AGNICO EAGLE

OIL HANDLING FACILITY

OIL POLLUTION EMERGENCY PLAN
AND
OIL POLLUTION PREVENTION PLAN

For

Meadowbank and Whale Tail Mine Fuel Farm in Baker Lake

EC ID number EC-00025772 P-50 Diesel fuel and EC ID number EC-00026142 for Jet-A

February 2024

Version 17

EXECUTIVE SUMMARY

This document presents the Oil Pollution Emergency Plan and Oil Pollution Prevention Plan for Agnico Eagle Mines Limited (Agnico Eagle) Meadowbank Complex. This plan is pursuant to the Canada Shipping Act 2001; and all the subtending regulations.

Oil Pollution Emergency Plan (OPEP) designates lines of authority, responsibility, establishes proper reporting and details plans of action in the event of a spill. Oil Pollution Prevention Plan (OPPP) is designed to ensure that the necessary planning was undertaken to help prevent a spill. Both plans are complementary and are combined into one plan. This combined plan applies to the operational phase of the fuel transfer which takes place at Agnico Eagle Ltd.'s Baker Lake Marshaling Facilities and Oil Handling Facility located at latitude 64°18'36"N and longitude 95°58'04"W.

A hard copy of the OPEP and OPPP will be available at the Baker Lake Marshalling facility during the transfer operations.

ACRONYMS

Agnico Eagle	Agnico Eagle Mines Limited
ECC	Emergency Control Center
ERT	Emergency Response Team
ERP	Emergency Response Plan
Fuel	P50 Arctic Grade diesel fuel and/or Jet-A aviation fuel
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
OHF	Oil Handling Facility
OPEP	Oil Pollution Emergency Plan
OPPP	Oil Pollution Prevention Plan
SCP	Spill Contingency Plan
SOPEP	Ship Oil Pollution Emergency Plan
SMP	Spill Management Plan
STS	Ship-to-Ship
TCMSS	Transport Canada Marine Safety & Security
TEU	Twenty-foot equivalent unit

DISTRIBUTION LIST

Agnico Eagle - Environmental and Critical Infrastructures Superintendent

Agnico Eagle – Environment General Supervisor

Agnico Eagle – Environment Coordinator(s)

Agnico Eagle – Environment Department

Agnico Eagle – General Mine Manager

Agnico Eagle – Health and Safety Superintendent

Agnico Eagle – Energy and Infrastructures Superintendent

Agnico Eagle – ERT Emergency Measures Councilor

Baker Lake – Baker Lake Hamlet Office

Baker Lake – Fire Department

Woodward Group of Companies

Transport Canada – Marine Pollution Officer

Canadian Coast Guard Environmental Response

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Revision
0	2012/09/02	All	All	Comprehensive plan for Agnico's Baker Lake Fuel Farm Facilities
1	2012-09-17		10, 12, 13	P10: Tide and Currents reference change; P12: Rephrasing of the last paragraph title; P13: in INITIAL SPILL RESPONSE PRIORITIES table into Section 2 RESPOND SAFELY, rewording to show only diesel fuel actions.
2	2013-03-30	6 & App. D	10	Oil Handling Facility Declaration; 2013 Jet-A to start being stored at OHF
			12	Adequate lighting required during fuel transfer
		9	20 21	Item list on inside door of each Sea can. Internal Contacts Updated
		10 & App. C	23	Update to Agnico site spill training & Location of training records
		13	29	Major Failure At Helicopter Island
		14 & App. E	30	In-situ Burning
		16	32	New for 2013
3	January 2014	ALL		Comprehensive Review
4	July 2014	ALL		Comprehensive Review after Transport Canada Assessment
5	November 2014	ALL		Comprehensive Review following non-compliance letter received from Transport Canada
6	July 2015			Annual Comprehensive Review
		Sec 1	1	Update Declaration
		Fig 5	18	Update Pager numbers
		Table 5,6,7	26&27	Update Contact numbers
		Footnote 3	35	Contact date for JJ Brickett with CCG
		Table 8	44	Update Training Dates
7	May 2016	Sec 1	1	Update Declaration
		Fig 5	18	Update Pager number
		Tables 5,6,7	26-28	Update Contact numbers
		Table 8	45	Update Training Dates
		Appendix A		Update Contact numbers

		Appendix D		Update Meeting Minutes
8	May 2017	Sec 1	1	Update Declaration
		Fig 5	18	Update Pager number
		Tables 5,6,7	31-33	Update Contact numbers
		Section 10.2.1	40	Add details related to the Fisheries Act Regulation and Birds Migratory Convention
		Table 8	50	Update Training Dates
		Appendix B	55	Removed Appendix B Transfer Conduit Annual pressure Test as per TC Inspector's comments
9	May 2018	Section 1	1	Update Declaration
		Fig 5	18	Update Pager number
		Tables 5,6,7	31-33	Update Contact numbers
		Section 10.2.1	40	Add details related to the Fisheries Act Regulation and Birds Migratory Convention
		Table 8	50	Update Training Dates
		Appendix B	55	Removed Appendix B Transfer Conduit Annual pressure Test as per TC Inspector's comments
10	June 2019	Section 1	1	Update OHF Declaration
		Section 3.1	4	Update Diesel and Jet-A product transfer rate
		Section 4.1	6	Update General overview and site description
		Fig 2	8	Update Agnico's Baker Lake Bulk Fuel Storage Facility Site Layout
11	March 2020	All	All	Comprehensive update and included the operation of the Baker Lake Diesel Tank No. 7
12	July 2020	Section 1	1	OHF Declaration update
		Section 2.1	2	Add requirement for plan update
		Section 2.2	2	Update legislative requirement
		Section 3.1	5	Update max spill volume

		Section 3.2.2	5	Add detail regarding fuel recovery
		Section 5.2	17	Update fuel transfer info vs vessel
		Section 5.3	17	Update material use during transfer
		Section 5.4	18	Add photo 1 and 2
		Table 1 and 2	23-26	Update quantity
		Section 8	28	Update communication plan related to Code One
		Scenario 3	46	Update
13	April 2021	Section 11.4	42	Add clarification regarding the development of scenarios
	April 2021	Section 12.1	48	Add clarification training and ERT onsite
	April 2021	Concordance table	Appendix F	Revise references
14	July 2021	All	All	Update to include the operation of the Baker Lake Diesel Tank No. 8 and Jet-A tank and update shipping company information
15	March 2022	Section 1	1	Updated Oil Handling Facility Declaration with new Emergency Measures Counselor
		Section 4.1 & 4.2	7 & 10	Updated information on the number of Jet-A tanks currently at the facility
		Figure 2	9	Included updated aerial photo showing completed Tank 8
		Figure 2-1	10	Included updated photo of ship to shore transfer area
		Figure 3	14	Included updated photo of location of Baker Lake freshwater intake
		Section 8.1.3	31 & 32	Internal and external contacts updated
		Appendix D 1.3	-	2021 Mock Spill Minutes added

16	March 2023	Section 1	1	Updated Oil Handling Facility Declaration
		3.1	5	Facility category and quantity information updated.
		4.1 & 4.2.2	7 & 10	Jet-A tank information updated.
		Figures 2 and 2-1	9 & 10	Updated figures included.
		Section 5.2	17	Spill quantities updated and STS details revised
		Section 6	21	Maximum spill response quantity updated
		Section 8	28	More detail on two-way communication included.
		Table 5	31	Internal contact information updated.
		Table 7	32	External contacts updated (E2 and CIRNAC).
		Section 9	34	Pre- and post-discharge meeting details included.
		Section 10.2	41	Section updated to include CSA reference 182(1)(a)
		Section 11.4	44 & 47	Maximum spill response quantity updated
		Appendix C	-	Updated SDS added to this Appendix
		Appendix D 1.3	-	2022 Mock Spill Minutes added.
		Appendix F	-	References updated in concordance table.
17	February 2024	Section 1	1	Updated Oil Handling Facility Declaration
		Table 5	30	Updated the Agnico Eagle Contact Table
		Figure 2	9	Updated the Figure 2
		Section 11	42	Update to include 2023 exercise
		Appendix D 1.3	57	Updated the 2023 Mock Spill Minutes report (in Appendix)

Prepared By: *Meadowbank Environment Department*

Approved by: _____

Eric Haley
Environment & Critical Infrastructures Superintendent

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FIGURES

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APPENDICES

SECTION 1. OIL HANDLING FACILITY DECLARATION

Pursuant to paragraph 168(1) (b) (i) of the Canada Shipping Act 2001, Agnico Eagle Mines Ltd. (Agnico Eagle) has signed an Oil Handling Facility Declaration. This Declaration can be found posted at the Oil Handling Facility (OHF).

