BACK RIVER PROJECT
Oil Pollution Emergency Plan

October 2017

BACK RIVER PROJECT
OIL POLLUTION EMERGENCY PLAN

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Revision Log

Version	Date	Section	Page	Revision
1	October 2017	All	All	Supporting Document for Type A Water Licence Application, submitted to Nunavut Water Board for review and approval

Acronyms

CCG	Canadian Coast Guard
CCME	Canadian Council of Ministers of the Environment
ECCC	Environment and Climate Change Canada
ERC	Emergency Response Coordinator
ERT	Emergency Response Team
INAC	Indigenous and Northern Affairs Canada
KIA	Kitikmeot Inuit Association
MLA	Marine Laydown Area
OHF	Oil Handling Facility
OPEP or Plan	Oil Pollution Emergency Plan
PPE	Personal Protective Equipment
Project	Back River Project
Sabina	Sabina Gold & Silver Corp.
SCP	Spill Contingency Plan
SOPEP	Shipboard Oil Pollution Emergency Plan
UTM	Universal Transverse Mercator
WHMIS	Workplace Hazardous Materials Information System

Oil Handling Facility Declaration

Pursuant to paragraph 168(1) (b) of the *Canada Shipping Act, 2001*, Sabina Gold & Silver Corp. declares that:

(a) to comply with the regulations made under paragraph 182(a) of the *Canada Shipping Act, 2001*, on the detection of an oil pollution incident that arises out of the loading or unloading of oil to or from a ship, the measures as outlined in the Back River Project, Marine Laydown Area - Oil Handling Facility, Oil Pollution Emergency Plan shall be implemented.

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

~~(Name of response organization)~~

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

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

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

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

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

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

Date: October 31, 2015

Sabina Gold & Silver Corp. _____ Matthew Pickard, Vice President, Environment & Sustainability

Contact Information of Sabina Personnel with Authority to Implement the OPEP

Role	Primary	Alternate
Emergency Response Coordinator		
Phone:	TBA	TBA
Alternate Phone:		
Email:		
Incident Commander		
Phone:	TBA	TBA
Alternate Phone:		
Email:		
Environmental Superintendent		
Phone:	TBA	TBA
Alternate Phone:		
Email:		
Safety Superintendent		
Phone:	TBA	TBA
Alternate Phone:		
Email:		
Environmental Coordinator		
Phone:	TBA	TBA
Alternate Phone:		
Email:		

** Will be completed once a construction decision is made.*

Preamble

This Oil Handling Facility, Oil Pollution Emergency Plan for the Back River Project Marine Laydown Area - Oil Handling Facility shall be in effect at the commencement of operations of the Oil Handling Facility currently planned for Q3 of Year -3.

Formal distribution of the Plan shall be made to:

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

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

Sabina Gold & Silver Corp.
202 - 930 West First Street
North Vancouver, BC, V7P 3N4
Tel: 604-998-4186

Or:

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

Sustainable Development Policy

Sabina Gold & Silver Corp. regards itself as a responsible explorer and mineral developer. We are committed to fostering sustainable development throughout all stages of our activities. We constantly strive to conduct our operations in a manner that balances the social, economic, cultural and environmental needs of the communities in which we operate. To build on this commitment Sabina will:

- Meet or strive to exceed all relevant legislated sustainable development requirements in the regions where we work.
- Ensure appropriate personnel, resources and training is made available to implement our sustainable development objectives.
- Establish clear lines of responsibility and accountability throughout the Company to meet these objectives.
- Implement proven management systems and procedures to facilitate our sustainable development objectives. A priority will be placed on developing and implementing management structures related to the environment, health and safety, emergency response and stakeholder engagement.
- Act as responsible stewards of the environment for both current and future generations. We will make use of appropriate assessment methodologies, technologies and controls to minimize environmental risks throughout all stages of mineral development.
- Work closely with local communities and project stakeholders to understand their needs, address their concerns and provide project-related benefits to create win-win relationships. Our goal is to earn and maintain a social licence to operate at all our operations while building partnerships.
- Pursue economically feasible projects in order to generate shareholder profitability and support long-term positive socio-economic development in the regions where we work.
- Utilize a precautionary approach as it applies to potential effects from our activities. Work with employees, contractors and stakeholders to promote a culture of open and meaningful dialogue to ensure that any known or suspected departures from established protocols are reported to management in a timely manner.
- Regularly review this policy to ensure it is consistent with Sabina's current activities and the most recent legislation.
- Continually improve our performance and contributions to sustainable development including pollution prevention, waste minimization and resource consumption.
- Implement programs at each of our operations to monitor and report compliance and proactively address potential deficiencies in our policies and procedures.

The objectives of our sustainable development policy cannot be accomplished without the active involvement and commitment of many dedicated individuals. As such, we will regularly communicate this policy and its outcomes to our employees, contractors and relevant stakeholders. Together, we can foster a culture of sustainable development at Sabina.

1. Introduction

The Back River Project (the Project) is a proposed gold project owned by Sabina Gold & Silver Corp. (Sabina) within the West Kitikmeot region of southwestern Nunavut. It is situated approximately 400 kilometres (km) southwest of Cambridge Bay, 95 km southeast of the southern end of Bathurst Inlet (Kingaok), and 520 km northeast of Yellowknife, Northwest Territories. The Project is located predominantly within the Queen Maud Gulf Watershed (Nunavut Water Regulations, Schedule 4).

The Project is comprised of two main areas with interconnecting winter ice roads (WIR) (Main Application Document [MAD] Appendix A, base Figure 2): Goose Property (MAD Appendix A, base Figure 3) and the Marine Laydown Area (MLA) (MAD Appendix A, base Figure 4) situated along the western shore of southern Bathurst Inlet. The majority of annual resupply will be completed using the MLA, and an approximately 160 km long WIR will interconnect these sites. Refer to the MAD Appendix A, base Figures 1 to 5 for general site layout and locations.

A detailed project description is provided in the Main Application Document. This Oil Pollution Emergency Plan (OPEP or Plan) applies to the Project and specifically the Oil Handling Facility (MLA-OHF).

The OPEP was developed to specifically assist in implementing measures to protect the marine environment and minimize impacts from potential spill events.

The Plan was prepared following Transport Canada Oil Handling Facilities Standards TP12402 consistent with the legislative requirements of the Response Organizations and Oil Handling Facilities Regulations enabled by the *Canada Shipping Act*.

This plan is a living document to be updated upon changes in related regulatory requirements, management reviews, incident investigations, changes to facility operation or maintenance, and environmental monitoring results, best practice updates or other Project specific protocols once construction starts through to Project closure activities. Any updates will be filed with the Annual Report submitted under the Type A Water Licence.

The information presented herein is current as of September 2017. At this stage, certain aspects of the OPEP remain conceptual. The next update will likely be based on detailed engineering design prior to the start of construction, incorporating construction engineering drawings of facilities and associated fuel management infrastructure. The Plan will be reviewed as needed for changes in operation and technology and as directed by Transport Canada or other regulatory authorization where appropriate. Completion of the updated Plan will be documented through signatures of the personnel responsible for reviewing, updating, and approving the Plan.

A record will document all significant changes that have been incorporated in the Plan subsequent to the latest review. The record will include the names of the persons who made and approved the change, as well as the date of the approval.

Sabina will maintain a distribution list providing contact details for all parties to receive the Plan including key personnel, contractors, organizations, and external agencies.

2. Scope and Objectives

The Oil Pollution Emergency Plan is one of the documents that forms part of Sabina's overall Emergency Response Program for the Project. This plan has been written to meet requirements of a Type A Water Licence and applies to all Sabina projects in the Kitikmeot region.

The OPEP outlines potential spill scenarios, and provides specific procedures for responding to spills while minimizing potential health and safety hazards and environmental damage. It provides instructions to guide all personnel in emergency spill response situations, defines the roles and responsibilities of management and responders and outlines the measures taken to prevent spills, the related exercise and evaluation programme, and the mechanism for regular updates to the Plan.

This plan is divided into the following components:

- Applicable Legislation and Guidelines (Section 3);
- Planning Standards (Section 4);
- Marine Laydown Area- Oil Handling Facility (Section 5);
- Site Activities (Section 6);
- General Response to Marine Spill Emergencies (Section 7);
- Roles and Responsibilities (Section 8);
- General Spill Procedures (Section 9);
- Spill Scenarios and Response Strategies (Section 10); and
- Preventative Measures (Section 11).

2.1 RELATED PLANS AND DOCUMENTS

Documents within the Application for the Type A Water Licence, which support this plan include the following:

- Risk Management and Emergency Response Plan (Supporting Document [SD]-15);
- Spill Contingency Plan (SD-17);
- Fuel Management Plan (SD-16);
- Landfarm Management Plan (SD-12);
- Hazardous Materials Management Plan (SD-13);
- Explosives Management Plan (FEIS Volume 10, Chapter 13);
- Occupational Health and Safety Plan (FEIS Volume 10, Chapter 15);
- Shipping Management Plan (FEIS Volume 10, Chapter 15); and
- Shipboard Oil Pollution Emergency Plan (to be provided in the future by Shipping Company).

Spills of all types, both marine and land based are addressed in the Project Spill Contingency Plan (SCP; SD-17) which is a separate document. The SCP (SD-17) addresses a wider scope of operations and includes storage areas other than the MLA-OHF. The SCP (SD-17) also addresses other materials including soluble solids such as ammonium nitrate prill, liquids such as glycols and paints, corrosive liquids including sulphuric acid and sodium cyanide, compressed (inert and flammable) gas, and other hazardous substances.

The MLA-OHF OPEP has been designed specifically to compliment the Project, SCP (SD-17) document. The Plan is not to be construed as to supersede existing emergency response plans, rather it is conceived to address the specifics of the fuel storage facility, the bulk incoming transfer of fuel and spill scenarios directly relating to this operation.

Sabina remains committed to provide the OPEP to the NIRB prior to the commencement of Project-related shipping, and updates will be provided with annual reporting.

3. Applicable Legislation and Guidelines

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

Additional legislation, regulations and guidelines applicable to oil pollution and emergency planning in Canada, and specifically within Nunavut, are summarized in Table 3-1.

Table 3-1. Legislation Applicable to the Oil Pollution Emergency Planning

Acts	Regulations	Guidelines
Federal		
Arctic Waters Pollution Prevention Act (R.S.C., 1985, c.A-12)	Arctic Shipping Pollution Prevention Regulations (C.R.C., c. 353)	
Canada Shipping Act(2001)*	Response Organizations and Oil Handling Facilities Regulations (SOR/95-405) Vessel Pollution and Dangerous Chemical Regulations, (SOR 2012-69)	Oil Handling Facilities Standards (TP12402)
Canadian Environmental Protection Act (R.S.C.1999 c.33)	Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197) Environmental Emergency Regulations (SOR/2003-307) Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2002-301) Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149)	Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (Canadian Council of the Ministers of Environment (CCME) 2003) Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil (CCME 2008)
Fisheries Act (1985, c.F-14)		
Explosives Act (1985, c.E-17)	Ammonium Nitrate and Fuel Oil Order (C.R.C., c.598) Explosives Regulations (C.R.C., c.1516)	
Nunavut Waters and Nunavut Surface Rights Tribunal Act (2002)	Nunavut Water Regulations (2013)	
National Fire Code of Canada (2010)		
Transportation of Dangerous Goods Act (1992, C.34)	Transportation of Dangerous Goods Regulations (SOR/2001-286)	2016 Emergency Response Guidebook (Transport Canada and U.S. Department of Transportation 2016)
Territorial Lands Act (R. S. 1985, c.T-7)	Northwest Territories and Nunavut Mining Regulations (C.R.C., c.1516)	

(continued)

Table 3-1. Legislation Applicable to the Oil Pollution Emergency Planning (completed)

Acts	Regulations	Guidelines
Hazardous Products Act *Nunavut Act* (1993 c.28)	*Controlled Products Regulations*	*Workplace Hazardous Materials Information System (WHMIS)*
Territorial – Nunavut		
Environmental Protection Act	Spill Contingency Planning and Reporting Regulations (NWT Reg (Nu) 068-93) Used Oil and Waste Fuel Management Regulations (NWT Reg 064-2003) The removal of hazardous materials will require the registration with the Government of Nunavut, Department of Environment (DOE) as a waste generator as well as carrier (if applicable) prior to transport	Government of Nunavut (GN) Environmental Guidelines for the Management of: o General Management of Hazardous Waste in Nunavut (GN 2010a) Canada-Wide Standards for Petroleum Hydrocarbons (PHC) In Soil (CCME 2008)
Mine Health and Safety Act (SNWT (Nu) 1994, c.25)	Mine Health and Safety Regulations (NWT Reg (Nu) 125-95)	
Workers' Compensation Act (RSNWT, 1998, c.W-6)	Workers' Compensation General Regulations (Nu Reg 017-2010)	
Explosives Use Act (RSNWT (Nu) 1988, c.E-10)	Explosives Regulations (RRNWT (Nu) 1990, c.E-27)	
Fire Prevention Act (RSNWT (Nu) 1988, c.F-6)	Fire Prevention Regulations (RRNWT (Nu) 1990, c.F-12)	
Safety Act (RSNWT 1988, c.S-1)	General Safety Regulations (RRNWT (Nu) 1990, c.P-16) Work Site Hazardous Materials Information System Regulations (RSNWT 1988, c.81 (Supp))	
Transportation of Dangerous Goods Act (1990, RSNWT (Nu) 1988, c.81 (Supp))	Transportation of Dangerous Goods Regulations (1991, NWT Reg (Nu) 095-91)	

** The MLA-OHF, OPEP takes into account the requirements of the Canada Shipping Act, 2001, part 8, subsections 168. (1), 168. (2) and 168. (3). Although the subsection 168 (2) is applicable, as the MLA-OHF site is located North of 60', therefore the subsections 168. (1) (a), 168. (1) (b) (ii), and 168. (1) (b) (iii) do not apply.*

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4. Planning Standards

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

4.1 FACILITY CATEGORY

Based on the expected upper ship to shore pumping rate of up to 450 cubic metres per hour (m^3/hr), the MLA-OHF is classified as a Level 2 facility. Spill scenarios have been developed and are outlined in Section 10 of this plan. As a scenario addressing a possible 5 cubic metres (m^3) spill exists, the minimum size of an oil pollution incident for which a response is described in this OPEP is 5 m^3.

4.2 GENERAL PLANNING GUIDELINES

Beyond the requirements of the *Canadian Shipping Act* and the Oil Handling Facilities Standards, Sabina recognizes the unique nature of the geographical location and the challenges inherent in mounting a response to a pollution incident.

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

In the preparation of this plan, existing documents relating to the site-specifications (physical, natural and social conditions) have been utilized. In the preparation of the final Plan and related SCP (SD-17), extensive consultations with local authorities shall be undertaken, with the goal of a cooperative response as an important part of an incident.

