and fines.	1. pumped release with environmental impact	Hourly rate check- UTI on board reducing level below 95%	2	2	4
67	5.5.2.1	Power failure occurs shore side with inadequate emergency generation (back-up), resulting in failure of low pressure alarm unit and delay in oil transfer for duration of outage.	1. operational delay	- Man at manifold to verify pressure - Frequent radio contact - Back up power systems on shore available	2	1	2
68	5.5.3.1	Breakdown in ship to shore facility procedures leads to an overflow or non-detection event. This failure could lead to a moderate or catastrophic release.	1. tank farm overflow - oil spill release event	- QSSE - PNI guidelines - Checklists - Key meeting	2	2	4
69	6.2.1.1	Equipment failure as a result of inadequate maintenance either at the oil terminal or aboard the vessel stops the transfer activity - business interruption costs accrue.	1. business interruption	- QSSE - P.M.S. - Monthly checklists - Schedules maintenance	2	1	2
70	6.3.2.1	Failure in notification chain occurs (i.e. at tank farm position, Nordreg, shipping company office and/or client respondent) delaying response causing a rapid escalation of spill severity resulting in an increased environment accident, investigation and fines.	1. damage with environmental impact	- Operational procedures - QSSE - Experienced Masters - Call out exercises - Fully trained and ready BIM response system for incidents	3	1	3
71	6.3.5.1	Redundant or contradictory oil transfer related procedures or checklists will invoke confusion or "paper exercise" response from the transfer parties. Any error, omission or poor sequencing of operations will result in heightened spill potential and/or business interruption.	1. oil spill release event	- Key meetings - Transfer checklists standardized - BIM Fuel transfer procedures and training - Fully developed and implemented OPPP at BIM	2	1	2
72	6.3.5.2	Redundant or contradictory oil transfer related procedures or checklists will invoke confusion or "paper exercise" response from the transfer parties. Any error, omission or poor sequencing of operations will result in heightened spill potential and/or business interruption.	2. cargo contamination	See 6.3.5.1	2	1	2
73	6.3.2.2	Failure in notification chain occurs (i.e. at tank farm position, Nordreg, shipping company office and/or village respondent) delaying response causing a rapid escalation of spill severity resulting in an increased environment accident, investigation and fines.	2. operational delay	See 6.3.2.1	1	1	1

Reference	Workshop reference	Failure Modes	Effects	Current	Risk Rating		
74	7.3.2.1	The vessel operator fails to follow procedure to ensure prompt reporting of an incident, resulting in an investigation, followed by legal action and fines.	1. litigation costs/fines	- QSSE - SOPEP - Common practices	1	1	1
75	7.2.1.1	The proper mechanisms/protocols between ship operator and client or charter carrier have not been specified or agreed to, leading to delays in oil transfer and the potential for litigation.	1. operational delay	Normal contract and business practices	1	1	1
76	8.1.2.1	Valve failure prevents backflow detection, catastrophic release shore side.	1. total loss; catastrophic release	- Testing and maintenance	2	1	2
77	8.3.1.1	Lack of continuity between ship and shore oil spill contingency plan impedes response action creating a larger spill event, business interruption, failure to meet key client mandate resulting in strained relationship or loss of client.	1. business interruption	1. execution of spill response exercises and training	2	1	2
78	8.3.1.2	Lack of continuity between ship and shore oil spill contingency plan impedes response action creating a larger spill event, business interruption, failure to meet key client mandate resulting in strained relationship or loss of client.	2. damage with environmental impact	1. execution of spill response exercises and training	4	1	4
79	8.1.3.2	Tank overfills during transfer from the vessel, leading to oil spill, potential fire hazard and loss of life.	2. human injury or death	- Key meeting - BIM transfer procedures and training	5	1	5
80	8.1.3.1	Tank overfills during transfer from the vessel, leading to oil spill, potential fire hazard and loss of life.	1. tank farm overflow - oilspill release event	- Key meeting - BIM transfer procedures and training	2	2	4

	Oil Pollution Prevention Plan (OPPP)	Issue Date: May 7, 2021 Revision: 1	
	Milne Port Fuel Storage Facility	BAF-PH1-830-P16-0058	

Appendix F

Emergency Response Regulations/Environmental Response Standards - Concordance Table

CANADA SHIPPING ACT
Environmental Response Regulations – Concordance Table
SOR/2019-252
Oil Pollution Prevention Plan (OPPP)