DECLARATION - OIL HANDLING FACILITY NORTH OF 60 DEGREES NORTH LATITUDE

Pursuant to paragraph 168(1) of the *Canada Shipping Act 2001* (CSA 2001), I, Eric Haley, (Name of the operator of the oil handling facility) declare to comply with the Environmental Response Regulations, on the detection of an oil pollution incident that arises out of the loading or unloading of oil to or from a vessel, respecting the circumstances in which operators of oil handling facilities shall report discharges or anticipated discharges of pollutants, the manner of making the reports and the persons to whom the reports shall be made; all the information contained in the submission is true and complete to the best of my ability and accurately reflect our interpretation of the regulations.

The persons listed below are authorized to implement the oil pollution emergency plan:

NAME	POSITION	COMPANY	ADDRESS	PHONE	EMAIL
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(Signed by the operator of the oil handling facility or its representative)

February 7, 2024
(Date)

AGNICO EAGLE

SECTION 2. GENERAL INTRODUCTION

The Oil Pollution Emergency Plan (OPEP) is to set in motion the necessary actions to stop or minimize the loss of fuel resulting from a mishap at Agnico Eagle Mines Limited's Baker Lake Fuel Farm Oil Handling Facility located in Baker Lake, Nunavut during the ship to shore fuel transfer. The Oil Pollution Prevention Plan (OPPP) is designed to ensure that the necessary planning was undertaken to help prevent a spill. Both plans are complementary and are combined into one plan. Additionally, it provides direction to Agnico Eagle personnel and/or contractors at the laydown and tank farm areas, and to Agnico Eagle's Emergency Response Team (ERT) for emergency spill response situations; describes oil pollution scenarios, defines the roles and responsibilities of management and responders; and outlines the measures taken to prevent spills. The purpose of the OPEP and OPPP are to minimize potential health and safety hazards, environmental damage and cleanup costs.

2.1 Fundamental Principles

The following is submitted for compliance to the Canada Shipping Act 2001 and all the subtending regulations and to outline the appropriate spill response protocol during fuel transfer operations at the Baker Lake OHF. A hard copy of the OPEP/OPPP will be located on site for reference and review prior to transfer operations. This OPEP/OPPP will be reviewed annually and updates will be provided to TCMSS for compliance prior to every shipping season. This plan can also be reviewed and updated within 90 days if:

1. Any change in the law or in environmental factors that could affect the loading or unloading of oil to or from a vessel;
2. Any change in personnel involved in the loading or unloading of oil to or from a vessel;
3. Identification of a gap in either of the plans after an oil pollution incident or exercise;
4. Any change in the business practices, policies or operational procedures of the facility that could affect the loading or unloading of oil to or from a vessel.

The following priorities shall be taken into account when responding to an oil pollution incident and in the following order:

1. Safety of the workers;
2. Safety of the OHF;
3. Safety of the community of Baker Lake;
4. Prevention of fire and explosion;
5. Minimize of the oil pollution incident;
6. Notify and reporting of the oil pollution incident to associated Governing bodies;
7. Environmental impact of the spill;
8. Complete clean-up from the oil pollution incident.

2.2 Legislative Requirements

This plan was prepared in accordance with federal legislation listed below, which lists legislative instruments applicable to Agnico Eagle's Baker Lake Fuel Oil Handling Facility. All requirements found in the *Canada Shipping Act*, *2001*, ss. 168 are laid out in the Meadowbank Mine site OHF Concordance Table which is provided in Appendix F.

The OPEP/OPPP complies with the requirements for procedures, equipment and resources as set out in the *Canada Shipping Act* (ss. 660.2(4)) specific to a fuel handling facility – the bulk incoming transfer of fuel from ship-to-shore and spill scenarios directly relating to this operation.

The following standards and regulatory requirements have been reviewed in preparation of this document:

- Canada Shipping Act, 2001;
- Environmental Response Regulations (SOR/2019-252);
- Environmental Response Standards (TP 14909);
- Vessel Pollution and Dangerous Chemicals Regulations (SOR/2012-69);
- Arctic Waters Oil Transfer Guidelines (TP 10783);
- Environmental Prevention and Response National Preparedness Plan (TP 13585); and
- Requirements of the Central & Arctic Regional Response Plan.

2.3 Related Documents

Management and monitoring plans for Meadowbank mine that provided input to the Oil Pollution Emergency Plan and Oil Pollution Prevention Plan include the following:

1. Spill Contingency Plan;
2. Emergency Response Plan; and
3. Shipboard Oil Pollution Emergency Plan[1].

The cornerstones of contingency planning for Agnico Eagle are the Spill Contingency Plan and the OPPP/OPEP. These, coupled with the Emergency Response Plan, describe the processes to be followed in responding to a spill. The OPEP on its own provides the necessary information in the event of a mishap where fuel is lost during the transfer of fuel from a tanker vessel to the Fuel Tank Facility.

This plan complements the Spill Contingency Plan, and it should not be construed as superseding it. The Spill Contingency Plan addresses a wider scope of operations stretching 110 kilometers from the Meadowbank mine site in the north to their infrastructure in the south and the 64 kilometers between Meadowbank mine site and the Whale Tail Mine. The OPEP strictly covers the transfers of fuel from ship to OHF. Product Transfer Area Assessment document found in Appendix M of the Sill Contingency Plan also detailed the assessment done for the ship to shore transfer along with prevention action to be taken.

2.4 Meadowbank Mine OPPP and OPEP

This Plan is a working document that will be reviewed annually and updates provided to TCMSS for compliance prior to every shipping season.

This plan specifically centres on the activities in ship-to-shore transfer of fuel from a small tanker delivering fuel to Agnico Eagle's Baker Lake Fuel Tank Facility constructed in Baker Lake. On site personnel at the Facility are expected to respond to spill incidents (generally smaller than 1 m^3) that can be contained and cleaned up without assistance, while the Emergency Response Team will respond to larger spills.

[1] The Shipboard Oil Pollution Emergency Plan (SOPEP) contains all information and operational instructions as required by the "Guidelines for the development of the Shipboard Marine Pollution Emergency Plan" as developed by the International Marine Organization. Woodward Group of Companies, the shipping company, is responsible for this Plan.

Fuel is being delivered to Agnico Eagle's Baker Lake Fuel Farm by Woodward Group of Companies (hereinafter referred to as 'Woodward'). Fuel is stored within the existing tank farm owned and operated by Agnico Eagle. The Shipboard Oil Pollution Emergency Plan (SOPEP) is the responsibility of the shipping company. The outline of the SOPEP prepared by Woodward can be found in Appendix A.

SECTION 3. PLANNING STANDARDS

3.1 Facility Category

Oil handling facilities are categorized according to their maximum oil transfer rate in cubic meters per hour, in respect of the oil product loaded or unloaded to or from a ship, as follows (Table 1):

Table 1 Category OHF

Category of Oil Handling Facility	Maximum Oil Transfer Rate (cubic metres/hour)
Level 1	150
Level 2	750
Level 3	2,000
Level 4	More than 2,000

Agnico Eagle's Fuel Farm OHF at Baker Lake is a Level 2 facility. The product transfer rate is 200 m^3/hr to a maximum of 350 m^3/hr for Diesel fuel and 100 m^3/hr to a maximum of 250 m^3/hr for Jet-A. The current OPEP is based on the highest transfer rate, in this case associated with Diesel fuel. Transfer rates will not exceed the 750 m^3/hr maximum that is authorized for a Level 2 facility.

With the new regulation, oil handling facilities located north of latitude 60°N need to describe procedures to be followed to respond to a discharge of the total quantity of oil product that could be loaded or unloaded to or from a vessel, up to a maximum of 10,000 tonnes or 12,500 m^3. The carrying capacity of the delivery ship that will be used for the ship to shore transfer at the OHF will be typically between 3,500 m^3 to 3,800 m^3. However, once vessels have crossed through the narrows between Helicopter Island and Baker Lake, ship-to-ship transfers could occur in Baker Lake for arrival at the OHF with a maximum of 10,000 t. of fuel on-board This plan describes the procedures in place to respond to a spill up to 10,000 t. To do this, the OHF will have the equipment and resources to respond to a 10,000 t (12,500 m^3) spill within the required timelines specified in the Environmental Response Regulations.