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

1. The nature of the oil product in respect of which the scenario is developed.
2. The types of ships that are unloaded at the facility.
3. The tides and currents that prevail at the facility.
4. The meteorological conditions that prevail at the facility.
5. The surrounding areas of environmental sensitivities that would likely be affected by an oil spill.
6. The measures that will be implemented to minimize an oil pollution incident.
7. The time within which an effective response to an oil pollution incident can be carried out.

Several priorities have also been identified among which include:

1. The safety of the facility's personnel.
2. The safety of the facility.

3. The safety of the communities living adjacent to the facility.
4. The prevention of fire and explosion.
5. The minimization of the oil pollution incident.
6. The notification and reporting of the oil pollution incident.
7. The environmental impact of the oil pollution incident.
8. The requirements for cleaning up the oil pollution incident.

4.2.1 Response Time Standards

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

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

4.2.2 On-water Recovery

On-water recovery of spilled product shall be initiated immediately upon containment of free floating product. The skimming capacity projected for the MLA-OHF is capable of recovery of several times the required spill volume within the time standards after derating formula are applied.

4.2.3 Dedicated Facility Spill Response Equipment

The MLA-OHF shall be equipped with appropriate spill response equipment that provides *resident capability* for the response to spills in accordance with the scenarios that have been developed under this OPEP. Containment and recovery equipment inventories exceed the facility category planning standards and are especially appropriate for the potential spill volumes as outlined in the scenarios contained in the OPEP. A list of the equipment can be found in Annex 4.

5. Marine Laydown Area – Oil Handling Facility

5.1 GENERAL OVERVIEW AND SITE DESCRIPTION

The proposed MLA-OHF is situated on the western shore of southern Bathurst Inlet at approximately 66°38.59' N and 107°42.69' W. A site overview plan showing its location is presented in Annex 1.

This OPEP applies to the Construction and Operations phases. It is currently planned that the last fuel delivery to the MLA-OHF will occur in Year 8, approximately two years before the end of Operations and the beginning of Closure phases. The SCP which covered spills of all kinds including fuel outside of the MLA-OHF will apply through all phases of the project from Construction through to Post-Closure monitoring.

5.2 OIL HANDLING FACILITY AND INFRASTRUCTURE

Construction activities at the MLA will provide for a new steel construction bulk fuel storage facility consisting of 4 steel tanks of 15 ML. A preliminary site plan of the projected MLA-OHF configuration is provided in Annex 2. The MLA has been designed to annually handle the off-loading and storage of 60 ML of diesel during Operations, ramping up from 15 ML of diesel during initial Construction.

The bulk fuel storage facility located at the MLA shall be constructed in an impermeable secondary containment structure (lined and bermed containment area). The construction is in compliance with CCME's Environmental Code of Practice (CCME 2003; 2008), the bulk fuel storage facility will be designed to have bermed spill containment with capacity equal to the volume of the largest tank plus 10% of the volume of the remaining tanks OR 110% volume of the largest tank, whichever is greater.

The above basis is consistent with the document entitled "Design Rationale for Fuel Storage and Distribution Facilities" published by the Department of Public Works of the Northwest Territories (refer to Section 4.6 of those guidelines). The lining within the bermed area is an impervious HDPE liner membrane. The design of these facilities will be based on industry standards for installation, jointing, etc., the membrane to ensure its integrity.

The bulk fuel storage facility is connected to a shore receiving manifold by a 6-inch diameter steel pipeline. The pipeline is of welded construction. The pipeline is supported on appropriate stands and blocking. The pipeline is fully pressure tested and inspected each year prior to annual bulk cargo transfer operations.

Lighting is provided at the shore receiving manifold meeting the regulatory requirements of the Vessel Pollution and Dangerous Chemical Regulations, (SOR 2012-69). The bulk fuel storage facility is also equipped with lighting meeting the standards as set forth in the same regulation.

It is anticipated that a single ice-class fuel tanker will be used to deliver fuel to the MLA on an annual basis. Anchors will be used to secure the tanker offshore during off-loading. The MLA will have a Level 2 OHF classification. An oil transfer rate of 450 m^3/hr is anticipated.

5.3 BATHURST INLET PHYSICAL ENVIRONMENT AND SENSITIVITIES

5.3.1 Inlet and Approaches

Bathurst Inlet is a deep fjord-type inlet along the northern coast of the Canadian mainland, within the territory of Nunavut. The entrance to the inlet is through Coronation Gulf between Cape Barrow (68°01' N, 110° 06' W) and Cape Flinders (68° 17' N, 108° 35' W), and the body extends over 200 km southwest into the mainland past the Arctic Circle. It has a large network of irregular shores, and is littered with numerous islands, islets and rocks, most of which are described in greater detail by the Canadian Hydrographic Service (1994). Melville Sound extends eastward from northern Bathurst Inlet into Elu Inlet.

The main channel of Bathurst Inlet is relatively narrow (~2 to 15 km) and deep, with depths generally between 100 and 200 m depth, and maximum depths over 300 m in the northern basin near Omingmaktok (Bay Chimo). The most characteristic oceanographic features of the channel are several sills spread along the inlet which result in rapid shoaling of the bathymetry to depths shallower than 50 m. The largest sill is near Manning Point at the centre of Bathurst Inlet, and the shallow bathymetry is accompanied by a narrowing of the channel width to less than 1.5 km between Quadyuk Island and the Tinney Hills. This sill approximately divides Bathurst Inlet in two major basins: the outer inlet that comprises all regions north of Manning Channel and contains the deeper, more complex bathymetry; and the inner inlet that runs landward from near Kingaok and has few islands and relatively simple structure with shallower depths between 100 and 150 m.

5.3.2 Marine Laydown Area-Oil Handling Facility Area

The MLA-OHF is proposed for the western shore of southern Bathurst Inlet. The deeply indented rocky shorelines in the region lead to steep bathymetry with narrow near-shore areas, a consequence of the inlet cutting through the massive granite rocks that characterize the surrounding Bathurst Hills Ecoregion. Hence, the MLA site consists of a long cobble/sand beach with a steep shoreline consisting of limited shallow areas (i.e., < 10 m) and follows a general 120 - 125° WSW heading. The water shelf extends orthogonally from the shore at a steep slope of approximately 20% to depths below 50 m about 240 m offshore. Beyond this distance, the seabed slopes more gently to depths below 150 m in the main inlet channel.

5.3.3 Bathymetric and Marine Data

Bathymetric and marine data is available for the Bathurst Inlet site. Charts 7791, 7792 and 7793 cover most of the area. Risk mitigation will be achieved by ensuring adequate distance between ship and shore and ensuring safe anchoring by accounting for vessel swing related to water depths. Sabina will align on methodologies for any additional bathymetric surveys of the areas with Canadian Hydrographic Service.

The measured tidal heights for the inlet are small, with a maximum tidal range for spring tides (new and full moon) of around 0.4 m, and between 0.1 and 0.3 m for neap tides (first and third quarter moons).

Bathurst Inlet water circulation during open-water season is influenced by winds rather than by tides, with tidal currents likely significantly weaker than the down-slope density flows originating from freshwater discharge at the inlet surface.

The marine environment at the proposed Bathurst Inlet OHF is characterized as a sheltered waters environment. As has been noted at the site, the prevailing winds generally provide sea conditions of onshore waves, varying in height from flat calm to less than 0.65 metre in average winds of less than 30 km/hr. Bulk transfer procedures established jointly by the OHF and the charterer preclude the

transfer of bulk product when conditions become excessive (i.e., wave heights greater than approximately 0.7 m). This enhances the possibility of deploying pollution gear should an incident occur.

5.3.4 Meteorological Data

The Project Atmospheric Environment Study (FEIS Volume 4) baseline data has been used to help in project design, for assessing potential effects on air quality, and for understanding trends in climate change.

The climate in the Project area is characterized by extremes and is primarily subject to cold, dry Arctic air masses, and American continental air masses from the south.

Long-term meteorological data are collected at Environment Canada – Meteorological Service of Canada (EC-MSC) meteorological stations. The closest currently operating stations are Lupin CS and Kugluktuk A and CS meteorological stations. Climate normal data (arithmetic averages of climate elements over a prescribed 30-year interval) have been used from these EC-MSC stations. The most updated climate normals and extremes currently offered by EC are based on Canadian climate stations with at least 15 years of data between 1982 and 2010.

Project-specific meteorological baseline data collection commenced in August 2004 at the Goose meteorological station that is located within the Goose property. This station continues to be operational. Meteorological data are also available from the Bathurst Inlet Port and Road Project meteorological station, which has been located near the MLA in Bathurst Inlet since 2001.

The climate at the MLA consists of a winter period (October to May) of extremely cold mean monthly temperatures ranging from -33.0 to -1.3ºC and a cool spring, summer and fall period (June to September) with mean monthly temperatures ranging from -0.3 to 14.5ºC.

Precipitation climate normals in the regional area range from 249.4 to 299.2 mm per year. Project meteorological station precipitation was measured as rainfall during the summer period only (June, July, August, and September), when temperatures were above freezing. During the 2006 to 2011 monitoring period, summer monthly rainfall ranged from 0 mm (September 2006) to 102 mm (August 2008). The summer total rainfall between June and September ranged from 4 mm (2006) to 211 mm (2008).

Wind speed data was collected during the measurement period (2006 to September 2012) specifically at the Bathurst Inlet Port and Road meteorological station. For the open shipping season, during the summer season (June to September), winds predominantly came from the north and northwest, 17% and 15% of the time respectively, more than 5 m/s 45% of the time but less than 9 m/s approximately 86% of the time. On average, wind speeds during the summer were slightly slower than winter wind speeds.

5.3.5 Ice Conditions

Historically, consolidated first-year ice covers Bathurst Inlet from mid-October to June. Ice break-up usually occurs in the first few weeks of July, after which open waters prevail until thin new ice forms around mid-October.

Environment and Climate Change Canada data documents the average sea ice freeze-up and break-up dates within the Canadian Arctic for the past 30 years. There has been significant temporal and spatial variation in the timing of break-up and freeze-up in southern Bathurst Inlet, as well as in the amount of ice present year-to-year. ECCC data is well documented for the area and includes the areas of Barrow Strait, Franklin Strait, and the area between Queen Maud and Coronation Gulfs. Ice data indicates an open shipping season of more than 60 days in the area of the MLA.

Observational evidence from the last few decades indicates that sea ice in the Arctic has been thinning and retreating earlier than historical reports (Stroeve et al. 2012). Most ice concentration records in the last 8 years have been lower than historical averages. The strongest changes occurred in the summer for the more northern straits, with several ice-free periods recently recorded where ice used to be present year-round. In 2012, Arctic sea ice was at the lowest recorded levels since ice monitoring by satellite began three decades ago (NSIDC 2012).

In the event of severe deterioration in ice or visibility conditions, bulk fuel transfer activities will be stopped. Shipping is only carried out during the ice free season. Should ice be encountered, the vessel will either sail around it at a reduced speed or proceed slowly through the ice. Currently there is no plan for barges, fuel vessels or tugs to remain at Bathurst Inlet over the winter. Should it become necessary, all regulations for overwintering will be met.

Ships sailing to Bathurst Inlet from eastern Canada must transit Transport Canada Zone 6, which has the most restricted entry season of any of the sixteen Arctic waters zones, except for the High Arctic. Passage from the western approaches transit zones 11 and 12. Bulk fuel deliveries at the MLA-OHF shall be limited to the period of open water only, and by ships of appropriate ice class for the shipping zones transited.

5.3.6 Sensitivities

As noted in Section 5.3.2 above, the MLA consists of a long cobble/sand beach with a steep shoreline consisting of limited shallow areas (i.e., < 10 m) and follows a general 120 - 125° WSW heading. The water shelf extends orthogonally from the shore at a steep slope of approximately 20% to depths below 50 m about 240 m offshore. Beyond this distance, the seabed slopes more gently to depths below 150 m in the main inlet channel.

The 2013 Bathurst Inlet Marine Diesel Fuel Spill Modeling Report (Updated June 2015) (Rescan 2015) was completed to predict the fate of potential diesel fuel spills near the MLA in Bathurst Inlet during the open-water season (i.e., ~July to October). The spills were assumed to originate near the MLA. The fuel spill modeling undertaken also addresses the potential for environmental damage from diesel spills resulting from transportation and storage of fuel near the proposed MLA. The subsections present predicted effects on marine birds, marine mammals, and marine fish.

In open-water diesel spills, a fraction of the diesel fuel becomes entrained into the upper water column immediately under slicks by direct solution or by entrainment of small oil droplets through current and wave action (Mackay et al. 1980; Kuiper and Van den Brink 1987; ITOPF 2011). Diesel fuel concentrations in this cloud of oil-contaminated water depend on the oil properties and the level of mixing energy (winds/waves). In theory, these concentrations may initially exceed the toxic thresholds of marine species present in the spill area. As the diesel fuel spreads under the influence of water currents, turbulent diffusion and weathering processes, the hydrocarbon concentrations within it are reduced. In time, these diesel fuel concentrations will fall below the threshold levels that cause toxicity to living organisms and ultimately decline to background levels.

The diesel volume scenarios presented in the study were modeled under hundreds of different wind conditions, from which spill probability distribution figures were drawn. Most of the diesel deposits were limited to the southern portion of the modeled inlet, and over two-thirds of the diesel quickly weathered out within the first 10 days of all simulations. In the detailed simulations prepared for the study, the diesel high probability distributions and spread resulting from a 20 kL diesel spill were only recorded directly near the MLA; diesel very rarely spread in the areas outside of the MLA.

5.3.6.1 Marine Birds

Marine birds are one of the more vulnerable and sensitive of marine organisms to all types of oil spills.

However, unlike cruder distillates, diesel spills (particularly small ones ≤ 20,000 L) usually have limited impacts on marine bird wildlife due to the oil's high volatility (NOAA 2013). While diesel is highly toxic when in direct contact with marine birds, the number of birds affected is usually small due to the short residence times on surface waters.

Numerous marine bird species have been documented in southern Bathurst Inlet (Rescan 2012b, 2013b). Ordered from commonly (i.e., over >200 individuals counted) to rarely (i.e., less than 30 individuals) observed, these are: Canadian goose; red-breasted merganser; greater scaup; black, white-winged and surf scoters; herring and glaucous gulls; long-tailed duck; pacific, red-throated and yellow-billed loons; and the common eider. Amongst these populations, the glaucous gull, long-tailed duck and common eider are all listed as sensitive species in Nunavut (CESCC 2010).

In the assessments, the most apparent feature of Figure 5.3-1 contained in Annex 3 of the Spill Modelling Report is the lack of bird populations located near the MLA, which has by far the highest spill probabilities. Only a medium flock of geese and a brief observation of an unidentified fowl have been recorded within 4 km of the on land MLA infrastructure. Conversely, the highest proportion of bird observations in the inlet is located in the small cove just south the MLA, which is seasonally inhabited by large groups of ducks and geese. Diesel particles appear to reach the cove only in <10% of simulations, and the results of the simulations indicate it would take several hours before a spill would reach the area. It is logical that birds would favour the southern cove relative to the MLA shoreline for nesting grounds, as the cove is relatively sheltered from the main currents driving the circulation in the main Bathurst Inlet channel. The alongshore currents near the MLA will disperse spills northwards.