Article	Requirement	Conform (Y/N)	Section
10	The oil pollution prevention plan must contain the following:		
	(a) the position of the person who is responsible for supervising in person the loading or unloading of oil to or from a vessel;	Y	Appendix C Fuel Tanker Offload Procedure Section 4
	(b) the types and quantity of equipment for use in the loading or unloading of oil to or from a vessel and the measures to be taken in order to meet the manufacturer's specifications in respect of the maintenance and certification of that equipment;	Y	Appendix B Fuel Tanker Offload Procedure
	(c) the procedures to be followed by the oil handling facility's personnel before and during the loading or unloading of oil to or from a vessel;	Y	Appendix C Fuel Tanker Offload Procedure Section 6
	(d) the procedures to be followed in order to meet the requirements of subsection 38(2) of the Vessel Pollution and Dangerous Chemicals Regulations and in order to reduce the rate of flow or pressure in a safe and efficient manner when the supervisor on board a vessel gives notice of the stopping of the loading or unloading of oil to or from the vessel to the person referred to in paragraph (a);	Y	Appendix C Fuel Taker Offload Procedure Section 6.11
	(e) the measures to be taken in order to meet the requirements of section 33 of the Vessel Pollution and Dangerous Chemicals Regulations and, in the event of failure of the means of communication referred to in that section, in order to ensure that effective two-way communication between the person referred to in paragraph (a) and the supervisor on board the vessel is continuously maintained before and during the loading or unloading of oil to or from the vessel;	Y	Appendix C Fuel Taker Offload Procedure Section 6.2
	(f) a description of the lighting to be provided in order to meet the requirements of section 34 of the Vessel Pollution and Dangerous Chemicals Regulations;	Y	OPPP Section 6.1.2
	(g) documentation that demonstrates that the transfer conduit at the oil handling facility meets the requirements of subsection 35(1) of the Vessel Pollution and Dangerous Chemicals Regulations;	Y	Appendix C Fuel Taker Offload Procedure Section 6.4

CANADA SHIPPING ACT
Environmental Response Regulations – Concordance Table
SOR/2019-252
Oil Pollution Prevention Plan (OPPP)

Article	Requirement	Conform (Y/N)	Section
	(h) the measures to be taken in order to meet the requirements of subsection 35(3) of the Vessel Pollution and Dangerous Chemicals Regulations;	Y	Appendix C Fuel Taker Offload Procedure Section 6.4
	(i) the procedures to be followed by the person referred to in paragraph (a) in order to meet the requirements of subsection 35(4) of the Vessel Pollution and Dangerous Chemicals Regulations;	Y	Appendix C Fuel Taker Offload Procedure Section 6.10
	(j) the procedures to be followed by the operator of the oil handling facility in order to prevent a discharge of oil;	Y	Appendix C Fuel Taker Offload Procedure Throughout OPPP – Sections 6 and 7.2, Appendix D
	(k) a description of the training provided, or to be provided, to the oil handling facility's personnel who are engaged in the loading or unloading of oil respecting the procedures to be followed in order to prevent an oil pollution incident, including the frequency of the training; and	Y	OPPP Section 8
	(l) the procedures to be followed for the review and updating of the plan in order to meet the requirements of section 12.	Y	Section 9
12 (1)	The operator of an oil handling facility must review the oil pollution prevention plan and the oil pollution emergency plan annually and, if necessary, update the plans to ensure that they meet the requirements of section 10 or 11, as the case may be.	Y	Section 9
(2)	The operator of an oil handling facility must review the oil pollution prevention plan and the oil pollution emergency plan when any of the following events occur and, if necessary, update those plans within 90 days after the day on which the event occurred:	Y	Section 9
	(a) any change in the law or in environmental factors that could affect the loading or unloading of oil to or from a vessel;	Y	Section 9
	(b) any change in personnel involved in the loading or unloading of oil to or from a vessel;	Y	Section 9

CANADA SHIPPING ACT Environmental Response Regulations – Concordance Table SOR/2019-252 Oil Pollution Prevention Plan (OPPP)			
Article	Requirement	Conform (Y/N)	Section
	(c) the identification of a gap in either of the plans after an oil pollution incident or exercise; and	Y	Section 9
	(d) any change in the business practices, policies or operational procedures of the facility that could affect the loading or unloading of oil to or from a vessel.	Y	Section 9
(3)	if the operator of an oil handling facility updates the oil pollution prevention plan or the oil pollution emergency plan, the operator must submit the up-to-date plan to the Minister no later than one year after the update.	Y	OPPP section 9.1.2
(4)	The operator of an oil handling facility must keep a record of the date and the results of each review of the oil pollution prevention plan and the oil pollution emergency plan conducted under subsections (1) and (2), including any updates, and must maintain the record for three years after the day on which it is created.	Y	OPPP Section 9 Document Revision record page 2.

CANADA SHIPPING ACT Environmental Response Standards TP14909 – Concordance Table Oil Pollution Prevention Plan (OPPP)			
Article	Requirement	Conform (Y/N)	Section
2.6.1.4	Examples of the type of activities surrounding the transfer operations include:		
a)	Berthing and unberthing of vessels;	Y	6.2 – 6.2.1 Appendix C 6.1
b)	Communications;	Y	5.3 – 6.4 Appendix C - 6.22
c)	Transferring oil in bulk to or from a vessel;	Y	Section 6 Appendix C – entire document
d)	Maintaining vessels at the berth;	Y	6.2 – 6.2.1 Appendix C 6.1
e)	Emergency procedures;	Y	Section 5 Appendix C – 6.2.2 – 6.2.5 – 6.2.6 -6.10