1. Containing and controlling the oil within one hour after the discovery of the discharge; and
2. Recovering the oil and cleaning-up, within six hours after the discovery of the discharge.

3.2 General Planning Guidelines

3.2.1 Response Time Standards

Agnico Eagle and contractor personnel at Baker Lake Fuel Farm have appropriate training to respond to spills, if it is safe to do so. The material onsite can be deployed within one hour to contain a spill, unless deployment within one hour will be unsafe. Generally, for spill greater than 1m^3, the OPEP and the Emergency Response Plan (ERP) will be activated and the Emergency Response Team (ERT) located at Meadowbank mine site will come in Baker Lake to help. Realistically, the ERT can be on site within 125 minutes (or less) ready to help for the clean-up activity. Material from the Meadowbank Mine site, if required, will be brought to the Baker Lake OHF within 125 minutes to finalize the containment (if not complete) and recover of the oil pollution incident.

3.2.2 On-Water Recovery

Agnico Eagle will have a registered boat at the Baker Lake barge area that is ready to be deployed in the case of an emergency situation. It will have all required components for an industrial use vessel. All personnel involved in a response situation will need to have a pleasure craft operator's certification.

If additional watercrafts are required to help with the containment of a spill from the OHF, local resources such as Peters Expediting Ltd. And Baker Lake Contracting & Supplies (BLCS) can be used. Contact info for these companies can be found in Table 6.

Containment of a fuel slick in water will require the deployment of mobile floating booms to intercept, control, contain and concentrate (i.e., increase thickness) the floating fuel. One end of the boom will be anchored to shore while the other will be towed by a boat and used to circle the oil slick and return it close to shore for recovery using a skimmer. Reducing the surface area of the slick will increase its thickness and thereby improve recovery. Mechanical recovery equipment (i.e., skimmers and oil/water separators) will be mobilized to site if required.

Measures will be taken to protect sensitive and accessible shoreline. The fuel slick will be monitored to determine the direction of migration. In the absence of strong winds the fuel will likely flow towards the discharge of the lake. Measures will be taken to block and concentrate the fuel slick at the lake discharge using booms where it will subsequently be recovered using a portable skimmer, vacuum, or absorbent materials.

3.2.3 Dedicated Facility Spill Response Equipment

Agnico Eagle has three (3) sea cans with spill response equipment at the Baker Lake shore within Agnico Eagle's Marshalling area which includes maritime booms that can rapidly be deployed to limit the spread of any spill on water. The list of equipment can be found in Table 2. The spill supplies and resources are in place to respond to a spill within the required timelines as specified in the Environmental Response Regulations. These sea cans will be inspected before each transfer season to ensure that all the spill response material and PPE are there and stored in a manner that is organized and accessible in order to comply with regulatory requirements and allow an efficient spill response. See Appendix D – 1.1 for the checklist inspection sheet that can be found in the sea can.

3.2.4 Transfer Conduit

The transfer conduit or hose that is used to transfer fuel from Woodward to the Agnico Eagle Baker Lake Fuel Farm OHF will be pressure tested annually by Woodward according to the regulation prior it being placed into service. A copy of the annual pressure test will be made available to TCMSS on request. The transfer conduit will always have a bursting pressure of not less than 4 times its maximum design pressure and the design pressure will be clearly marked on the conduit. Shipping company will need to provide confirmation before transfer that conduits that is used in a transfer operation will be used, maintained, tested and replaced in accordance with the manufacturer's specifications.

3.2.5 MBK-ENV-0013: OHF / Ship to Shore Fuel Discharge Procedure

Agnico Eagle has created an internal procedure to ensure all planning and precautions are in place prior to the transfer of any fuel from the vessels to the OHF. This procedure can be found in Appendix D – 1.2.

SECTION 4. BAKER LAKE MARSHALLING AREA AND FUEL STORAGE FACILITY

4.1 General Overview and Site Description

Agnico Eagle's Oil Handling Facility (OHF) is located in the area of Baker Lake at latitude 64°18 22.778" N and longitude 95°57'33.990" W. The location shown on Figure 1 provides more detail. The Fuel Tank Facility consists of eight - 10 million litres diesel fuel[2] (10,000 m^3) storage tanks all holding P50 grade diesel, and 20 tanks holding 2 million litres of Jet-A fuel (Figure 2). Two of the Jet-A tanks were re-added to the secondary containment in summer 2022, however these are not reconnected to the existing piping system. Facility is located adjacent to Agnico Eagle's Marshalling area, approximately 250 meters from the shore of Baker Lake at high tide. Power is provided by a generator for the fuel pump module located next to the tank farm.

Figure 1 – Location of the Community of Baker Lake

[2] *1000 litres = 1 m^3 of fuel..*

4.2 Fuel Storage Facilities Infrastructure

4.2.1 P-50 Fuel Tanks

The diesel fuel tanks are contained within an impermeable lined and bermed area. The steel fuel tanks have been field-erected and built to API-650 standards with each bermed area holding two tanks. This area is capable of containing 110% of the volume of one 10,000 m^3 storage tank. Each impermeable lined and bermed cell has the following:

- A granular base for the tank completed with an impermeable LLDPE liner system and granular dikes;
- Two – 10,000 m^3 tanks complete with the required appurtenances such as stairs, base manholes, water draw offs, re-supply nozzle, suction nozzle, tank lighting, tank level monitoring, roof manhole, manual gauge hatch, tank temperature and P/V vent;
- Piping for unloading and loading; and
- Site lighting via fixtures mounted from the dispensing building.

The Tank Farm Facility is designed to meet the following standards:

- National Fire Code 2010;
- *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* – 2008; and
- Canadian Council of Ministers of the Environment, "*Environmental Code of Practice of Aboveground and Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products – 2003* (Updated in 2013) (PN1326)".

The Oil Handling Facility (OHF) is constructed and operated in accordance with Transport Canada Arctic Waters Oil Transfer Guidelines (TP 10783E) and Environmental Response Standards (TP 14909). A fuel dispensing pad area completed with a dispensing unit is located in a lined facility with a provision to capture any and all spills at the fueling area and direct them to a containment area provided at the tank farm.

Figure 2 – Agnico Eagle's Baker Lake Bulk Fuel Storage Facility Site Layout

Figure 2-1 – Agnico Eagle's Baker Lake Oil Handling Facility – Ship to Shore Transfer Area

4.2.2 Jet-A Fuel

The Jet-A fuel tanks are contained within an impermeable lined and bermed area. The steel fuel tanks have been field-erected and built to API-650 standards with the bermed area holding twenty tanks. This area is capable of containing >110% of the volume of one 100,000L storage tank. The impermeable lined and bermed cell has the following:

- A granular base for the tank completed with an impermeable bituminous liner system and granular dikes;
- Twenty (20) – 100,000L tanks, with two (2) of these 100,000L tanks added back to the secondary containment in summer 2022 but not reconnected to the piping system (expected to be reconnected in 2024), completed with the required appurtenances such as stairs, base manholes, water draw

offs, re-supply nozzle, suction nozzle, tank lighting, tank level monitoring, roof manhole, manual gauge hatch, tank temperature and P/V vent; and
- Piping for unloading and loading.

The Jet-A Fuel Facility is designed to meet the following standards:

- National Fire Code 2010;
- *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* – 2008; and
- Canadian Council of Ministers of the Environment, "*Environmental Code of Practice of Aboveground and Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products – 2003* (Updated in 2013) (PN1326)".

4.3 Baker Lake Shoreline and Marine Characteristics

The following Baker Lake Shoreline and Marine Characteristics were gathered during the Environmental Impact Assessment that was performed prior to construction of the Baker Lake Marshalling facility and Tank Farm.

4.3.1 Topography

The bulk fuel storage area is located east of the Hamlet of Baker Lake, approximately 350 m north of Baker Lake. The OHF sits on a low terrace parallel with the shoreline of the lake. There is a gradual slope (5 to 10% grade) toward Baker Lake with an approximate elevation change of 35 m from the OHF to the Baker Lake shoreline. The Baker Lake shoreline is gently sloping, well-drained and is lined with marine gravels, sands and boulders.

4.3.2 Geology

The regional surficial geology is characterized by sandy till, bedrock outcrops, felsenmeer (ice-shattered bedrock) and shallow lakes (Golder, 2007). The most common soil type in this region is glacial till. Marine beach deposits are found along the north shore of Baker Lake.