Two other bird areas could potentially interact with diesel fuel spills: the northern shores directly across the main channel from the MLA, and the shores surrounding the peninsula to the south of the MLA. The former is largely inhabited by duck populations that span over 10 km of the coast. The diesel residual probabilities there still remain relatively low with respect to the MLA coast, some small areas can have probabilities as high as 30%, but on average most of the coast probabilities are <10%. The peninsula to the south, on the other hand, is far enough south to receive little diesel fuel overall, with only a few patches of <5% probabilities present.

5.3.6.2 Marine Mammals

Two species of marine mammals occur within the Back River Project marine wildlife Regional Study Area in Bathurst Inlet – the ringed seal (*Phoca hispida*), and in less number, the bearded seal (*Erignathus barbatus*). True seals in the family Phocidae are susceptible to diesel spills due to their life history traits. Seals are frequently at the water's surface to breath, and so may come into contact with spilled fuel. Seals also use a combination of blubber and fur to insulate themselves and their fur can become ineffective when coated in fuel. Seals regularly go ashore at particular haul-out locations, where they may become fouled with fuel. Seal pups are particularly at risk of oil-related effects on fur if the fuel spill has reached a haul out location. In addition, because seals breathe at the water's surface, they can inhale and ingest spilled diesel, resulting in acute or long-term health effects. Ringed and bearded seals can also accumulate diesel through their diets of benthic crustaceans, fish, amphipods, and squid. Aerial surveys were conducted in the Marine Regional Study Area during spring (June) 2007, 2012, and 2013 to examine the use of Bathurst Inlet by seals during the sea ice period. Ringed seals were reported in Bathurst Inlet, at an overall density of approximately 2.05 seals/km^2 in 2012. The density was higher north of Kingaok (Bathurst Inlet Seasonal Community and Lodge) where the ice had a greater number of fractures and pressure ridges that afforded seals access through the ice.

In the 20 kL scenario, the spilled diesel would occur to the north of the Marine Laydown Area with small areas of 1-5% probability of fuel occurring to the north of the MLA as far north as Young Point. This shoreline between the MLA and Young Point was not identified as supporting a ringed or bearded seal haul out, and supported few animals during aerial surveys. Few effects are predicted for the 20 kL scenario.

5.3.6.3 Marine Fish

A variety of fish inhabit the waters of Bathurst Inlet. A fuel spill could result in impacts to marine fish by direct mortality as direct contact with fuel could damage or kill eggs, larvae, and/or adult fish. Marine fish can also accumulate diesel through their diets of lower trophic level organisms and other fish species.

Unlike cruder distillates, diesel spills (particularly small ones ≤ 20,000 L) in open water usually have limited impacts on pelagic and deepwater marine fish; the oil's low density means that it remains at the surface and its high volatility means that it evaporates quickly (NOAA 2013). Section 3.3 of this report indicates that the majority of the diesel spill would weather primarily through evaporation, and by the 10th simulation day almost all of the volatile oil mass will have dissipated; only the "residual" heavy diesel fraction (27% of the total) would remain. This fraction could typically take weeks to months to weather naturally, although in practice most of the material would eventually disperse or end up beached.

However, if currents transport diesel fuel into shallow, confined coastal areas before it is weathered it can impact fish populations. Diesel is acutely toxic when it comes into direct contact with all life stages of fish, so species that spawn or live in shallow and intertidal areas are more vulnerable to spills than deepwater residents. As residual diesel will persist longer along shorelines than in the open ocean, these areas will also experience prolonged exposure. Thus, shore-locked or beached fuel material is surmised to be of a greater concern to marine fish than diesel fuel slicks primarily located in open waters.

The following fish species found in Bathurst Inlet use nearshore, shallow water for some or all of their life cycles: Arctic Flounder (*Liopsetta glacialis*), Fourhorn Sculpin (*Myoxocephalus quadricornis*), Ninespine Stickleback (*Pungitius pungitius*), and Starry Flounder (*Platichthys stellatus*) regularly utilize shallow and intertidal areas for all stages of their life cycle (Rescan 2013a). Other species including Capelin (*Mallotus villosus*) and Pacific Herring (*Clupea pallasii*) are generally associated with offshore habitats, but they migrate to intertidal and shallow subtidal beaches to spawn (Rescan 2013a).

A Traditional Knowledge report identified marine areas within Bathurst Inlet known to be important fishing grounds for Inuit (KIA 2014). In the marine environment, three Arctic Cod (*Arctogadus glacialis*) fishing grounds were identified; one was 17 km north of the MLA off the end of Young Point on the western shore of the inlet, a second was identified adjacent to Quadyuk Island 30 km north of the MLA, and a third was located 17 km south of the MLA on the western shore of the inlet off a small point of land. Several freshwater fishing grounds were identified in waterbodies that flow into Bathurst Inlet, where Inuit fish for Arctic Char, Lake Trout (*Salvelinus namaycush*), and Arctic Grayling (*Thymallus arcticus*).

In the 20 kL scenario, the spilled diesel would remain in a very localized area near the Marine Laydown Area and move slightly to the north along the coastline. The small localized spill is not predicted to interact with the identified Inuit Fishing Areas presented in the Kitikmeot Inuit Association (KIA) 2014 report.

5.3.6.4 Summary of Sensitivities

The spill modelling report summarizes that the wind conditions, current regime, and overall spill volume play a critical role in determining the fate of diesel spills within southern Bathurst Inlet. Regardless of

diesel amounts, spills occurring in mild to moderate wind conditions generally did not progress past a few kilometres from the source location. Sabina has conducted a shipping sensitivity analysis (Appendix V7-6A) that commits to adhering to various setback distances for key marine species. Sabina remains committed to including the proposed setbacks from sensitive areas in all future shipping contracts. This will include the expectation the vessel companies and captains follow these setbacks except under emergency of unforeseen circumstances. With these setbacks in place and the low residual spill probabilities provided, a tactical response plan showing fuel spill dispersion modelling results relative to local sensitivities was not deemed a requirement at this time.

Preventive measures, such as strict criteria for acceptable conditions for discharge, are outlined in cargo transfer procedures and in Section 11 of this plan. Preventive booming following any spill to protect sensitive areas of significant bird populations will be considered as outlined in the scenarios presented in Section 11 of this plan. The hazing techniques and wildlife protection procedures as outlined in Section 9.4 of this plan are of utmost importance.

As long as vessels met or exceed the requirements of a SOPEP that no third party contracts would be required. Sabina is still considering options around the necessarily of third party response, however, due to the fact that our shipping frequency is so low and our shipping route is so long, we are unsure if the contract would make logistical and financial sense.

6. Site Activities

6.1 BULK OIL TRANSFER, SHIP TO SHORE

Bulk fuel deliveries will take place during the open shipping season and volumes and frequency of deliveries will depend on a number of factors including but not limited to: size of ships, fuel consumption rates, operational constraints, etc. Annual bulk fuel transfers from ship to shore are anticipated during the open-water seasons of Construction and Operations. No bulk oil transfers are expected during Closure.

It is anticipated that the total annual volume of the bulk fuel transfers shall be 60 ML and will take place between the months of late August through early October. The fuel transfers shall take place by means of either a single or double 4-inch floating hose deployed between the vessel and the connecting flange on the shore. The products are then transferred through the pipeline to the above mentioned OHF. A steel pipeline of 6" diameter connects between the shore manifold and the tank farm.

The tides are not a major risk factor at this location. Wind force and direction are the dictating environmental factors during bulk transfer and criteria for acceptable conditions for discharge are outlined in cargo transfer procedures.

The ship to shore transfer operation at Bathurst Inlet is largely similar to other cargo discharge operations in the North and involves bulk transfer by floating hose of two types of fuel (Jet A and Ultra Low Sulphur Diesel – ULSD). It is expected that once cargo operations are underway, the ship will discharge at a rate of up to 450 m^3/hour depending on the number of hoses used and also final obtainable pumping rate.

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 and shore personnel is required to ensure the safe transfer of fuel and prevent any overfilling that could result in a spill.

The bulk transfer procedures are fully detailed in the standard operating procedure in Annex 5.

6.2 OTHER MARINE LAYDOWN AREA-OIL HANDLING FACILITY OPERATIONS

Other than the planned bulk fuel and transfers, no other port operations involving fuel are anticipated at the MLA-OHF under normal operations during any Project phase.

Dry cargo sealift operations are anticipated to occur at the MLA, however these will be separate from the operations of the OHF and are not considered in this OPEP.

7. General Response to Marine Spill Emergencies

To effectively manage emergency response, Sabina has implemented a detailed emergency response structure that is applicable to all emergencies.

7.1 LEVELS OF EMERGENCY

Escalating levels of emergency are described in the SCP (SD-17), which is a separate document. The SCP (SD-17) addresses a wider scope of operations and includes storage areas other than the MLA-OHF. The management of emergencies throughout the project 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.

Irrespective of reporting thresholds or usual escalating response levels to varying spill volumes dictated elsewhere in Sabina plans, all marine spills at the OHF regardless of volumes shall be managed at the highest level of response as outlined in the Sabina emergency response system. The usual regulatory reporting requirements are to be strictly adhered to as outlined in Section 3 of this plan.

7.2 RESPONSE MANAGEMENT STRUCTURE

All spill procedures and response functions are to be implemented through the Emergency Response Management Team. Table 7.2-1 presents the management team responsible for overseeing emergency spill response operations and their contact information.

Table 7.2-1. Sabina Gold & Silver Corp. Emergency Management Team Contacts

Role	Primary	Alternate
Emergency Response Coordinator		
Phone:	TBA	TBA
Alternate Phone:		
Email:		
Incident Commander		
Phone:	TBA	TBA
Alternate Phone:		
Email:		
Environmental Superintendent		
Phone:	TBA	TBA
Alternate Phone:		
Email:		
Safety Superintendent		
Phone:	TBA	TBA
Alternate Phone:		
Email:		
Environmental Coordinator		
Phone:	TBA	TBA
Alternate Phone:		
Email:		

Note: The Table will be completed once a construction decision is made.

Once a spill event is reported, the Incident Commander establishes a specific strategy for containing and controlling the spill and to initiate the clean-up activities. Other site personnel may act as technical advisers before and during the intervention. The trained Emergency Response Team (ERT) will conduct all emergency spill response operations under the direction of the Incident Commander. During the clean-up phase of the intervention other site personnel (e.g., heavy equipment operators, labourers) could be involved in the intervention.

The Emergency Response Organizational Chart is provided as Figure 7.2-1.

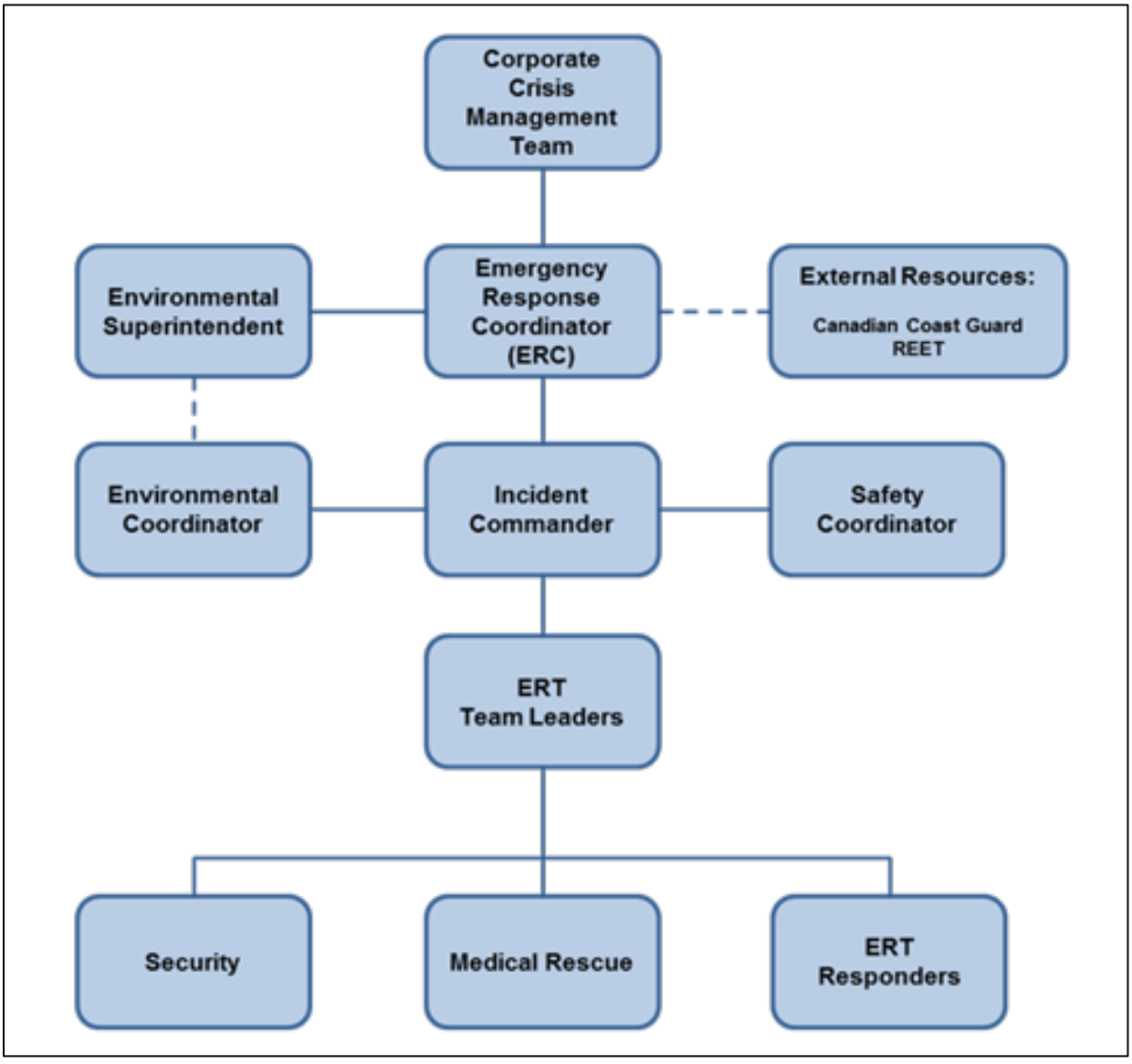

Figure 7.2-1. Marine Spill Response Organizational Chart

7.3 EMERGENCY RESPONSE TEAM

The ERT will be structured from a worker volunteer base at site. With different work schedules, it will be necessary to have enough team members to maintain sufficient numbers of responders at site at all times.