f)	Maintaining critical equipment; and	Y	Appendix C – Fuel Taker Offload Procedure (Appendix B of Procedure)
g)	Environmental conditions.	Y	Section 3
2.6.2	When developing the OPPP, consideration should be given to including the OHF’s environmental policy that:		
a)	is appropriate to the nature, scale and environmental impacts of the OHF’s marine activities;	Y	OPPP – Page 11 - Sustainable Development Policy
b)	includes a commitment to continual improvements and prevention of marine pollution;	Y	OPPP – Page 11 - Sustainable Development Policy
c)	includes a commitment to comply with relevant environmental legislation and regulations, and with other requirements to which the OHF subscribes;	Y	OPPP – Page 11 - Sustainable Development Policy
d)	provides the framework for setting and reviewing environmental protection objectives and targets; and	Y	OPPP – Page 11 - Sustainable Development Policy
e)	is documented, implemented and maintained and communicated to all employees.	Y	OPPP – Page 11 - Sustainable Development Policy
2.6.3	While developing the OPPP, it is encouraged to identify the hazards associated with the transfer of oil to or from a prescribed vessel, assess the risks with those hazards and highlight the measures that will be taken to prevent an incident from happening. This could include	Y	Section 7 Risk Assessment, Appendix D
(a)	the procedures identifying those activities undertaken at the OHF that may impact the marine environment, identify the hazards and when an event could occur. Examples of such activities include:	Y	Section 7 Risk Assessment, Appendix D
	a. ensuring the OHF’s design capability, condition and water depth can handle the size of vessels transferring at the facility;	Y	Section 6.1, Section 7 Risk Assessment, Appendix D
	b. vessel berthing and unberthing;	Y	Section 6.2, Section 7 Risk Assessment, Appendix D
	c. vessel mooring and maintaining moor;	Y	Section 6.2, Section 7 Risk Assessment, Appendix D

	d. managing general tanker hazards while vessels are alongside;	Y	Section 6.2.1, Section 7 Risk Assessment, Appendix D
	e. developing a joint, mutual acceptable (between vessel and OHF) plan for oil transfer;	Y	Section 6.3 Appendix C Fuel Taker Offload Procedure
	f. implementing and maintaining the oil transfer plan;	Y	Appendix C Fuel Taker Offload Procedure Section 6, document Revision Record Page 2
	g. suspending or completing the oil transfer;	Y	Appendix C Fuel Taker Offload Procedure 6.10, 6.11
	h. a temporary or permanent change in the facility's design, equipment or operating procedures is introduced; and	Y	Section 9
	i. the general operation of equipment.	Y	Appendix C Fuel Taker Offload Procedure Appendix B of Procedure Sections 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.11
(b)	an assessment of the probability and consequences of an incident resulting from the identified hazards.	Y	Section 6.2, Section 7 Risk Assessment, Appendix D
(c)	identifying the processes (measures) used to mitigate the risks identified through the assessments.	Y	Section 6.2, Section 7 Risk Assessment, Appendix D
2.6.4	The OPPP should contain procedures that identify the environmental factors of the OHFs activities that the OHF can control, and over which the OHF can be expected to have an influence, in order to determine those risks which have or can have significant impacts on the marine environment. The factors related to those significant impacts should be considered in setting its environmental protection objectives.	Y	Section 3 Section 6.2, Section 7 Risk Assessment, Appendix D

2.6.5	it is important that the OPPP describes those preventative duties that the operator of the OHF is responsible for and that are in line with the Regulations. Some of those duties include:		
(a)	securing the vessel while taking into consideration the weather and the tidal and current conditions, and that the mooring lines are tended so that the movement of the vessel does not damage the transfer conduit or its connections. This is a shared responsibility between the vessel and the operator of the OHF where applicable.	Y	6.2 – 6.2.1 Appendix C Section 6.1
(b)	loading or unloading procedures;	Y	Section 6.3 Appendix C Fuel Taker Offload Procedure
(c)	reporting for readiness prior to commencement of the transfer operation;	Y	Appendix C Fuel Taker Offload Procedure Section 6.8
(d)	communications between the vessel and OHF;	Y	Section 6.3 Appendix C Fuel Taker Offload Procedure Section 6.2.2
(e)	readiness of equipment and procedures for the transfer; and	Y	Appendix C Fuel Taker Offload Procedure Section 6.3 – 6.4, 6.5, 6.6, 6.7
(f)	attendance of competent personnel during the transfer operation.	Y	Section 8.1 Appendix C Fuel Taker Offload Procedure Section 4, Appendix A of Procedure
2.6.6	The operator of the OHF must ensure the personnel (including sub-contractors) engaged in the loading and unloading of a vessel are prepared for the responsibilities that they may be requested to undertake by receiving the appropriate training.	Y	Section 8.1
2.6.6.1	The training should include but is not limited to the following criteria:		

(a)	Equipment deployment techniques;	Y	Section 8.1
(b)	Spill prevention, control, and countermeasure;	Y	Section 8.1, also detailed in OPEP (control and countermeasures)
(c)	Workplace Hazardous Materials Information System (WHMIS);	Y	Section 8.1
(d)	Roles and responsibilities of various responders; and	Y	Section 5
(e)	Site safety plan.	Y	