The soil near the bulk fuel storage facility is comprised of silts, sands, gravels, cobble and boulders and frost-susceptible glacial till overlying weathered bedrock (Golder, 2007). The soil thickness is typically less than 1.4 m with permafrost or bedrock encountered at less than 2 m. Approximately 60% of the surface area surrounding the bulk fuel storage facility is comprised of bedrock outcrop.

4.3.3 Flora and Fauna

There are no trees and few shrubs in the area surrounding the bulk fuel storage facility. The site is covered by low-lying vegetation; predominated by grassy hummocks, dwarf willow, sedge, green moss and lichen.

Arctic ground squirrels, ptarmigan and songbirds are inhabitants in the area surrounding the bulk fuel storage facility. Lake cisco, lake trout, arctic char, lake whitefish, round whitefish, slimy sculpin and stickleback are predominant species found in Baker Lake.

4.3.4 Subsurface Conditions

Test pits excavated in 2005 near the Bulk Fuel Storage Facility and between the tanks and the shoreline indicate a saturated top layer (0.2 m) of organic material (primarily green moss) (Golder, 2005; 2007). A layer of grey to black medium sand is present up to 0.7 m thickness throughout the area, below which a saturated, grey brown, sand and silt layer is found.

Bedrock is exposed at shallow depths throughout the site in locations where topsoil or till soils are present (Golder, 2005). Bedrock is encountered at a maximum depth of 1.4 m. As predicted by the soil conditions, seepage flows in test pits indicate high site drainage (*Baker Lake Bulk Fuel Storage Facility Environmental Performance Monitoring Plan*).

4.3.5 Water Quality

Baker Lake water quality closely resembles distilled water as many conventional water chemistry parameters are at or below detection limits (BAER, 2005). The water column is generally well mixed and the water chemistry homogenous. During the open water season there is limited vertical stratification in temperature and dissolved oxygen, with observed higher salinity in the bottom strata.

4.3.6 Bathymetric Data

As required by Water License 2AM-MEA1530 Schedule B, Item 6: *The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshaling Facility*. The result of this annual bathymetry is provided annually in the Meadowbank Complex Annual Report to the Nunavut Water Board.

4.3.7 Tides and Currents that Prevail at the Facility

There is a general southward current in Hudson Bay at Chesterfield Inlet of about 19 km/day (CCG 2008). Tides are 4.6 meters with strong cross-currents at Chesterfield Inlet; usually flowing south-west at about 1.85 km/hr.

4.3.8 Meteorological Conditions Prevailing at the Facility

Monthly meteorological data has been collected from 1971 to 2000 from the Baker Lake “A” climate station, which is a Meteorological Service of Canada climate station. Snow and rain are combined to give monthly average precipitation. The prevailing winds for the area are generally from the north to north-west and average 20.4 km/hr.

4.3.9 Surrounding Area Environmental Sensitivities

The community of Baker Lake is a hamlet in the Kivalliq Region, in Nunavut on mainland Canada. Located 320 km inland from the west coast of the Hudson Bay, it is near the nation’s geographical centre, and is notable for being the Canadian Arctic’s sole inland community. The hamlet is located at the mouth of the Thelon River on the shore of Baker Lake.

The freshwater provided to the community is taken in Baker Lake. The freshwater intake is located approximately 3.4 km from the Meadowbank OHF. See Figure 3 below for the exact location. In case of a spill during fuel transfer, preventive action will be taken to avoid any contamination in close proximity of the water intake and cause health and safety problems to the community:

1) As part of the spill procedure, Agnico Eagle will make the community of Baker Lake aware of any spill to ensure measures can be taken to ensure safety of the community by contacting Mayor / Hamlet counsel and Fire department;

2) As part of the spill procedure, boom and absorbents pads will be deployed to confined and limit the progression of the spill into the water;

3) Booms will be deployed to capture the spill;

4) If spill cannot be captured prior to spreading towards the freshwater intake, booms will be deployed around the freshwater pump and regular inspection will be done to see if there are visible sheen;

5) As a precaution and depending of the spill size, Agnico Eagle will work with the Baker Lake Hamlet Counsel to provide a notice to the community of Bake Lake to stop the consumption of the freshwater during the time spill is recovered and until a test on water is conducted. During this time Agnico Eagle will provide potable water to the community[3]. As soon as the spill will be recovered and it's determined that the freshwater intake and distribution system is not contaminated the consumption of freshwater will resume.

[3] The Meadowbank project keeps a supply of 120 twenty litre bottles of drinking water in supply at all times in case of emergency. As well the water treatment plant is capable of producing >200m^3 of water a day and the current usage for the mine site is ~110m^3. Thus if required the Meadowbank mine can produce drinking water for the community for an emergency cease in the consumption of potable water due to a spill at the Baker Lake Marshalling Facility.

Figure 3 – Location of Community Freshwater Intake at Baker Lake
Red dot represent the Baker Lake freshwater intake

SECTION 5. SITE ACTIVITIES

5.1 Nature of the Oil Product

The main fuel stored at the Agnico Eagle's Baker Lake Fuel Farm will be P50 diesel and Jet-A. You can find, in Appendix C, the MSDS for Diesel and Jet-A. All other fuels such as gasoline and possibly other grades of diesel will be purchased in drums or 1m^3 totes and brought to the mine site for storage into the Meadowbank Fuel Storage Facility, or purchased and brought to site from a contractor in Baker Lake.

Woodward is contracted by Agnico Eagle to supply and deliver diesel fuel and Jet-A to Agnico Eagle's OHF facilities in Baker Lake. The large tanker delivering the fuel will be double hulled, Motor Tank type ship, will have segregated ballast compartments and would be able to carry up to 50,000 m^3 of diesel and Jet-A fuel. Ballast will not be required during the inward voyage to Baker Lake by the smaller ships. However, ballast will be picked up while on anchor outside the access passage after offloading the diesel and Jet-A fuel for its outward journey. A total of three (3) large tankers loads of fuel will be required to transport the fuel to Helicopter Island arriving in sequence, between July and October. Two small delivery tankers (Kivalliq W. and Tuvaq W.) will make approximately 22 voyages from Helicopter Island to Baker Lake in order to fill the eight diesel tanks in the tank farm, cumulatively holding 80,000 m^3 and one (1) tanker load to fill the 18 current and potentially 2 additional Jet-A tanks that were re-added to the secondary containment in summer 2022, holding a cumulative 2,000 m^3.

Figure 4 – Location of Helicopter Island

5.2 Bulk Transfer

It is expected that the large tankers delivering diesel fuel and Jet-A will anchor in the same general location as the dry cargo vessels, shown on Figure 4. Ship-to-ship transfer of fuel will occur at this location from the larger tanker to a smaller tanker that can navigate the access passage. The carrying capacity of the small tanker will be either 8,400 m^3 (maximum load for Tuvaq W. at summer draft), 17,000 m^3 (maximum load for the Kivalliq W. at summer draft), or 21,000 m^3 (maximum load for the Qikiqtaaluk at their summer drafts). However, due to restricted depth of the river between Helicopter Island and Baker Lake, only 3,500m^3 to 3,800 m^3 can be carried through this section. During the transit from Helicopter Island into Baker Lake. Vessels will conduct ship-to-ship (STS) operations inside the lake to allow the first vessel to arrive at the discharge location with the greatest amount of cargo as possible, up to a maximum of 10,000 t (12,500 m^3), reducing the number of transits within Baker Lake itself. The small tanker will anchor adjacent to Agnico Eagle's spud barge. From there, transfer hoses (Conduit) are connected to a shore-based pipeline for transfer of P-50 diesel fuel to the diesel tank farm. For Jet-A fuel separate hoses will be laid out from the vessel to the Jet-A storage containment. These hoses or conduit will carry the Jet-A fuel from the vessel to the Jet-A tanks.