7.4 EQUIPMENT AND PERSONAL PROTECTION

To provide adequate response in case of spill events, Sabina 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. A complete list of spill response equipment is found in Annex 4 of this plan.

In addition to the spill response material, a variety of mobile heavy equipment including excavators, front-end loaders, bulldozers, haul trucks, small workboat for in land water use, and marine support boat are available to aid in spill response and recovery efforts.

7.5 COMMUNICATION

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

Communications available at the Project site during an emergency are listed below.

- Hand-held radios;
- Telephone;
- Satellite Phone; and
- Internet.

7.5.1 Hand-held Radio Communication

During an emergency, the primary communications link between all emergency response personnel is through radio communication. 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, security personnel, upon receiving instruction by the Emergency Response Coordinator (ERC) or Incident Commander, will announce this. This ensures open and free communications among personnel involved in the actual response.

7.5.2 Telephone Communication

During an emergency, telephone communications will be used to:

- Notify internal personnel and resources.
- 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 Corporate Sabina office may also be required during some emergency situations. Constant communications links will be established by telephone where off-site assistance is required (from Sabina, or external resources such as medical practitioners or SAR/Coast Guards).

7.6 COMMUNICATION WITH THE PUBLIC

Only authorized Sabina Senior Management shall provide external communication to the public during emergencies.

Local residents, community leaders, other stakeholders, and non-governmental agencies will be contacted as appropriate. The designated officer(s) will coordinate dissemination of information to the media whenever necessary.

7.7 MULTIPLE EMERGENCY EVENTS

The potential exists for multiple emergencies to occur simultaneously, or for one emergency to lead to other emergency events occurring. Examples of this could include an extreme precipitation event resulting in an unplanned discharge, slope failure, etc. or a major storm resulting in a vehicle or aircraft collision.

A key emergency response measure that minimizes the potential for multiple emergency events from occurring is to immediately communicate an emergency site-wide, and to order cease work orders if appropriate.

In the event of multiple emergencies, all emergency response activities will continue to be coordinated through the ERC, who will designate multiple incident commanders to oversee the response to each individual emergency. Operations will be shut down and all personnel not assisting with response will be on standby, awaiting instructions to assist if necessary.

8. Roles and Responsibilities

The initial stage of any emergency is critical. An effective and timely response is essential to prevent an emergency situation from escalating to a higher level. Therefore, all personnel must be fully aware of their individual duties and responsibilities as they are presented in this plan.

Specific responsibilities and duties of the personnel involved in emergency response are outlined below.

8.1 EMERGENCY RESPONSE COORDINATOR

For the purpose of this response plan, the ERC will be the General Manager or his designate if absent. ERC duties during an emergency are detailed as follows:

- The ERC will ensure coordination of ERT support systems.
- Upon being notified of an emergency, the ERC will initiate response activities and assess the situation based on current information from the Incident Commander.
- Activate the emergency response process and escalate according to the severity of incident.
- The ERC will coordinate all activities. In the event the ERC leaves his post, the ERC will designate an individual to coordinate in his absence.
- Ensure that the appropriate area manager/s has been notified.
- Provide internal notification as applicable based on the level of emergency.
- Provide instruction to ensure that appropriate external resources are notified.
- Receive information from the Incident Commander and ensure appropriate resources are made available.
- Provide support for the acquirement of additional supplies and resources as requested by the Incident Commander.
- Contact departmental resources via radio as required during the emergency response.
- Provide internal notification of the “all clear.”
- Ensure the coordination and establishment of an emergency debriefing session.
- Review incident log and post response incident report.
- Post incident debrief with Incident Commander.
- Provide necessary information to Public Relations for a media statement release if required.
- Complete a report on the events surrounding the incident.
- Coordinate collection of all incident notes, reports, statements and log of events.
- End the event in ER System.

8.2 ENVIRONMENT SUPERINTENDENT

The duties of the Environment Superintendent during an emergency are detailed as follows:

- For major spills contact the ERC and report to the command center.

- Assist the ERC in evaluating the initial situation and assessing the magnitude of the spill.
- Report the spill to NWT-NU 24-hour Spill Report Line depending on whether threshold volume is triggered.
- Assist in developing an overall plan of action.
- Document all actions and decisions.
- Complete Government Agency notification processes.
- Act as the spokesperson with government agencies as appropriate.
- Collect photographic records of the spill event and cleanup efforts.
- Report to the ERC and provide recommendations on resource requirements (additional manpower, equipment, material) to complete the cleanup effort.
- Provide liaison with management to keep them informed of cleanup activities.
- Ensure that the spill is cleaned up and follow-up communication and reports are filed with the Indigenous and Northern Affairs Canada (INAC) and KIA.
- Assist in the accident/incident investigation process.
- Participate in post-emergency debriefing.
- Ensure that all involved departments complete reporting process.
- Ensure that spill reports submitted to INAC and KIA include photographic records and an updated map showing Universal Transverse Mercator (UTM) coordinates, date, and amount and nature of the spill.
- Implement a sampling procedure for the collection and analysis of samples to identify and monitor possible contaminant levels resulting from the spill.
- Document the cause of the spill and effectiveness of the cleanup effort, and recommend the appropriate measures to prevent a recurrence of the spill.
- Prepare and submit follow-up documentation required by appropriate regulators.

For marine spills at the OHF, the Sabina Environment Superintendent will be accessible to the CCG during the entire incident.

8.3 INCIDENT COMMANDER

The Incident Commander is the site lead administrator for the ERT, responsible for ensuring the necessary emergency response equipment and adequate level of training for ERT members. The Incident Commander directs the ERT at the scene as ERT Leader. In the absence of the Incident Commander, a senior team member will be designated in his place. The following duties during an emergency are performed by the Incident Commander:

- Muster accordingly and brief team members.
- Report to the scene of the emergency.
- Take charge of the scene.
- Evaluate the details of the emergency as presented by those on scene. Assess the immediate situation, confirm the level of emergency and notify the ERC.
- Maintain contact with the ERC and provide support in coordination of the response.

- Direct ERT members in their respective tasks as required
- Contact departmental resources via radio as required during the emergency response.
- Request internal/external resources as required.
- Advise ERT on aspects of internal/external support as they are received.
- Develop a written log of events indicating instructions given, action taken and outcomes achieved.
- Announce the 'all clear' to the ERC when the emergency has ended.
- Lead the emergency debriefing session.
- Ensure that all ERT equipment is returned to original order and/or replaced to ensure future rapid response.
- Provide assistance with ongoing investigation.
- Prepare a written report on response activities.

8.4 EMERGENCY MEDICAL PERSONNEL

Duties during an emergency are as follows:

- Respond when required as directed by the Incident Commander.
- Responsible for all decisions of medical-related situations on-site.
- Responsible for assessing, administering and delegating emergency medical care.
- Advise the Incident Commander of the number and condition of any ill/injured personnel.
- Advise the ER Coordinator of off-site resources required.
- Maintain a log of events, actions and outcomes.
- Participate in an emergency debriefing session.

8.5 SECURITY

Security personnel, or their designates, are key in an emergency response in that they will receive an initial notification of an emergency and provide first communications to essential personnel and secure the area.

Duties during an emergency are as follows:

- Security will report muster and evacuation status to the Incident Commander and await further instruction.
- Provide traffic and personnel control at scene as directed by the Incident Commander.
- Assist in controlling access to the emergency area.
- Maintain open radio communication (via radio or telephone intercom system).
- Keep a written record of events throughout incident.
- Relay notification of 'all clear" order when directed by Incident Commander.
- Maintain Security of the scene as directed by the ER Coordinator or Incident Commander.

- Direct all off-site inquiries regarding the emergency to the ER Coordinator or designate.
- Participate in a debriefing session for the emergency response.

8.6 ENVIRONMENTAL COORDINATOR

The Environmental Coordinator shall liaise with Incident Commander to advise on direction of environmental response efforts once the scene has been assessed by the Incident Commander and any medical and/or fire emergencies are under control.

The Environmental Coordinator will:

- Immediately proceed to the scene of the incident.
- Make recommendations for response methods and resources based on area sensitivities and incident severity through the Incident Commander as necessary.
- Make recommendations for additional resources through the Incident Commander as necessary.
- Participate in post-emergency debriefing.
- Maintain a log of events, actions, and outcomes.

8.7 SAFETY COORDINATOR

The duties of the Safety Coordinator during an emergency are detailed as follows:

- Contact the ERC.
- Respond to the scene and make direct contact with the Incident Commander.
- Establish perimeters around the area of the emergency and direct appropriate resource personnel responsible for traffic flow.
- Assist with identifying and assessment of potential hazards of the ERT response and notify the Incident Commander.
- Ensure appropriate personal protective equipment for involved ERT and non-ERT personnel.
- Note pertinent information that may be relative to the investigation.
- Secure the area in coordination with site security.
- Participate in post-emergency debriefing.
- Assist in the accident/incident investigation and complete report.

8.8 TEAM LEADERS - EMERGENCY RESPONSE TEAM

All ERT members shall receive training to ensure that they have the required skills to provide an appropriate, safe and adequate response minimizing the impact of a spill on the environment.

9. General Spill Procedures

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

This plan clearly outlines the notification procedure and the roles and responsibilities of the management and spill response team. All emergency telephone numbers are clearly listed and the persons are contacted as needed and according to the priority of the incident. The contact list is included in Table 7.2-1.

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

Full details of the properties and hazards associated with potential spills of all products are found on the Material Safety Data Sheets in Annex 8 of this plan.

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

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

Close all electrical sources.

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

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

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

1. Immediately warn other personnel working near the spill area.
2. Evacuate the area if the health and safety of personnel is threatened.
3. Notify an appropriate supervisor, who will initiate the spill response operations.
4. In the absence of danger and before the spill response team arrives at the scene, take any safe and reasonable measure to stop, contain and identify the nature of the spill.

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

- **Cease Transfer Operations -** In all cases immediately upon detection of a spill, all transfer operations are to be shut down and not restarted in any manner that would interfere with the immediate, effective and sustained response to the oil pollution incident.
- **Source Control** - Reduce or stop the flow of product without endangering anyone. This may involve very simple actions such as closing shore valves, sealing a puncture hole with almost anything handy (e.g., a rag, a piece of wood, tape, etc.), raising a leaky or discharging hose at a level higher than the product level inside the tank.
- **Control of Free Product** - Prevent or limit the spread of the spilled material. Accumulate/concentrate spilled product in an area to facilitate recovery. Barriers positioned down-gradient of the spill will slow or stop the progression of the spill. Barriers can consist of absorbent booms, dykes, berms, or trenches (dug in the ground). Deployment of floating booms to contain a marine spill should be carried out by the spill response team as soon as safe and practical.
- **Protection** - Evaluate the potential dangers of the spill in order to protect sensitive ecosystems and natural resources. Block or divert the spilled material away from sensitive areas where possible.
- **Clean up the Spill** – Recover and containerize as much free product as possible. Recover contaminated soil, and water. Pressure-wash contaminated bedrock surfaces, shorelines, ice and recover as much as possible oily water for containerization and/or treatment.
- **Report the Spill** - Provide basic information such as date and time of the spill, type and amount of product discharged, location and approximate size of the spill, actions already taken to stop and contain the spill, meteorological conditions and any perceived threat to human health or the environment. Reporting requirements are presented in Section 7.3 of this plan.

9.1 HEALTH AND SAFETY

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

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

- *Northwest Territories, Nunavut Worker's Compensation Act* - Provides the territorial legislation covering the health and safety of workers in Nunavut.
- *Mine Health and Safety Act and Regulations (Nunavut)* - Provides specific health and safety guidelines for mines operating in Nunavut: Section 2(1) Duties and Responsibilities (the Owner).
- *Canada Labour Code Part II* – Provides federal regulations for the health and safety of workers involved in shipping and marine port operations.

Sabina requires and provides WHMIS training for all employees and contractors throughout the Back River Project: *Mine Health and Safety Act* and Regulations, Part VI Regs. Training 6.03.

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

Comprehensive general training is provided to spill responders throughout the project in relation to inland spills. In addition, specific training with relation to safety during response to marine spills is provided to all responders through Sabina's marine spill training program. All responders who are involved in marine operations shall participate in the training as outlined in Section 11 of this plan.

9.1.1 Personal Protective Equipment – Requirements

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

- MLA Site Services (non-water operations, no contact with spilled product):
  - Hard hat.
  - CSA-approved work boots.
  - Safety glasses.
  - Leather work gloves.
  - Orange/yellow retro reflective vests.
- MLA Site Services (non-water operations, possible contact with spilled product):
  - Hard hat.
  - CSA-approved work boots.
  - Safety glasses.
  - Orange/yellow retro reflective vests or rain wear.
  - PVC rain suit.
  - Nitrile work gloves.
- Workboat and shoreline responders (beach or on-water operations, possible contact with spilled product):
  - Safety vest
  - Hard hat.
  - CSA-approved work boots.
  - Safety glasses.
  - PVC rain suit.
  - Nitrile work gloves.
  - Approved personal flotation device.

9.2 COORDINATION WITH CANADIAN COAST GUARD AND OTHER GOVERNMENTAL AGENCIES

9.2.1 Canadian Coast Guard

The response to spills at the MLA-OHF shall be managed in coordination with the CCG whom are the lead response agency north of 60°.

The *Central & Arctic Regional Response Plan (2008)* and the *Kitikmeot Region, Nunavut Area Plan* outline the CCG's response capability for the region. This plan is a component of the *Canadian Coast Guard National Response Plan, which* is the responsibility of the Director of Safety and Environmental Response Systems, Ottawa. It establishes the framework and the procedures, by which Central & Arctic Region will prepare for, assess, respond to and document actions taken in response to pollution incidents in this

Region. This capability and the information contained in the Coast Guard plans are considered a valuable resource in the planning and response to spills at the MLA-OHF.

In 2007, the CCG undertook an evaluation of risk and requirements for additional Arctic pollution response equipment, in consultation with key partners and clients, purchased and placed Arctic Response Packs in 19 communities throughout the Arctic. These Arctic Response Packs provide communities with on-site equipment to use in the event of a small scale pollution incident in their waters. Arctic Response Packs are located in Cambridge Bay, Kugluktuk, and Gjoa Haven. Each of the new Arctic Community Packs contains surface booms and accessories, shoreline cleanup kits, small vessels and outboard motors and trailers, and in select communities, beach flushing kits.

Along with the deployment of the Arctic Response Packs, the CCG was to provide training where the Arctic Community Packs are located (Transport Canada 2014). Community residents can therefore play a role in helping the lead response agency, the Canadian Coast Guard, should a marine spill occur.

9.2.2 Environnent Canada – National Environmental Emergencies Centre

The CCG (lead agency) with primary jurisdiction for the spill oversees and monitors response and recovery efforts by the responsible party and further, may request that ECCC provide scientific and technical advice to inform response actions that will reduce the environmental impact of the spill. Additionally, ECCC has legislative responsibility to address pollution incidents that impact federally managed resources such as fish and wildlife under the *Fisheries Act* and the *Migratory Birds Convention Act*, as well as hazardous substances regulated by the Environmental Emergency Regulations. Environment and Climate Change Canada may issue directions under its legislative mandate if the environment is not being adequately protected and, when warranted take over the lead agency role.