Ballast will not be required for the inward voyage of the small tanker as it arrives at Baker Lake loaded with diesel fuel and Jet-A. After transferring the diesel fuel or Jet-A fuel to the tank farm, the small tanker will take on ballast in its segregated ballast compartments before sailing out to Helicopter Island to pick up another load of fuel from the large tanker anchored outside the access passage. Ballast will be dispelled as ship-to-ship transfer of diesel or Jet-A occurs and the small tanker is loaded. This sequence of events will be repeated until the large tanker is empty, or the tank farm is full. The Tuvaq W. becomes the single shuttle vessel between the Kivalliq W. and Helicopter Island. If the Tuvaq W. encounters delays whilst transiting between Helicopter Island and Baker Lake, due to weather, etc., the Kivalliq W. may depart the discharge site and go to Bannerman Island STS location to load from the Tuvaq there. This will be done to reduce the time and trips which the Tuvaq W. would have to make with regards to full round trips between Helicopter Island and Baker Lake to the Kivalliq W., if the Kivalliq W. had remained at the discharge location, catching up on lost time in the process.

Due consideration will be given to prevailing and expected wind, weather and tide conditions when undertaking ship-to-ship and ship-to-shore fuel transfers. The large tanker anchored near Helicopter Island and the small tanker anchored near Baker Lake will be clear of land and traffic routes, and in open water of a depth exceeding the draught of the vessel(s). For ship-to-ship transfers, the ships will be secured alongside or anchored.

The small tanker will discharge at a rate of 200 m^3/hr to a maximum of 350 m^3/hr for diesel fuel and 100 m^3/hr to a maximum of 250 m^3/hr for Jet-A taking approximately one (1) day to fill. Communications between the shore and the small tanker will be maintained throughout to ensure the safe transfer of the fuels and to avoid the overfilling of the tanks. The ship-to-shore transfer to be used will be similar to that used at communities throughout Nunavut.

5.3 Measures to Minimize a Diesel and Jet-A Pollution Incident

The small tanker will be anchored offshore in water of sufficient depth to allow for draught and tidal changes during transfer.

The transfer of the fuels will use sound, well-rehearsed practices, include an adequate number of trained and alert personnel, have sufficient materials, and use well maintained, thoroughly tested equipment. A team of trained personnel on the tanker will be in charge of the tanker fuel transfer equipment, while an onshore team will be in charge of the land-based transfer equipment. Agnico Eagle will have at least two (2) trained personnel on the land to observe for any leak detection: a third part contractor (Intertek) and the Baker Lake Supervisor. The role of the third part contractor will be to apply procedure and oversee operation during the fuel transfer. To do this, the third part contractor will need to come on site at least one (1) day before the first day of transfer to receive the appropriate training given by the Environmental Department. Fire-fighting, spill response equipment and supplies will be located on the tanker and onshore near to the transfer point as required by Transport Canada. This will include readily available absorbent material at the flexible hose connections on deck and onshore to quickly address minor spills at predictable minor spill locations. Additionally, Agnico Eagle has placed a sea can with spill response supplies (including boat) and equipment at Agnico Eagle's Baker Lake Fuel Farm area where it can quickly be accessed in the event of a spill.

Six-inch (15 cm) steel piping, 266 m long, able to accommodate a flow rate of approximately 200 m^3/hr lead down to the shore from the diesel tank farm. Shipper certified transfer hoses, 4 inches and 356 m long, are connected to the shore permanent based pipeline manifold for the transfer of diesel fuel to the diesel tank farm (Photo 1). For Jet-A fuel, separate shipper certified hoses are laid out from the vessel to the Jet-A manifold located onshore in the Jet-A Secondary Containment (Photo 2). Hoses are connected to the manifold using a dry break coupling. This area is capable of containing >110% of the volume of one 100,000L storage tank. A total of 582 m of 4-inch certified hoses are required to reach the Jet-A transfer area. The Jet-A transfer rate is 100 m^3/hr. Other measures to be taken to minimize and prevent spills include and must be followed by the on land responsible:

- Complete checklist before / during transfer for the on-land responsible (Appendix E);
- Complete checklist, provide by Woodward, with vessel captain before transfer begin (Appendix E);
- Complete inspection / inventory of spill response sea can before transfer;
- Supervisor of the transfer operation on board the vessel has reported readiness for the transfer operation to begin;
- During the transfer, regular monitoring will be undertaken for detection of incipient spills and leaks between the tanker and the tank farm;
- Radio test before transfer and after that each hour between the personnel on land and the captain of the vessel;
- Transfer operations will be suspended should any leak be detected or filling alarm are activated;
- Permanent watcher at the fuel manifold to detect any leak;
- The onshore area and ship deck will be well light as fuel transfers could continue around the clock;
- Minimization of land drainage containing spilled diesel or Jet-A to limit the amount reaching the marine environment;
- Have a good knowledge of the OPEP/OPPP requirement and protocol to follow is case of a spill by receiving a training / review each year before the transfer season; and
- The regular update of the OPEP/OPPP (minimally annual).

During the ship-to-shore transfer, Agnico Eagle will have competent personnel on location at all times to monitor the fuel transfer and maintain contact with the tanker's crew. Containment boom will be place in Baker Lake by the shipping company as a mitigation measure. Should problems arise, the ship can be called to shut down the transfer and onshore piping will be closed down. In the event of a spill that escapes the containment boom, diversion booming will be deployed to minimize migration of a spill throughout Baker Lake. Adequate lighting will be put in place during all transfers, to allow for proper inspections of transfer locations around the clock. The lighting system intensity will be not less than 54 lx at each transfer connection point of the vessel and OHF and a lighting intensity not less than 11 lx at each transfer operation work area around each transfer connection point of the vessel and OHF.

See *Appendix D 1.2: MBK-ENV-0013: OHF / Ship to Shore Fuel Discharge Procedure.*

5.4 Portable Containment Pools

At the connection of the ship's conduit to the OHF manifold a portable containment pool will be erected and in place during the transfer of product. This pool is capable of holding ~250L of liquid in the case that there is a leak at the flange or residual drips out of the conduit or hard wall pipe.

Spill "pop-up" pools will be in place under each joint for the conduit used to fill the Fuel tanks. These pop-up pools are only capable of holding 20-50 L of fuel and are in place to catch residual and be a first line of defense in the case of a leak.

Photo 1. Diesel Transfer - Connection between shipper transfer hoses and Agnico Eagle permanent pipeline

Photo 2. Jet-A Transfer - Connection between shipper transfer hoses and Agnico Eagle permanent pipeline

SECTION 6. MEADOWBANK RESPONSE TO EMERGENCIES

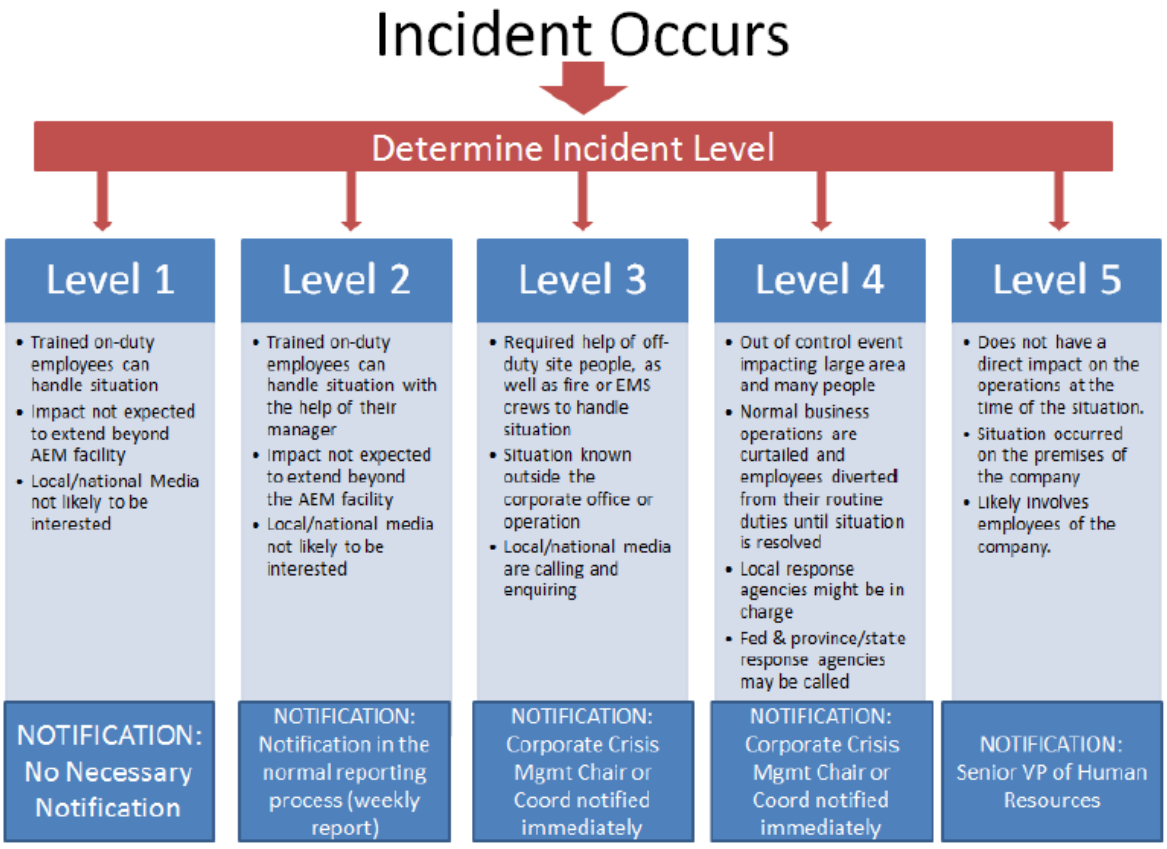
Oil handling facilities located north of latitude 60°N need to describe procedures to be followed to respond to a discharge of the total quantity of oil product that could be loaded or unloaded to or from a vessel, up to a maximum of 10,000 tonnes. This plan describes the procedures in place to respond to a spill up to 10,000 tonnes (12,500 m^3 of diesel or Jet-A fuel) and to do this, the OHF will have the equipment and resources to respond to a spill up to this size.

6.1 Response Management Structure

Agnico Eagle has an Emergency Response Team (ERT) at the Meadowbank Mine trained and responsible with the Environmental Department for controlling spills at the Agnico Eagle's Baker Lake laydown and tank farm, and for assisting with medical and other emergencies that may occur at the mine site or the OHF.

Figure 5 depicts the Response Management System.

Figure 5 - Response Management System



6.2 Logistics and Planning

The Emergency Measures Counsellor (EMC) will ensure that site drawings and equipment lists are posted conspicuously in key locations throughout the site so that important information is always readily available. This will include the following:

- Location and isolation points of energy sources;
- Location of emergency equipment (e.g., fire water pumps, fire extinguishers, monitors, self-contained breathing apparatus);
- Emergency procedures outlines, such as specialist firefighting, chemical neutralization;
- Location of equipment for combating pollution (e.g., booms, pumps, absorbents, dispersants);
- Availability of internal and external emergency medical support (e.g., hospitals, clinics, ambulances, medical supplies, personnel with medical or first aid training);
- Location of toxicity testing facilities (e.g., gas and water);
- Location of wind direction / speed indicators;
- Directions on how to contact the local or regional weather forecasting service;
- Location of personal protective equipment and directions on its proper use; and
- Location of first aid stations and muster areas.

The Incident Commander, EMC, and Health and Safety Superintendent will know where, throughout the project site, all of this information is posted and where emergency equipment is stored. These individuals will also be trained in the proper use of emergency equipment.

SECTION 7. EQUIPMENT AND PPE

The following sections describe the items that are available in the case of a spill at the Agnico Eagle Mines Limited's Baker Lake Fuel Farm Oil Handling Facility. Any and all means will always be used to respond to a spill in a timely manner and ensure a prompt clean-up of any spill.

7.1 OHF Response Equipment for Spills

The following equipment (Table 2) is available right at the OHF at any given time in a sea can designated for ***Environmental Emergency*** and can be deployed on scene within one hour, if it's safe to do, to contain and control the spill. Agnico Eagle can deploy this material within one hour.

Table 2 - Material available in the Spill Response Sea Can at Agnico Eagle's OHF

Quantity	Equipment/tool name
3	Empty drums (sealed)
2	Mini Berm 36"x 36"
2	4 Drums Berm 4'x 8'
4	Tarp 20'x 30'
4	Tarp 30'x 50'
20	Oil Spill Absorbent Pads
10	Universal Absorbent Boom 5"x 10' (For Hydro-soluble Chemical)
10	Universal Absorbent Boom 8"x 10' (For Hydro-soluble Chemical)
10	Petroleum base Absorbent Boom 5"x 10' (for Petroleum product)
8	Maritime Barrier (Baffle)
5	ABS pipe: 10' long x 4" diameter
2	Cell-U-Sorb (Absorbent)
2	Amerisorb Peat moss (Absorbent)
2	Oil Gator Absorbent
1	Plug Patties
4	Quatrex bags
2	Fork Lift Crate
4	Hand Shovel
1	Crow Bar Chisel
1	Ice Breaker Chisel
1	Sledge hammer
15	Rod bar 4'
1	½ drum containment
1	100 feet of rope
1	Knife to cut rope
1	Boat with motor, gasoline jerry can and accessories (sea can #321225)

7.2 Additional Response Equipment

All equipment previously mention is available for use during any emergency situation. The following equipment would take time to get to the spill site; time would vary depending on distance from the spill. All these equipment and resources can be deployed on scene in <6 hours for the recover and clean-up of the spill.

7.2.1 General Equipment

This section addresses the emergency response machinery, equipment, tools and other resources that will be made available on-site for spill counter measures.

7.2.1.1 Mobile Equipment

Mobile Equipment available to Agnico Eagle, that will be used for spill contingency include:

- Graders-4
- Cranes-6
- Snowmobiles-3
- Vacuum Truck-1
- Loaders-14
- Backhoe-10
- Bulldozer-8
- Forklift & Hysters-16
- Water Trucks-2
- Winch Trucks-2
- Pickup Trucks-70
- Generator Sets-20
- Fire Truck-1
- Boats-4
- Fuel Trucks-2
- Bobcat-2
- Haul Trucks-25
- Snow Cat-1

All the previous listed equipment can be found on the Meadowbank mine site. Wheeled equipment can be at the OHF in Baker Lake in 3-6 hours. Tracked equipment would have to be loaded and transported which would take 5-6 hours.

7.2.1.2 Containment System

Temporary containment systems are also available on site and include:

- Absorbent Booms - 130 kits; 4 booms per Kit; each boom 8”x10’
  - 122 Universal booms; each boom 5”x10’
- Open top Drums x 80@200L
- Tanks – 2 x 100,000L tanks
- Tailings Pond – capable of holding contaminated fluids >1,000 m^3 capacity
- Spill absorbent material packages/pads - Quantity changes depending on demand on the Meadowbank site

7.2.1.3 Emergency Transportation

Emergency transportation that will be used under an emergency situation are:

- Aircraft (fixed wing or helicopter)
- 4-wheel drive vehicles >70
- Snowmobiles x 3
- Boats and motor x 4
- Sherp x 1

7.2.2 Spill Response Kits and Containers

7.2.2.1 Kits

Spill response kits are strategically located where required. Each department and work area are responsible for providing sufficient spill response kits in their respective work areas. The kits are kept in marked and accessible locations. The locations include all fuel storage areas, chemical storage areas and so on.

All of the mobile equipment on site (including heavy equipment) contains an emergency spill kit.

7.2.2.2 Emergency Trailer

Agnico Eagle also have an Environmental Emergency Trailer which is easily accessible and mobile. The trailer is located on site at Meadowbank Mine site. This trailer contains the following items:

- Pump Elastec
- Pump accessories
- Vacuum ends
- 45 gallons top
- Tubing 2 inches diameter
- Tubing 3 or 4 inches diameter
- Diesel Fuel jerry can (place on a miniberm)
- Spill kit accessory (red box)
- Drums opener
- Wescot (to open empty drum screw)
- Empty drums
- 2 drums berm
- 4 drums berm 4x8
- Tarp 20x30
- Tarp 30x50
- Oil white spill pads
- Universal boom 5x10
- Universal boom 8x10
- ABS pipe: 10' (4")
- ABS pipe: 10' (6")
- Cell U-Sorb
- Sphagsorb
- 3 Size of Wedge wood
- Plug pattie
- Quattrex bags
- Hand shovel
- Ice chisel
- Sledge hammer
- Rod bar (4')

7.2.2.3 AWAR Sea cans

Along the AWAR there are 9 environmental emergency sea cans. These sea cans are strategically placed along the road at water crossings. Each environmental emergency sea can contain the following material:

- Empty drums (Sealed)
- Mini berm 36"x36" x4'
- 4 drum spill berm 4x8
- Tarp 20'x30'
- Tarp 30'x50'
- Oil white spill pads
- Universal boom 5"x10' (Chemical)
- Universal boom 8"x10' (Chemical)
- Oil only booms 5"x10' (Hydro-carbons)
- Maritime barrier (Baffle)
- ABS pipe: 10' (4")
- Cell U-Sorb
- Amerisorb peat moss
- Oil gator absorbent
- Plug pattie
- Quattrex bags
- Fork lift crate (pallets)
- Long handle round point shovel
- Chisel point crow bar 16 lbs 57"
- Ice chisel
- Sledge hammer 12 lbs 36"
- Rod bar (4')

7.3 PPE

7.3.1 PPE at OHF

The following PPE (Table 3) will be found in the Emergency Trailer and also on sea can at the OHF:

Table 3 - PPE available at OHF

Quantity	Equipment/tool name
6	Rain gear -- Pants and Top (L & 2-XL)
6	Rubber boots (size 8,10,12)
12	Rubber gloves
6	Goggles
6	Tyvex suits (L & 2 XL)
6	Safety glasses
6	Leather gloves

This is adequate PPE intended for six (6) persons. Additional PPE will be available from the Meadowbank mine site.