In the event of a polluting incident that requires ECCC's involvement, the National Environmental Emergencies Centre is ECCC's focal point for the provision of scientific advice, such as weather forecast, contaminant dispersion and trajectory modeling, fate and behaviour of hazardous substances, the establishment of clean-up priorities and techniques, as well as the protection of sensitive ecosystems and wildlife such as migratory birds and fish. Environment and Climate Change Canada's Emergency officers have Hazardous Materials (HAZMAT) expertise that enables response in the event of spills involving hazardous materials.

9.2.3 Other Governmental Agencies

At all times, the response to spill incidents shall be coordinated with the various agencies as listed in Figure 7.2-1.

9.3 REPORTING REQUIREMENTS

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

9.3.1 Canadian Coast Guard Reporting Requirements

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

Reporting of marine spills shall be in accordance with Transport Canada Guideline 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 Annex 9 of this plan.

9.3.2 Reporting to Transport Canada

The Vessel Pollution and Dangerous Chemical Regulations, (SOR 2012-69) require that any spills be reported to the nearest office of Transport Canada as follows:

Jaideep Johar
Manager, Technical services
Transport Canada, Marine Safety
Prairie and Northern Region
Tel: (204) 984-8618
Cell: (204) 880-0754
Email:joharj@tc.gc.ca

Craig D. Miller
Manager, Marine Safety (PNR)
Transport Canada
PO Box 8550, 344 Edmonton Street, Winnipeg, MB, R3C 0P6
Email: craig.miller@tc.gc.ca
Tel: (204) 984-0397
Fax: (204) 984-8417

Reporting of 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 Annex 9 of this plan.

9.3.3 Government of Nunavut Reporting Requirements

Quantities of hazardous substances spilled that require reporting are listed in Schedule B of the Nunavut Spill Contingency and Reporting Regulation.

After the initial field emergency response to the spill event, spills are reported to the 24-hour Spill Report Line:

24-Hour Spill Report Line
spills@gov.nt.ca
Tel: (867) 920-8130
Fax: (867) 873 6924

Failure to report a spill can lead to fines. The KIA Lands Administrator will also be promptly notified at (867) 983-2458 or via e-mail. Similarly, the INAC Water Resources Officer will be promptly notified of the spill event at (867) 982-4308 or via e-mail.

It is the responsibility of the Environmental Supervisor on behalf of the Operations Manager to prepare the proper reports and transmit them to regulatory authorities.

The spill event is reported in writing using the standard NWT-NU Spill Report Form.

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

9.4 WILDLIFE PROTECTION PROCEDURES

In response to a spill event, techniques used to prevent wildlife from becoming oiled or contaminated, by preventing animals from entering the contaminated area, will consist of hazing and other deterrents. This will be accomplished using a combination of both audible and visual devices, including but not limited to:

- Pyrotechnics (i.e., shell crackers, screamers, propane cannons for shore based spills).
- Visual scare tactics (i.e., helicopters, emergency response vessels, or other water vessels).
- Broadcast sounds (i.e., Breco Bird Scarer designed to float with an oil spill).
- Exclusion (i.e., netting applied in smaller contaminated areas).

These techniques need to be set in place immediately after a spill occurrence so as to minimize environmental impact.

The size of the spill and location in relation to sensitive wildlife areas must be assessed at the time of the event as to correctly apply the appropriate level of deterrence. Only workers trained in the safe and proper use of certain hazing equipment will be permitted to haze wildlife. Personal Protective Equipment will be worn by all personnel using equipment, as per manufactures instructions, and that the minimum will include the use of eye and ear protection. Other workers in the vicinity of such devices should also use ear protection or remain a safe distance away. Hazing through the use of pyrotechnics should not be used too close to dry vegetation or flammable spill materials due to fire hazard.

Hazing should be equal and continuous in all contaminated areas to prevent wildlife from being hazed into an area where they may be in danger. It is also important to ensure that hazing efforts do not cause already contaminated animals to scatter and techniques are applied as soon as possible to prevent wildlife from contacting spills off the surface of waters (if applicable).

All emergency response vessels shall be equipped with deterrent devices to ensure timely response in case of a spill occurrence off-shore. To prevent habituation, variation of hazing techniques will be used such as changing the location, appearance and types of hazing or using a combination of hazing techniques.

Efforts shall be made to collect alive or dead oiled wildlife. In the event of a spill occurring in or around a water body, shorelines and beaches shall be inspected for contaminated wildlife to be collected. Emergency Response vessels shall be equipped with dip-nets, large plastic collecting bags for dead wildlife, and cardboard boxes or cloth bags for live oiled wildlife. To ensure alive oiled wildlife be dealt with humanely, capture and handling of wildlife shall only be done by trained and permitted individuals. Gloves shall be worn when handling contaminated wildlife (leather gloves for raptors and mammals, latex/rubber gloves for ducks and small shorebirds). Wildlife will be kept individually within cloth bags or ventilated cardboard boxes and label the date and time animal was found, name of finder, location and name of species, if known. Wildlife treatment facilities will then be contacted for advisement on treatment. All contaminated wildlife will be held in a warm quiet place until treatment. The Canadian Wildlife Services will be consulted to determine the most humane treatment strategy to be implemented for live oiled wildlife, whether rehabilitation or euthanization.

For wildlife mortalities each carcass shall be bagged and labeled individually. The date and time animal was found, name of finder, location, and name of species, if known shall be documented. Canadian Wildlife Services shall be consulted and approval obtained prior to disposing of any dead wildlife. Contact

information for experts in bird hazing and bird exclusion, oiled bird rehabilitation, and, permits needed to haze, salvage, hold and clean, or euthanize birds, are shown in Table 9.4-1.

Table 9.4-1. Emergency Contacts in Case of Spills Affecting Wildlife

Name	Location	Phone Number	Purpose
Canadian Wildlife Services (CWS)	TBA	TBA	Knowing and providing information on the migratory bird resource and species at risk (under CWS jurisdiction) in the area of a spill (this includes damage assessment and restoration planning after the event) Minimizing the damage to birds by deterring unoiled birds from becoming oiled Ensuring the humane treatment of captured migratory birds and species at risk by determining the appropriate response and treatment strategies that may include euthanization or cleaning and rehabilitation.
Cobequid Wildlife Rehabilitation Centre	Brookfield, NS	1-902-893-0253	Provide veterinary care and rehabilitation for wildlife
Nunavut Emergency Management	PO Box 1000, Station 700 Iqaluit, NU X0A 0H0	1-800-693-1666	Nunavut Emergency Management is responsible for developing the territorial emergency response plans, coordinating general emergency operations at the territorial and regional levels, and supporting community emergency response operations.
International Bird Rescue	International	1-888-447-7143	Wildlife rehabilitation specialists, can manage all aspects of wildlife response

9.5 TREATMENT AND DISPOSAL

Plastic sacks, steel drums, or other appropriate containers as approved by the Environmental Supervisor are used to contain and transport contaminated soil for treatment. Depending on the nature of the spilled contaminant, the soil may be treated for remediation on-site, or shipped to a licensed facility for treatment and disposal. Contaminated soil resulting from the spill of hazardous chemicals will be treated as a hazardous waste and shipped to a licensed facility for treatment and disposal. Temporary storage of contaminated materials is within lined berms.

10. Spill Scenarios and Response Strategies

Sabina is committed to planning for spills at the MLA-OHF using an analysis of possible spill scenarios. The potential incident analysis is based on real projected operations, and potential quantities spilled are based on pumping rates and estimated times to halt pumping operations.

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

- The type of ship that is employed for the bulk fuel delivery is a conventional double hulled, multi-compartment petroleum tanker, between 120 to 135 metres in length. The tanker is anchored at a safe distance from the MLA-OHF beach head and floating hose is deployed between ship and shore.
- As outlined in Section 5.2 of this plan, two products are received at the facility. Both products, JET A1 and Ultra Low Sulphur Diesel (ULSD) are classified as non-persistent combustible hydrocarbons and will behave in a similar fashion if spilled. The response to a spill of either of these products shall be carried out in the same fashion. Full details of the properties and hazards associated with these products are found on the Material Safety Data Sheets in Annex 8 at the end of this plan.
- Both products are of relative low viscosity, are clear to yellow in color and will float readily when spilled. It should be anticipated that any spillage will rapidly spread when spilled and a high rate of evaporation will occur. Wind will be the most important factor in promoting the spread of the product on the water surface.
- Where environmental sensitivities are mentioned in the scenarios, these relate to the area sensitivities as outlined in Annex 3 of this plan.
- Local topography plays an important part in wind direction and force, but it is generally noted at the MLA that the most common wind direction is from the north and northwest, 17% and 15% of the time respectively, more than 5 m/s 45% of the time but less than 9 m/s approximately 86% of the time. On average, wind speeds during the summer were slightly slower than winter wind speeds.
- As is indicated in the Plan, upon discovery of spillage, any manner of pumping operations are ceased.

General response time limits should be observed for each action as follows:

- Deployment of containment boom: 0-1 hours following the spillage event; and
- Deployment of skimming equipment: 0-6 hours following the spillage event.

During ship to shore discharge of the product, the floating hose is inspected on a regular basis by boat. Stoppers and absorbents are available in case they are needed. The ship has a SOPEP, appropriate response gear on board and the crew is fully trained in its use.

There is a person on watch at the shore manifold at all times during discharge and in direct radio communication with the vessel. Furthermore, there is a pressure alarm installed on the pipeline during discharge to validate the system. Any leak or malfunction and resulting drop in line pressure would trigger the alarm. In addition, a visual gauge is installed at the manifold and the manifold watchman will perform regular pressure monitoring. The pipeline will be inspected visually and regularly by walking alongside of it. All discharge hoses are hydrostatically tested annually, clearly marked and identified and certificates are submitted to the OHF prior to discharge.

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

In the presentation of the spill scenarios in this section, it is implied that the initial spill response actions outlined in section 7 above have first and foremost been addressed. The scenarios are designed moreover for the purpose of identifying the appropriate specific actions and therefore the related resources required for a given incident.

Detailed spill response scenarios related to ship to shore fuel transfer, and the appropriate actions and resources required, are outlined in Table 10-1.

Table 10-1. Ship to Shore Fuel Spill Response Scenario Actions and Resources Required

Source of Discharge	Potential Loss	Appropriate Actions	Resources Required
Coupling or hose break / malfunction at the ship's manifold	20 – 1,200 litres	1. Deploy containment boom as required to control migration of spill. Consideration of protection booming of beach front, or sensitive areas as defined in Annex 3 of the OPEP depending on wind direction, tides and marine conditions present. Typical deployment lengths of 50 metres are anticipated for this task. (Multiple lengths should be used when required). 2. Deploy skimmer and recover spill. 3. Final recovery of spill using sorbents if necessary. 4. Monitor any free floating oil that is unable to be contained. 5. Notifications of local authorities.	Boat – Sabina near shore workboat - 3 responders Boom – 100 metres and accessories, additional booms if necessary to provide shoreline protection Shore crew to deploy from container – 3 responders
Coupling leaking or hose rupture along length of hose between ship and shore manifold	20 – 5,000 litres	1. Deploy containment boom to control migration of spill. Consideration of protection booming of beach front, or sensitive areas as defined in Annex 3 of the OPEP depending on wind direction, tides and marine conditions present. Typical deployment lengths of 50 metres are anticipated for this task. (Multiple lengths should be used when required). 2. Deploy skimmer and recover spill. 3. Final recovery of spill using sorbents if necessary. 4. Monitor any free floating oil that is unable to be contained. 5. Notifications of local authorities.	Boat – Sabina near shore workboat - 3 responders Boom – 100 metres and accessories, additional booms if necessary to provide shoreline protection Shore crew to deploy from container – 3 responders
Leak at shore manifold connection	20 - 1,200 litres	1. Deploy containment boom to control migration of spill. Typical deployment lengths of 50 metres are anticipated for this task. (Multiple lengths should be used when required). 2. Deploy skimmer and recover spill. 3. Final recovery of spill using sorbents if necessary. 4. Monitor any free floating oil that is unable to be contained 5. 5: Notifications of local authorities.	Same marine response, shore based response deploy berms and sorbents 3 additional shore responders MLA site services

(continued)

Table 10-1. Ship to Shore Fuel Spill Response Scenario Actions and Resources Required (completed)

Source of Discharge	Potential Loss	Appropriate Actions	Resources Required
Failure of flange or coupling Vehicle Accident involving pipeline or shore based hose length	20-5,000 litres	Land spill only: 1. Immediately install portable berms under leaking or damaged line where possible. 2. If portable berms are not feasible, contain and recover oil spill using dykes or trenches. 3. Prevent the oil from reaching natural drainage paths leading to the ocean. 4. Collect free-product for temporary storage. Excavate contaminated soil, store and manage appropriately. Marine response if necessary: 1. Deploy containment boom to control migration of spill. Consideration of protection booming of beach front, or sensitive areas as defined in Annex 3 of the OPEP depending on wind direction, tides and marine conditions present. Typical deployment lengths of 50 metres are anticipated for this task. (Multiple lengths should be used when required). 2. Deploy skimmer and recover spill. 3. Final recovery of spill using sorbents if necessary. 4. Monitor any free floating oil that is unable to be contained. 5. Notifications of local authorities.	Land spill only: Response by MLA site services Recover free products with sorbents, pumps within temporary berms Earth moving equipment available for berming, etc. Boat – Sabina near shore workboat - 3 responders Boom – 100 metres and accessories, additional booms if necessary to provide shoreline protection Shore crew to deploy from container – 3 responders MLA site services

Oil Handling Facility

The OHF located at the MLA shall be constructed in an impermeable secondary containment structure (lined and bermed containment area). The construction is in compliance with CCME's Environmental Code of Practice (CCME 2003; 2008), the bulk fuel storage facility will be designed to have bermed spill containment with capacity equal to the volume of the largest tank plus 10% of the volume of the remaining tanks OR 110 % volume of the largest tank, whichever is greater.

The above basis is consistent with the document entitled "Design Rationale for Fuel Storage and Distribution Facilities" published by the Department of Public Works of the Northwest Territories (refer to Section 4.6 of those guidelines). The lining within the bermed area is an impervious HDPE liner membrane. The design of these facilities will be based on industry standards for installation, jointing, etc., the membrane to ensure its integrity.

Detailed spill response scenarios related to OHF, and the appropriate actions and resources required, are outlined in Table 10-2.

Table 10-2. Oil Handling Facility Spill Response Scenario Actions and Resources Required

Source of Discharge	Potential Loss	Appropriate Actions	Resources Required
Leaking Tank or piping/valves	20-500 litres	Isolate and patch accordingly, berm or portable berms	Patch kits/ portable berms Response by MLA site services Recover free products with sorbents Berm designed with fuel recovery to sump and engineered oil water separator

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

10.1 RESPONSE STRATEGIES – LARGE SPILLS

For the purposes of this plan, spills less than 5 m^3 are to be handled by MLA-OHF response operations. MLA personnel shall deploy the resident on-site equipment as outlined in the Plan.

If the spill is larger than 5 m^3 and depending on the specific circumstances, the ERC shall determine if it is necessary to increase the response capability by requesting third party assistance. Where this support is deemed necessary, the ERC shall immediately request this assistance while ensuring ongoing mitigation of spill impact to the extent possible while awaiting additional resources and assistance from the third party responder.

The choice of third party responder and any contractual arrangements (if required) is a commercial element of the project and shall be determined at a future date prior to commencement of operations. The choice of a third party responder shall be commensurate with the required capabilities under the regulations.

11. Preventive Measures

It is Sabina policy to prevent any accidental spillage and all prior efforts shall be made to minimize the risk of incidents and impact to the environment. Sabina shall constantly update the facility, shall have adequate safety equipment at the site and provide comprehensive training to its employees, contractors and visitors with the goal of avoiding spills and to minimize their impact if they should occur.

Sabina shall contract the entire fuel delivery and transfer operation to the ship operator. The ship operator has established transfer procedures meeting all of the required regulations for Arctic bulk fuel transfers. All ship personnel involved in the transfer shall possess appropriate Supervision of an Oil Transfer Operation certifications. The ships maintain pollution response equipment onboard and are trained in its use.

Furthermore, Sabina has established standard operating procedure in relation to the bulk fuel transfer – (Annex 5), that provides safeguards and immediate alarm in the event of failures during the operation.

11.1 TRAINING - GENERAL

Every person working at or visiting the Marine Laydown Area will receive an orientation upon arrival and, as such, will be apprised of, and required to, follow the ERP policies and procedures set forth in this plan. As a contractual condition with penalties, Contractors will be obliged to comply with Sabina's approvals and environmental management plans, including this plan. Sabina staff will monitor contractor performance and adherence to legislation and the commitments in the environmental management plans. Sabina ensures that personnel involved during a response receive training for their own safety, public safety, and that they have the required skills to minimize the impact of a spill on the environment.

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

The personnel directly linked to spill response operations, contract employees and the other responders identified in the environmental emergency plan should take part in the yearly training program. It shall be ensured that training is carried out to ensure adequate numbers of responders at all levels are available on both work shifts.

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

11.1.1 Training Content

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

Sabina Emergency Response Coordinator shall possess spill management training to a level commensurate to the duties required of the position.

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

The major components of this training program shall include:

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

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

11.1.2 Short Notice Training

In the event of a large spill the personnel requirements may exceed those that have received the specific responder training as outlined in Section 11.1.1 above. Due to the remoteness of the site, volunteers are not anticipated. MLA site services personnel shall be employed as additional responders.

Although all site services personnel possess WHMIS training, additional short notice training shall be carried out for these new responders on an as needed basis. Certain modules of the responder training shall be delivered on-site to these personnel selected specifically from the training outlined in Section 11.1.1 above. The Incident Commander shall determine which modules are pertinent to each group of additional responders and shall be responsible for assuring adequate training for each group.

11.2 EXERCISES

Following the annual delivery of the spill training as outlined in Section 11.1 a comprehensive spill exercise shall be undertaken. The exercise is structured to test the readiness of management, responders and to practice and validate the logistics of the deployment of spill gear. The exercise content shall be different from year to year so that it can validate the various elements of the Plan and the response over a three-year period. Some of the factors that shall be evaluated include but are not limited to:

- Activation of the emergency plan.
- Management response.
- Internal and external notifications.
- Site safety.
- Communications.
- Equipment deployment to a specific scenario.

- Reporting and co-ordination with outside agencies.
- Exercise coordination with Canadian Coast Guard.
- Exercise coordination with ship.

11.3 SPILL PREVENTION MEASURES

11.3.1 Oil Handling Facility

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

11.3.2 Bulk Fuel Transfer

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

- The bulk fuel storage facility, pipeline and all related equipment and infrastructures are inspected prior to the bulk cargo transfer and the inspection methods are documented as a Standard Operating Procedure.
- Complete bulk cargo transfer procedures have been established, a copy of which is found in Annex 5 of this OPEP.
- As required by the applicable legislation the ship has a comprehensive SOPEP and a copy of this plan has been reviewed by Sabina.
- In addition to the legislative requirements, the charterer has implemented a shipboard spill response training program and performs routine exercises in spill response operations.
- The ship carries a compliment of spill response equipment as listed in Annex 6 of the OPEP and this equipment is ready at the ship's rail at all times for deployment during cargo operations.
- Sabina oil spill response equipment is on the beach, ready for immediate deployment at all times during cargo operations.
- The workboats and trained responders are available at all times during cargo operations for spill equipment deployment.
- Standard transfer procedures include hourly inspections by workboat of the floating hose for leaks or defects.
- During transfer operations the shore manifold is manned at all times.
- A low pressure alarm is installed at the shore manifold that is highly sensitive to differences in pressure during pumping. Any loss in the system will cause a drop in manifold pressure and results in an audible alarm, which is immediately reported by the manifold personnel.
- The bulk fuel storage facility is monitored at all times by Sabina personnel during the transfer.
- The pipeline is inspected hourly on foot during the transfer operation.

11.4 RESPONSE EQUIPMENT AUDITING

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

11.5 OIL POLLUTION RESPONSE PLAN UPDATES

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

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

11.5.1 Update Registry

The OPEP shall be updated, reprinted, and redistributed when changes are made as noted above. The Plan carries the latest version identified by date. If Plan amendments result in a reprinting, all old versions of the Plan shall be recalled and destroyed accordingly.

11.5.2 Plan Distribution

In addition to distribution within Sabina all modified versions of the Plan shall be submitted to Transport Canada accordingly.

12. References

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Rescan. 2013b. Back River Project: Wildlife Baseline Report 2012. Prepared for Sabina Gold and Silver Corp. by Rescan Environmental Services Ltd.: Vancouver, British Columbia.

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Annex 1: Nunavut Watershed Areas of the Back River Project

105°0'0"W

N

68°0'0"N

67°0'0"N

66°0'0"N

Ekaluktutiak
(Cambridge Bay)

Kugluktuk

Omingmaktok
(Bay Chimo)

Kingaok
(Bathurst Inlet)

Marine
Laydown
Area

Nunavut

Northwest
Territories

Main
Map

Goose
Property
Area

Yellowknife

1:7,000,000

Koignuk River

Angimajuq River

1:60,000

Tahikafalok Nahik
(Propeller Lake)

Attituq
(Goose Lake)

Tahikyuak
(Big Lake)

1:85,000

Kingaok
(Bathurst Inlet)

Ayapaqkpaktovik (Burnside River)

Marine
Laydown
Area

Queen Maud Gulf
Watershed

George
Exploration Camp

Goose
Property
Area

Hanningayok (Beechey Lake)

Back
Watershed

Community/Settlement
Existing Exploration Camp
BIPR Winter Road Connector
Winter Ice Road
Watershed Boundary
Potential Development Area (PDA)

Water Shed Areas
(NWR, Sched. 4)
Queen Maud Gulf
Back

1:1,050,000
0 25 50
Kilometres

Projection: NTKP Lambert Conformal Conic

Sabina
GOLD & SILVER CORP.

Nunavut Water Shed Areas of the Back River Project Type A Water Licence

Base Figure 1

Annex 2: Oil Handling Facility Overview

381000

381750

7395000

7394000

N

Main Map

Marine Laydown Area

Kilogiktok (Bathurst Inlet, Southern Arm)

BIPR Winter Road Connector

Goose Property Area

1:1,810,000

FUEL SHIP

FLOATING HOSE

WATER INTAKE PIPELINE

LIGHTERING BARGE

BARGE TIE DOWN

LIGHTER BARGE TERMINAL

WATER DISCHARGE PIPELINE (DESAL.)

TREATED EFFLUENT WATER DISCHARGE

LINED HAZARDOUS MATERIALS MGMT. AREA (5000 m²)

LANDFARM (2500 m²)

FREIGHT STORAGE AREA

FRESH/FIRE WATER STORAGE TANK

DESALINATION PLANT

ERT BUILDING

LAYDOWN AREA

MOBILE EQUIPMENT PARKING

INCINERATOR

CAMP AREA

FUEL STORAGE AREA
4 x 15,000,000 L TANKS

Marine Laydown Area PDA = 653 ha
Marine Laydown Area Infrastructure Footprint = 20 ha

- Spill Kits
- Existing Exploration Camp
- Treated Effluent Water Discharge
- Floating Hose
- Winter Ice Road
- Water Intake Pipeline
- Water Discharge Pipeline
- Camp/Maintenance Facilities
- Storage Facilities
- Helipad
- Desalination plant
- Potential Development Area (PDA)
- Contours 5 m
- Inuit Owned Land (IOL)
- Crown Land

1:7,500

0 200 400

Metres

Projection: NAD 1983 UTM Zone 13N

Kilogiktok (Bathurst Inlet, Southern Arm)

Marine Laydown Area

TO GOOSE PROPERTY

1:120,000

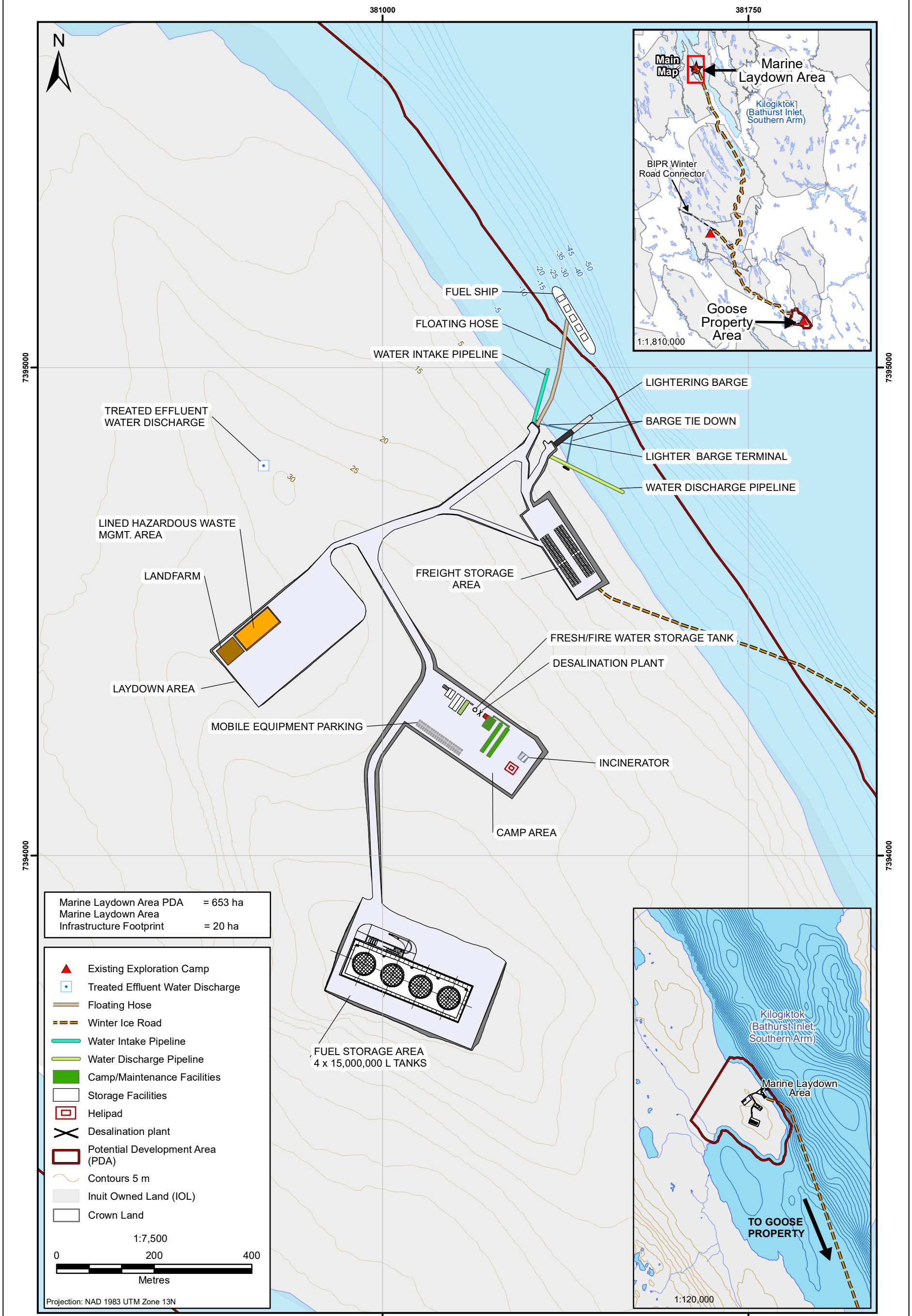
NOTE: All roads at the MLA are service roads

ANNEX 2

Sabina GOLD & SILVER CORP.

Marine Laydown Area
General Arrangement Plan with Emergency Response Site Locations

Annex 3: Marine Laydown Area Potential Development Area and Layout



NOTE: All roads at the MLA are service roads

Sabina GOLD & SILVER CORP.