7.3.2 Additional PPE for Spills

Personal Protective Equipment is stored in bulk quantities at the Meadowbank Warehouse. Quantities of each can be found on site using the JD Edwards system. In addition, the community of Baker Lake has certain PPE that can be purchased through Agnico Eagle after consulting the Agnico Eagle Procurement and Logistics department; however, quantities of this PPE cannot be relied on within Baker Lake.

SECTION 8. COMMUNICATION

The primary basis for communication will be the phone system; back-up communication will be available via satellite phone. For on-site communication, hand-held radios will be mandatory for all employees working or travelling in remote areas from the OHF. Cell phones can be used as an additional means of communication however only CDMA service is available at the OHF. The importance of maintaining two-way communication and ensuring secondary communication is available will be discussed during a pre-discharge meeting that will be held with all stakeholders prior to the commencement of the transfer season. At this time, Agnico Eagle will also evaluate other forms of communication that could be used. Back-up power sources and replacement batteries for communications equipment will be available to provide continuous, uninterrupted operation either at fixed facilities or at emergency sites.

Key site personnel will be accessible at all times by either portable radios, radios in vehicles, or office radios. The Health Care Professional will carry a hand-held radio and will be available at all times. Security personnel will monitor the emergency channel twenty-four hours per day. Senior management personnel will rotate as “On-Call Managers” for after-hour emergencies. An accommodations list that highlights key personnel will be posted and updated as required.

In the event of a major emergency all external communications for the mine site and associated areas will be cut and all external contact will take place solely through the Emergency Control Center at the Meadowbank Site.

During fuel transfer operation, the vessel master and the operator of the OHF will always have a two-way communication on a continuing basis. This two-way communication will be the direct communication by radio and the use of the cell phone.

At any time, if an emergency happens, the initial call will be a code one call on any operations channel to ensure a proper response. The procedure goes as such:

A *Code One* can be called by any person on site to report an accident, serious incident or fire which requires the response of the ERT (Emergency Response Team).

All *Code One* should be called on any operations channel or on any phone by calling 6911.

The procedure steps:

1. Call ***Code One*** over the two-way radio ***three (3) times*** on any operations channel or on any phone by calling 6911

   When a code 1 is called over the radio, please respect the “Radio Silence” and if you are driving on the mine site road, please pull over and safely park your vehicle until an All Clear is given.

2. Give your name, exact location and the nature of the Emergency

3. Upon notification of the ***Code One,*** the “dispatch” is the only person who will communicate with the person who initiated the Code One

4. The “dispatch” will contact the proper personal to notify them of the ***Code One*** Emergency.

5. If safe to do so the person who called the code one should stay at the location in case any additional information is required or to relay any development which may occur prior to ERT or proper personal arriving to take over the Emergency

Once the ***Code One*** is called, the Incident commander, captain or dispatch determines whether all work in the affected ZONE will be stopped and equipment will be secured so as not to interfere with the response by the ERT. Radio Silence on working channel must be observed until advised otherwise by the Incident Commander or ERT Team Captain.

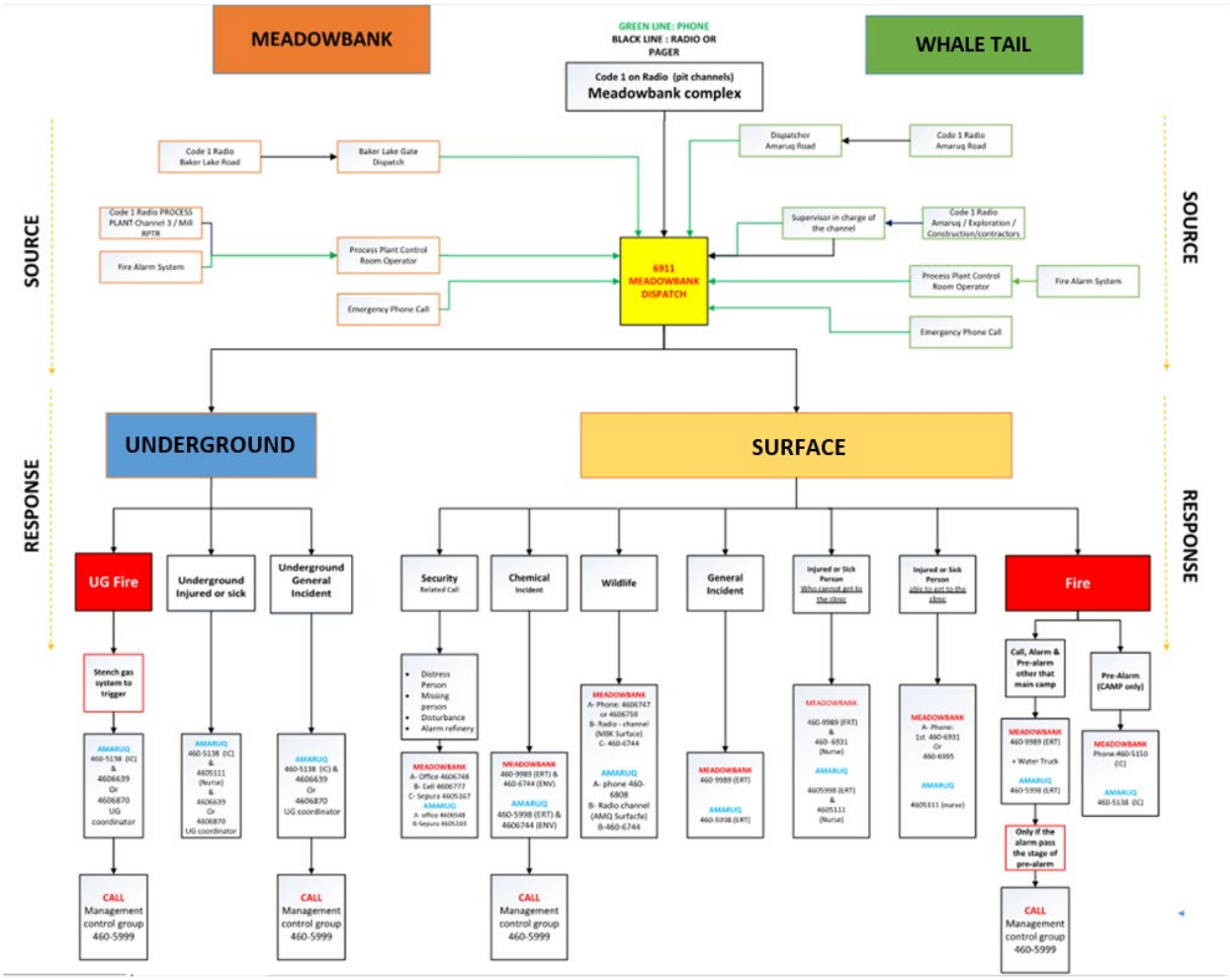


Figure 6. Emergency Procedure

8.1.1 Communication with the Public

Communication with public bodies during the state of emergency will be the responsibility of the General Mine Manager or by the Communications & Public Affairs Corporate Director.

In the case that the communities of Baker Lake should need to be evacuated on short notice, the Emergency Response Team will immediately assist in the evacuation of the community. The General Mine Manager will immediately contact the Mayor of the Hamlet to inform regarding the situation. In addition, if safe to do so, a radio notification should be immediately broadcast on the Baker Lake Radio station.

8.1.2 Hand Held Radio Communication

The Sepura radios used for hand held radio communication on the Meadowbank mine site, the All Weather Private Road, OHF, and associated facilities are as follows in Table 4.