Marine Laydown Area
Potential Development Area and Layout
Type A Water Licence

Base Figure 4

Annex 4: Resident Spill Response Equipment

RESIDENT OIL SPILL RESPONSE EQUIPMENT
MARINE LAYDOWN AREA – OIL HANDLING FACILITY

Quantity	Description
1	Oil containment boom 300 meters – 24 Inch Fence type
4	Anchor kits for anchoring boom in place
4	Towing bridal for oil boom
4	Spill response unit – X Large Land
4	Overpack spill kit
50	12 kg. Bags granular absorbant
6	0.5m X 0.5m x 15 cm Arctic mini berm for under fittings
6	1m x 1m x 15 cm Arctic mini berm for under fittings
1	1500 Gallon Portable Tank
25	Bales Sorbent Pads
25	Bales Absorbant booms
1	Aluminium workboat with outboard engine, equipped with towing post and related equipment for boom deployment
1	Skimmer and diesel driven power pack, suitable for recovery of distillates – Capacity 7.5 tonnes per hour
12	Rakes for beach cleaning
12	Perforated shovels for sorbent recovery
12	Pitch forks with screens for sorbent and debris recovery
12	Approved flotation devices
1	Minimum 10 ton sand stockpile for spill berming operations

Additional Response Equipment Available from Project Stockpiles:

Mobile Equipment	
Grader	Winch Trucks
Cranes	Pickup Trucks
Snowmobiles	Generator Sets
Vacuum Truck	Fire Truck
Loaders	Aluminium Boats
Backhoes	Fuel Trucks
Bulldozers	Bobcats
Forklifts	Haul Trucks
Water Trucks	Snow Cats
Excavators	
Temporary Containment Systems	
Booms	Spill Kits
Drums	Spill Absorbent Material
Tanks	Silt Fencing
Tailings Management Area	
Emergency Transportation	
Aircraft (helicopter)	Snowmobiles
4-Wheel Drive Vehicles (ex. Pickup trucks)	Boats
ATVs	
Communication Equipment	
Radios	Fax
Telephone	Wireless Communication Systems

Mobile Spill Kit Equipment	
Spill Pump	White oil spill pads
Pump accessories	Universal booms
Vacuum ends	Cell U-Sorb
Tubing or pipes for vacuum or pumping	Sphagsorb
45 gallon top	Wedge wood
Diesel fuel jerry can	Plug patties
Spill kit accessory	Quattrex bags
Drums opener	Hand shovel
Wescot (to open empty drum screw)	Ice breaker chisel
Empty drums	Sledge hammer
Drums berms	Rod bars
Tarps	

Annex 5: Bulk Cargo Transfer Procedures

MARINE LAYDOWN AREA – OIL HANDLING FACILITY - PROCEDURES

Procedure:	**Bulk Ship to Shore Fuel Transfer**			**Procedure No:**	
Revision:		**Effective:**	October 2013	**Replaces:**	
Issued By:					
Project:	Back River Project				

PURPOSE AND SCOPE

To establish a standard procedure for the safe transfer of fuel from bulk fuel tanker ships to the Marine Laydown Area – Oil Handling Facility (MLA-OHF).

GENERAL:

The safe transfer of fuel is made in compliance with various regulatory laws, guidelines & organizational standards. This procedure outlines the operational scope of fuel transfers at the facility, details the various standards to be followed and outlines specific roles & accountabilities to ensure a safe transfer of fuel and to prevent cargo/fuel spillage, and any resulting environmental damage.

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GENERAL SAFETY

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

Key Safety Requirements:

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

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

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

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

Summary of Operation.

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

Construction activities at Bathurst Inlet will provide for a new steel construction bulk fuel storage facility consisting of 4 steel tanks at 10 ML and one at 5 ML

The MLA-OHF shall be constructed in an impermeable secondary containment structure (lined and bermed containment area). The construction is in compliance with CCME's Environmental Code of Practice (CCME 2003; 2008), the fuel bulk fuel storage facility will be designed to have bermed spill containment with capacity equal to the volume of the largest tank plus 10% of the volume of the remaining tanks OR 110 % volume of the largest tank, whichever is greater.

The above basis is consistent with the document entitled "Design Rationale for Fuel Storage and Distribution Facilities" published by the Department of Public Works of the North West Territories (refer to section 4.6 of those guidelines). The lining within the bermed area is an impervious HDPE liner membrane. The design of these facilities will be based on industry standards for installation, jointing, etc., the membrane to ensure its integrity.

The MLA-OHF is connected to a shore receiving manifold by a 6 inch diameter steel pipeline. The pipeline is of welded construction. The pipeline is supported on appropriate stands and blocking. The pipeline is fully pressure tested and inspected each year prior to annual bulk cargo transfer operations.

Lighting is provided at the shore receiving manifold meeting the regulatory requirements of the Vessel Pollution and Dangerous Chemical Regulations, (SOR 2012-69). The bulk fuel storage facility is also equipped with lighting meeting the standards as set forth in the same regulation.

Bulk fuel deliveries will take place during the open shipping season and volumes and frequency of deliveries will depend on a number of factors including but not limited to: size of ships, fuel consumption rates, operational constraints etc. Multiple bulk fuel transfers therefore from ship to shore annually are anticipated.

It is anticipated that the total annual volume of the bulk fuel transfers shall be in the order of approximately 30- 45 ML and will take place between the months of late August through early October. The fuel transfers shall take place by means of either a single or double 4 inch floating hose with an approximate length of approximately 1000 meters deployed between the vessel and the connecting flange on the shore. The products are then transferred through the pipeline to the above mentioned bulk storage facility through a 6 inch steel pipeline.

Accurate reconciliation of discharge & fill volumes through regular communication between ship & shore personnel is required to ensure the safe transfer of fuel & prevent overfilling within the tank farm that could result in a spill.

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

Work Group	Description of Applicable Regulation, Guideline or Procedure
Sabina / Shipper	MLA-OHF - Procedures
Sabina	Sabina Gold & Silver Corp. - Spill Contingency Plan (SCP) Sabina Gold & Silver Corp. - Oil Pollution Emergency Plan (OPEP)
Shipper	Cargo Operations at Bathurst Inlet Guidelines
Shipper	Arctic, General Port Operation Guidelines
Sabina / Shipper	Transport Canada – Arctic Waters Oil Transfer Guidelines.
Shipper	Arctic Shipping Pollution Prevention Regulations (ASPPR), under the Arctic Waters Pollution Prevention Act (AWPPA). This covers ship standards and activities in waters north of the 60th parallel.
Shipper	Arctic Waters Pollution Prevention Regulations (AWPPR) under the AWPPA. This covers the ship owner's liability provisions regarding spillage of waste
Shipper	Oil Pollution Prevention Regulations (OPPR), under the Canada Shipping Act.
Shipper	Vessel Pollution and Dangerous Chemical Regulations, (SOR 2012-69)
Shipper	Shipboard Oil Pollution Emergency Plan (SOPEP)

RESPONSIBILITY

Role	Accountability	By When	Comments
Sabina - Operations Manager or Designate	Complete PHA on Draft Procedure	In advance of annual Bulk Fuel Sealift	
Sabina Fuel Transfer Master	Implementation of all supplier accountabilities as described in this procedure, all regulatory requirements and organization procedures	As specified	
Sabina Fuel Transfer Master	Inspection of shore fuel transfer system piping	Every 4 hours upon start of fuel transfer	
Supplier Oil Transfer Supervisor	Notify Prairie & Northern Region, Maritime in Ottawa, via NORDREG of the plans for oil transfer operations in arctic waters	In advance of Bulk Fuel Sealift	
	Implementation of all supplier accountabilities as described in this procedure, all regulatory requirements and organization procedures	As specified	
All personnel involved in Bulk Fuel Transfer	Initiate Stop Transfer or Emergency Stop Transfer upon identification of conditions listed in this procedure	As required immediately	

DEFINITIONS

Shipper: The owner and the operations personnel of the bulk fuel tanker ship engaged under contract to Sabina Gold & Silver Corp. to ship & transfer fuel to the Bathurst Inlet fuel farm shore manifold

Receiver: Sabina Gold & Silver Corp

1.0 PROCEDURE

GENERAL

1.1 A Process Hazard Analysis (PHA) will be conducted annually on this procedure by all parties involved in the Bulk Fuel Transfer Procedure in advance of the Bulk Fuel Sealift. The purpose of the PHA is to identify potential hazards not already covered in this procedure or with the methodology and to implement the appropriate controls commensurate with the level of risk associated with the hazard.

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

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

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

- The language of the workplace at the facility is English. All communication is to be in English.
- A dedicated radio frequency will be used by personnel directly involved in the transfer. The supplier will provide radio's on the ship's dedicated frequency to the receiver's shore personnel.
- The radio is only to be used for fuel transfer communication
- All cargo volumes are to communicated in cubes or cubic meters
- The following standard signals should be used in all transfer operations

- STANDBY TO START TRANSFER
- START TRANSFER
- SLOW DOWN TRANSFER
- STAND BY TO STOP TRANSFER
- STOP TRANSFER
- EMERGENCY STOP OF TRANSFER
- EMERGENCY SHUTDOWN OF TRANSFER
-

If any of the following conditions occur, the transfer should be stopped immediately:

- LOST COMMUNICATIONS
- LOSS OF ABILITY TO MONITOR HOSE TO SHORE
- SIGN OF SPILLAGE, OR DAMAGE TO HOSES AND COUPLINGS
- ANY DETECTION OF ACCUMULATED GASES
- MAJOR INCREASE IN WIND AND/OR SWELLS (SUPPLIER)
- WHEN AN ELECTRICAL STORM IS PRESENT OR PREDICTED
- SEVERE DETERIORATION IN ICE OR VISIBILITY CONDITIONS (SUPPLIER)
- HELICOPTER LANDINGS OR TAKE OFFS WITHIN 500 METERS
- ANY OTHER SITUATION DEEMED DANGEROUS BY THE FUEL TRANSFER SUPERVISOR OR SABINA FUEL TRANSFER MASTER.

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2.0 LAND / SHORE - SAFETY AND ENVIRONMENTAL CONTROLS

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

- "No smoking/no naked lights or flames" warning signs will be posted at all the shore manifolds and at the entrance to and around the perimeter of the MLA-OHF berm.
- Fire extinguishers will be prepared for rapid deployment in the area of the shore manifold and the fuel farm before commencing transfer
- The shore hose landing, handling and manifold area is free of obstructions and hazards
- Road access to the beach area will be restricted to prevent vehicles from crossing the hose
- Manifolds, bollards and deadmen are adequate and clearly marked for visibility
- All personnel involved in the fuel transfer using radios will be on the same channel or frequency
- Ensure that all personnel know they have the right to suspend operations at any time, if they decide it is necessary.
- Fuel Transfer Piping Isolation: The pressurization of fuel transfer lines, manifolds and fuel farm piping can reach pressures of 700 kPa (100 psi). No person is permitted to create a break in a pipe or open any part of the pressurized system without the written consent of the Sabina fuel transfer Master.
    - Each time the fuel transfer system requires a break in the line, flange to be opened, a component to be removed or any other service that requires the opening of a line even downstream of a valve, a non-routine JSA must be

conducted by the SABINA Fuel Transfer Master and the workgroups doing the work.

- The work may only proceed upon written confirmation by the SABINA Fuel Transfer Master.

- Burning & Welding is not permitted on any component associated with shore manifold, pipeline, or fuel farm equipment without the written consent of the Sabina fuel transfer Master. A non-routine JSA must be conducted by the Sabina fuel transfer master and the personnel involved in the hot work.

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

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

3.0 SEA / SHIP - SAFETY & ENVIRONMENTAL CONTROLS

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

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

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

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

3.4 The supplier shall demonstrate that they have previously carried out adequate shipboard emergency spill response simulation/training exercises

3.5 The supplier is accountable for completing the Arctic Oil Transfer Guideline Checklist and will provide a copy to Sabina Iron upon completion of the fuel transfer to the MLA-OHF.

4.0 PRE-TRANSFER PREPARATION & OPERATIONS

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

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

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

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

5.0 TRANSFER OPERATIONS

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

5.2 Sabina fuel transfer master will announce impending fuel transfer on ship to shore communication and to other personnel at Bathurst Inlet

5.3 The Sabina fuel transfer master shall ensure that:

(a) the supervisor of the transfer operation on board the vessel has reported readiness for the transfer operation to begin;

(b) continuous communication is maintained with the supervisor on board the vessel; and

(c) the manifold valves and the tank valves within the fuel farm are not closed until the relevant pumps are stopped, if the closing of the valves would cause dangerous over-pressurization of the pumping system.

- **Cargo hose/shore line pigging procedures**

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

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

    - Normal operations would have the Jet-A discharged ashore first. The hose will then be blown with a 4 inch pig from ship to shore manifold, and again blown with a 6 inch pig until it reaches the tank farm. (This point is determined by prior arrangement with the ship and shore personnel). The hose will then be bled off and the hose will then be cleared.

    - This procedure will ensure that the hose/shore line has been cleared of all traces of Jet-A. The diesel will then be discharged ashore as the last cargo.

    - Upon completion of discharge of a cargo the pigging of the hose/shore line should be done in two steps as follows:

Ship to Shore Manifold – 4 inch floating hose:

1. Cargo pump stop
2. Cargo manifold close
3. Squeeze the cargo hose about 3ft from the manifold
4. Drain that section of the cargo hose
5. Ensure the hose is well secure
6. Disconnect the hose, insert the pig, reconnect the hose
7. Notify the shore manifold that you are ready to launch the pig
8. When the shore manifold is ready to receive the pig, open the air
9. When the air pressure is at 70psi, release the pig by opening the hose squeezer
10. The air pressure should be maintained at approximately 70psi
11. If the pig gets stuck, notified the shore manifold then increase the air pressure by 10psi and wait 2 to 5 minutes
12. If the pig is still stuck repeat the above but do not exceed 100psi

13. Once the pig is at the shore manifold pig catcher shut the air immediately, close the valve to the 6 inch shore pipeline isolating any remaining product between shore manifold and tank farm in the 6 inch shore pipeline.

14. Bleed the air from the hose.

Shore Manifold to Tank farm – 6 inch steel pipeline

15. Open the 6 inch pig launcher at the shore manifold and insert a pig.

16. Notify the shore manifold that you are ready to launch the pig

17. When the shore manifold is ready to receive the pig, open the air

18. When the air pressure is at 70 psi, release the pig by opening the 6 inch valve at the shore manifold

19. The air pressure should be maintained at approximately 70psi

20. If the pig gets stuck, notify the tank farm then increase the air pressure by 10 psi and wait 2 to 5 minutes

21. If the pig is still stuck repeat the above but do not exceed 100psi

22. Once the pig is at the tank farm pig catcher shut the air immediately, close the valve to the tank

23. Bled the air from the hose.

5.4 Fuel transfer rates should initially start off low in the 30-40m3/hr range and then ramp up slowly as the fill methodology advances. The maximum fuel transfer rate allowed the MLA-OHF is 149 m3/hr

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

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

5.7 The fuel transfer hose and shore pipe will be cleared of Jet A by pigging following the completion of Jet A fuel transfer

5.8 Diesel fuel will be transferred to the fuel farm.

5.9 Upon completion of the fuel transfer operations, the entire hose and pipeline shall be cleared of product by the pigging procedure outlined in 5.2 above

6.0 POST-TRANSFER OPERATIONS

6.1 The shore manifold open end will be capped to prevent any accidental discharge of fuel.

6.2 Upon completion of the fuel transfer operation, the hard pipe line will be isolated from the fuel farm at a point inside the fuel farm through the installation of a spade or by physically breaking & installing a blank flange or cap on both ends

6.3 The hard piped transfer line will be opened at the shore manifold to drain any remaining fuel that may have accumulated.

6.4 The SABINA fuel transfer master will sign off the MLA-OHF Fuel Transfer Checklist indicating that this procedure has been completed and the bulk fuel transfer to the MLA-OHF is complete

6.5 The supplier will provide Sabina Iron with a copy of the Suppliers statement of facts (record of ship activities) from the fuel transfer process.

7.0 REFERENCES AND RELATED DOCUMENTS

7.1 PHR Forms

7.2 Non-Routine JSA

7.3 Fuel Transfer Checklists

7.4 MLA-OHF plans and layout

ARCTIC WATERS OIL TRANSFER **CHECKLIST FOR BARGE TRANSFERS**

	BARGE - PROCEEDURE	CHECK	SUPPLIER		RECIPIENT		COMMENTS
		YES	INITIAL	DATE	INITIAL	DATE	
1.	Has the General Checklist for All Transfers been completed?						
2.	Is the dis charge pump as close as possible to suction pipe of the discharge tank?						
3.	Check hard line hose between pump and tank (if fitted)?						
4.	Check couplings on discharge between pump and recipient?						
5.	Do not exceed the following: a) maximum list (P & S) b) maximum trim (FWD & AFT)						
6.	Are barge tank diagrams and pipe schematics available?						
7.	Are fenders between the barge and other vessel?						
8.	Is barge equipment bonded to barge structure?						
9.	Are fire screens installed in ullage openings?						
10.	Are all valves closed and hoses stowed after completion of transfer?						

ARCTIC WATERS OIL TRANSFER

TRANSFER PARTICULARS

VESSEL / STATION INFORMATION			Location:	
	Supplier	Recipient	Start Date	
Vessel / Station Name			Start Time	
Officer in Charge			Finish Date	
Title			Finish Time	

OPERATIONS	
Transfer Type:	Connection Type (eg 2/4 bands):
Total Length of Hose (m):	Number of Hose Sections:
Diameter (m):	Test Pressure (kPa):
Purge Method: Nitrogen / Air	Pig Used: Yes / No
Boom deployed before transfer: Yes / No	If yes, type:
Work Boat used: Yes / No	
Hose Strain Relief System used: Yes / No	

PRODUCT INFORMATION				WEATHER CONDITIONS
Type	Quantity	Start Time	Finish time	Ice:
				Wind Force (knots):
				Wind Direction:
				Sea State:
				Visibility:
				Light Conditions:

COMMUNICATIONS	
Primary Method:	(VHF/UHF CHAN/FREQ)
Backup Method:	(PHONE, RADIO, ETC)
Language Used:	

ARCTIC WATERS OIL TRANSFER **GENERAL CHECKLIST FOR ALL TRANSFERS**

GENERAL PROCEEDURE	CHECK	SUPPLIER		RECIPIENT		COMMENTS
	YES	INITIAL	DATE	INITIAL	DATE	
1. Pre-transfer P.A. Announcement made?						
2. All personnel involved are informed & adequately trained? A designated person in charge on duty at all times during the transfer operation?						
3. Language agreed to?						
4. All communications including Backup System tested?						
5. Is fire fighting equipment tested, available & are fire screens in place?						
6. Are all regulations for transfer unders tood and observed and "NO SMOKING, NAKED LIGHTS or FLAMES" signs posted?						
7. Are flashlights "intrinsically safe" and approved?						
8. Are window type A.C. units switched off?						
9. Are exterior doors and ports leading to main deck closed?						
10. Is equipment, tools & material required for transfer available at hand?						
11. Is containment equipment and absorbent material available?						
12. Has Transfer Emergency Shutdown been tested?						
13. Hoses to be used have been checked for:						
a) correct diameter & length to reach other station,						
b) chafing, cracks or other deformation,						
c) damaged fittings,						
d) blanking of hoses,						
e) continuity.						
14. All repair work at either station stopped. (if dangerous for transfer)						
15. Inert gas system is fully operational (if fitted).						

GENERAL PROCEEDURE	CHECK	SUPPLIER		RECIPIENT		COMMENTS
	YES	INITIAL	DATE	INITIAL	DATE	
16. Main transmitting aerials and radar scanners are used with due care .						

GENERAL PROCEEDURE	CHECK	SUPPLIER		RECIPIENT		COMMENTS
	YES	INITIAL	DATE	INITIAL	DATE	
17. All craft alongside are authorised and following hazard warnings, etc.						
18. Is hose test certificate or records available for inspection?						
19. Have weather and ice report s been determined?						
20. Are gas concentration accumulations in still air conditions monitored?						
21. Are all scuppers plugs in place?						
22. Are main decks free of standing water?						
23. Were manifolds drained before removing blanks?						
24. Are pressure gauges ready and in place?						
25. All sea valves on cargo systems closed?						
26. Are drip cans and trays in place, and empty?						
27. Is lighting adequate for all transfer requirements?						
28. Is mooring watch being monitored?						
29. Are spill reporting procedures understood?						
30. Are all tank vents free of blockage?						
31. Have Pressure/Vacuum Relief (PVR) valves been checked?						
32. Has a post-transfer PA announcement been made?						
33. Are International signals being displayed? (if required)						
34. Has a written procedure and the sequence of the transfer been agreed upon?						
35. Is there a clear understanding of the watch and shift arrangement?						
36. Will there be sufficient personnel a vailable at all times to monitor the transfer operation, tend cargo hose and mooring lines and take appropriate action in an emergency?						

Annex 6: Spill Response Equipment Onboard Ship

Certificate / License	Qty min.	Island Tdr		ITB Rel		ITB Res		ITB Sup		ITB Vcr	
		Qty	Loc	Qty	Loc	Qty	Loc	Qty	Loc	Qty	Loc
Containment Boom	1000’	-	PC	-	PC	-	PC	-	PC	-	PC
Boom Towing Bridles	2	-	PC	-	PC	-	PC	-	PC	-	PC
Absorbent Boom 4" x 10'	10	-	PC	-	PC	-	PC	-	PC	-	PC
Absorbent Pads (100 per Bale)	6	-	PC	-	PC	-	PC	-	PC	-	PC
Absorbent Pads (Bales)	4	-	ER	-	ER	-	ER	-	ER	-	ER
Absorbent Pads (Bales)	1	-	CMR	-	CMR	-	CMR	-	CMR	-	CMR
Open Headed Barrels (empty)	4	-	PC	-	PC	-	PC	-	PC	-	PC
Pad/Barrel Ringer	1	-	PC	-	PC	-	PC	-	PC	-	PC
Aluminum Shovels	3	-	PC	-	PC	-	PC	-	PC	-	PC
Aluminum Pitch Fork	2	-	PC	-	PC	-	PC	-	PC	-	PC
Heavy Duty Plastic Bags	200	-	PC	-	PC	-	PC	-	PC	-	PC
Anchor Assemblies	4	-	PC	-	PC	-	PC	-	PC	-	PC
Garbage Pails 100 ltr.	4	-	PC	-	PC	-	PC	-	PC	-	PC

ER – Engine Room
CMR – Cargo Monitoring Room
PC – Pollution Container

TYPICAL ARCTIC SHIPBOARD POLLUTION CONTROL GEAR

Quantity	Description
1200 Feet	Oil Pollution boom, 24 inch
4	Towing kits for oil pollution boom
1	Oil skimmer, suction or oleophillic type complete with pumps and hoses
2	Workboats for boom deployment and skimmer operations
10	Bales sorbent Booms (40 ft per bale)
10	Bales sorbet pads
2	Anchor kits for booms
1	Assorted drums or portable storage for recovered product on workboats

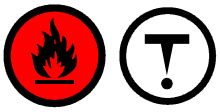
Annex 7: Training Registry

OIL HANDLING FACILITY - OIL POLLUTION EMERGENCY PLAN TRAINING REGISTRY

Course Title	Participant Name	Organization	Date	Completion Y/N	Comments

Annex 8: Material Safety Data Sheets

Material Safety Data Sheet

WHMIS	Product name	TDG Road/Rail
	Diesel / Furnace oil	

Section 1. Identification

Chemical name : Fuel oil, No 2

Other means of identification : Gasoil - unspecified

Code : 0101

CAS number : Not applicable.

Relevant identified uses of the substance or mixture and uses advised against

Supplier's details : ÉNERGIE VALERO INC
1801Avenue McGill College
13è étage
Montréal, Québec
H3A 2N4

Emergency telephone number with hours of operation. : **Canutec (24 heures)**
613-996-6666

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B
CARCINOGENICITY - Category 2

Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 15%

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : Combustible liquid.
Causes skin and eye irritation.
Suspected of causing cancer.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from flames and hot surfaces. - No smoking. Wash hands thoroughly after handling.

Section 2. Hazards identification

Response : IF exposed or concerned: Get medical attention. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Ingredient name	%	CAS number
Fuel oil, No 2 Fuel oil, No 2	100 100	68476-30-2 68476-30-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Peut contenir du sulfure d'hydrogène

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Section 4. First aid measures

Ingestion : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
sulfur oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

United States

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Fuel oil, No 2	**ACGIH TLV (United States, 6/2013). Absorbed through skin.** TWA: 100 mg/m³, (measured as total hydrocarbons) 8 hours. Form: Inhalable fraction and vapor
Fuel oil, No 2	**ACGIH TLV (United States, 6/2013). Absorbed through skin.** TWA: 100 mg/m³, (measured as total hydrocarbons) 8 hours. Form: Inhalable fraction and vapor
Fuel oil, No 2	**ACGIH TLV (United States, 6/2013). Absorbed through skin.** TWA: 100 mg/m³, (measured as total hydrocarbons) 8 hours. Form: Inhalable fraction and vapor

Canada

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations
Fuel oil, No 2, measured as total hydrocarbons	US ACGIH 6/2013	-	100	-	-	-	-	-	-	-	[1] [a]
Fuel oil, No 2, as total hydrocarbons	AB 4/2009	-	100	-	-	-	-	-	-	-	
	BC 7/2013	-	100	-	-	-	-	-	-	-	[1] [b]
Fuel oil, No 2, measured as total hydrocarbons	ON 1/2013	-	100	-	-	-	-	-	-	-	[1] [c]
Fuel oil, No 2, measured as total hydrocarbons	US ACGIH 6/2013	-	100	-	-	-	-	-	-	-	[1] [a]
Fuel oil, No 2, as total hydrocarbons	AB 4/2009	-	100	-	-	-	-	-	-	-	
		-	100	-	-	-	-	-	-	-	[1] [b]
Fuel oil, No 2, measured as total hydrocarbons	ON 1/2013	-	100	-	-	-	-	-	-	-	[1] [c]
Fuel oil, No 2, measured as total hydrocarbons	US ACGIH 6/2013	-	100	-	-	-	-	-	-	-	[1] [a]
Fuel oil, No 2, as total hydrocarbons	AB 4/2009	-	100	-	-	-	-	-	-	-	
		-	100	-	-	-	-	-	-	-	[1] [b]
Fuel oil, No 2, measured as total hydrocarbons	ON 1/2013	-	100	-	-	-	-	-	-	-	[1] [c]

[1]Absorbed through skin.
Form: [a]Inhalable fraction and vapor [b]Inhalable vapour and aerosol [c]Total hydrocarbons

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Not available.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Melting point : -40 to 6°C (-40 to 42,8°F)

Boiling point : 141 to 462°C (285,8 to 863,6°F)

Flash point : Closed cup: >56°C (>132,8°F)

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Lower: 0,5%
Upper: 5%

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : 0,879

Solubility : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : 225°C (437°F)

Decomposition temperature : Not available.

Viscosity : Kinematic (40°C (104°F)): 0,015 cm^2/s (1,5 cSt)

Aerosol product

Heat of combustion : -42,8 kJ/g

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Fuel oil, No 2	LD50 Oral	Rat	12 g/kg	-
Fuel oil, No 2	LD50 Oral	Rat	12 g/kg	-
Fuel oil, No 2	LD50 Oral	Rat	12 g/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Fuel oil, No 2	Eyes - Mild irritant	Rabbit	-	0,5 minutes 100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
Fuel oil, No 2	Eyes - Mild irritant	Rabbit	-	0,5 minutes 100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
Fuel oil, No 2	Eyes - Mild irritant	Rabbit	-	0,5 minutes 100 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Ingestion : Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Section 12. Ecological information

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	UN1202	UN1202	UN1202	UN1202	UN1202	UN1202
UN proper shipping name	Diésel	Diésel	Diésel	Diésel	Diésel	Diésel
Transport hazard class(es)	3 	3 	3 	3 	3 	3 
Packing group	III	III	III	III	III	III
Environmental hazards	No.	No.	No.	No.	No.	No.
Additional information	This product may be re-classified as "Combustible Liquid," unless transported by vessel or aircraft. Non-bulk packages (less than or equal to 119 gal) of combustible liquids are not	-	-	**Special provisions** 640 (E)	-	-

Section 14. Transport information

	regulated as hazardous materials.					

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: All components are listed or exempted.
United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Fuel oil, No 2 Fuel oil, No 2	100 100	Yes. Yes.	No. No.	No. No.	Yes. Yes.	Yes. Yes.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : The following components are listed: FUEL OIL

Canada

WHMIS (Canada) : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-2B: Material causing other toxic effects (Toxic).

Section 15. Regulatory information

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

Canada : All components are listed or exempted.

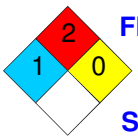
Europe : All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health *	1
Flammability	2
Physical hazards	0

National Fire Protection Association (U.S.A.)



Flammability

Health

Instability/Reactivity

Special

History

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Version : 5

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Section 16. Other information

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Annex 9: Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances, and/or Marine Pollutants

Transport Canada Transports Canada

TP 9834E
(07/2009)

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

2ND EDITION
JULY 2009

TC-1003421

Canada

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

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

TP 9834E
(07/2009)

TC-1003421

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Catalogue No.	**T29-61/2009E**	**ISBN**	**978-1-100-13801-5**
Originator	Environmental Protection (AMSEE)	**Telephone**	613-991-3168
	Tower C, Place de Ville	**Fax**	613-993-8196
	330 Sparks Street, 10th Floor	**E-mail**	MarineSafety@tc.gc.ca
	Ottawa, Ontario K1A 0N8	**URL**	http://www.tc.gc.ca/MarineSafety

REVISIONS

Last Review **May 2009**

Next Review **May 2010**

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

TABLE OF CONTENTS

INTRODUCTION

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

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

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

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

1. ABBREVIATIONS

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

2. DEFINITIONS

2.1 In these Guidelines,

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

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

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

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

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

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

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

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

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

3. HOW TO MAKE A REPORT

3.1 The report should be transmitted in the following manner:

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

4. CONTENT OF REPORT

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

5. SUPPLEMENTARY REPORT

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

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

6. PROBABILITY OF DISCHARGE

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

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

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

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

7. REPORT ON ASSISTANCE OR SALVAGE

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

APPENDIX

A1. PROCEDURES

A1.1 Reports should be sent as follows:

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

A2. STANDARD REPORTING FORMAT AND PROCEDURES

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

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

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

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

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

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

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

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

A3. DETAILED REPORTING REQUIREMENTS

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

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

R

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

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

P

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

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

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

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

P

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

Q

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

R

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

T

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

X

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

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

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

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

P

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

Q

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

R

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

T

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

X

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

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

A4. PRIMARY REPORT FORMS

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

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

* Report either Item C or D.

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

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

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

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

* Report either Item C or D.

** Include in the case of a probable discharge.

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

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

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

* Report either Item C or D.

** Include in the case of a probable discharge.

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