Table 4 – Agnico Eagle Radio Channels

Health & Safety	460-5172
Information Technology	460-5003
Engineering	460-5268 / 460-5268
Geology	460-5222 / 460-5224
Mining Dept.	460-5197
Environment	460-5120
Process Plant	460-5273
Energy and Infrastructure	460-5275 / 460-5274
Camp	460-5127
Human Resources	460-5280 / 460-5281
Maintenance	460-5299
Logistic and Warehouses	460-5207

8.1.3 Contacts

Internal contact information is contained in Table 5 for all Agnico Eagle personnel involved in spill recovery. Table 6 contains contact information for contractor contacts which can be called for assistance with spill recovery. Table 7 is a list of government officials and external contacts to notify and provide subsequent reporting. Agnico Eagle also have a mutual agreement with other mining companies in the north to assist our site in case of a major emergency, the contact information are detailed in Table 8.

Table 5 - Agnico Eagle Contact

Title	Name	Telephone No.
EVP, Operational Excellence, Environment & Sustainable Development	Carol Plummer	416.644.2056
Vice President of Environment and Critical Infrastructures	Michel Julien	416.947.1212 ext. 4013738 Cell: 514.244.5876
Vice President, Health, Safety, Social Affairs & People	Jason Allaire	819.759.3555 ext. 460800 Cell: 819.355.2608
Corporate Director, Environment and Operational Risks	Jessica Huza	Cell 438.830.6797
Meadowbank General Mine Manager	Alexandre Cauchon	819.759.3555 ext. 4606896 Cell: 819.651.2216 Radio: 460-5269
Health &Safety Superintendent	Patrick Goldfinch	819.759.3555 ext.4606720 Radio: 460-5172

Emergency Response Coordinator	Philippe Beaudoin	819.759.3555 ext.4606809 Cell.450.847.4214 Radio: 460-5128
Emergency Measures Counselor	Fanny Laporte	819.759.3555 ext.4606809 Cell: 450.847.4214
Environment and Critical Infrastructures Superintendent	Eric Haley	819-759-3555 ext. 4606491 Cell: 819-651-1010
General Supervisor Environment	Robin Allard	819-759-3555 ext.4605218 Cell:819.860.1414
Environmental Coordinator	Tom Thomson/Samuel Tapp/Rowan Woodall	819.759.3555 ext. 4606744 Radio: 460-5120
Environmental Department	Environmental Technicians	819.759.3555 ext.4606747/4606759 Radio: 460-5120
On-site Medics	On-site Nurses	819.759.3555 ext.4606734/4606751
Site Security	On-site Security	867.793.4610 ext. 4606748

Table 6 - Contractors / Local Contacts

Title	Contact in Emergency for:	Telephone No.
Nolinor Aviation Services	Flight services for additional crew, or additional supplies	Regular Number 450.476.0018 888.505.7025
First Air	Flight services for additional crew, or additional supplies	Regular Number 1.800.267.1247 867.669.6694
Calm Air	Flight services for additional crew, or additional supplies	1.800.839.2256 Emergency 204.677.5013 204.677.5019
Dyno Nobel Explosives Ltd.	Heavy Equipment, workforce, Emergency Blasting	819.825.5441
Woodward Group of Companies – Craig Farrell	Fuel Hauler	Craig Farrell 709.541.0789 Company 709.535-6944:
Baker Lake Contracting & Supplies	Workforce, equipment, trades personnel i.e. pipefitter, plumber, electrical	867.793.2831 867.793.1766
Peter's Expediting	Equipment, workforce, ground transportation services	867.793.2703 Cell 867.793.1615
Arctic Fuel Services	Fuel hauling, trucking, workforce.	867.793.2311 Office 867.793.2301 Supervisor

Table 7 - External Contacts

Organization/Authority	Telephone Number
NT-NU 24-Hour Spill Report Line / E2 Emergency Reporting Line	867.920.8130 spills@gov.nt.ca
Workers Safety and Compensation Commission	877.661.0792 (Emergency) or 800.661.0792
Kivalliq Inuit Association	867.645.5725 867.645.2810 (reporting line)
Nunavut Water Board	867.360.6338
CIRNAC Inspector	Kyle Amsel 867.222.6795 or 867.645.2089
Fisheries and Ocean Canada (DFO) – Nunavut Regional Office	867.979.8000
Government of Nunavut – Department of Environment	867.975.7700
Kivalliq Health Services – Baker Lake	867.793.2816 or 867.793.2817 *Dial 0*
Baker Lake Hamlet Office	867.793.2874
Baker Lake Fire Emergency	867.793.2900
RCMP Regular Hour RCMP 24 Hour Emergency Number	867.793.0123 867.793.1111
Canadian Coast Guard (in the event of a spill to the marine environment) Superintendent Environmental Response	800.265.0237 519.383.1954 519.381.6186 (cell)
Transport Canada – Tech services Stephen Sherburne Philip Levesque Ryan Oleschak	780.495.6325 204.984.5786 Cell: 204.801.6951 Cell: 431.338.6742

Table 8 - Mutual Aid Contact

Mutual Aid	Telephone Number
Diavik Diamond mines Inc	867.669.6500 ext. 5903 Phone number is monitored by Security Control 24 Hours a day
Agnico Eagle Mines Limited (Nunavut Operations)	Meliadine (819) 759-3555 ext. 4603175 Environment Superintendent Hope Bay 819.759.3555 ext. 4600102

	Environment Superintendent
De Beers Canada	416.645.1695 ext. 6699 Phone number is monitored by Security Control 24 Hours a day
Dominion Diamonds Mines Ekati	867.880.2201 or 867.880.4444 Both phone numbers are answered and monitored by Security Control 24 Hours a day
GMRP	24-hour mine number (Security) 867.446.2647

SECTION 9. ROLES AND RESPONSIBILITIES

In order to effectively ensure that all stakeholders involved in transfer operations are aware of their responsibilities, a pre-discharge meeting will be scheduled and clearly documented prior to the first transfer to review this plan and to address any outstanding safety concerns. Additionally, a post-discharge meeting will be scheduled with stakeholders at the end of the transfer season to determine successes and areas of improvement.

9.1.1 First Responder (Third Party Contractor (Intertek Personnel) and Spud Barge Supervisor)

The person who has caused a spill or is the first to observe the spill is the first responder.

The responsibilities of the First Responder are as follows:

- Oversee the fuel transfer operation;
- Follow procedure set-up in the OPEP to prevent and minimize spill (See Section 5.3)
- In case of spill to land, ice or water, contact the Baker Lake Gatehouse to report the incident;
- Identify and contain the spill, IF SAFE TO DO SO; commence preparing spill response equipment, and
- Participate in spill response as a member of the clean-up crew.

9.1.2 Supervisor (Spud Barge Supervisor)

The responsibilities of the Supervisor are as follows: **Need to call a code one if this is a major spill or out of control

- Contact the Baker Lake Gatehouse; contact Environment Department;
- Gather facts about the spill; and
- Participate in spill response.

9.2 Roles & Responsibilities of the Emergency Control Group

Below are the roles and responsibilities of the Emergency control group.

9.2.1 Official In-Charge:

The Official In-Charge (General Manager or designate) will take charge for overseeing and approving the overall emergency strategy.

Immediate duties of the Official In-Charge include:

- Consult with the Incident Commander the status of emergency;
- Appoint an Emergency Log Recorder to maintain a written record of the time and events, including all discussions, instructions and decisions made by the Emergency Control Team;

- Issues specific tasks to the members of the Management as they arrive at the Control Room, as per this guideline;

- Brief the Emergency Control Team;

- Ensure that the safety of personnel is maintained, throughout the operation;

- Ensure procedures are in place for prompt dispatch of requested personnel, materials and equipment to the emergency area;

- Arrange for all reports to be presented at specific intervals to the Emergency Control Team;

- Finalize the recommendations of the Incident Commander for rescue and recovery operations;

- The Official In-Charge is the only person authorized to release information to Government Agencies, Corporate Office or the Local Communities. He may delegate this activity to other members of the Emergency Control Team;

    - Verify all information you release;
    - Keep a record of all inquiries (media and non-media);
    - Do not speculate on causes;
    - Do not speculate on resumption of normal operations or when the problem will be solved; and
    - Advise that further updates will be forth coming.

- Notify the corporate management, if the following appear probable:

    - Fatalities;
    - Injuries that could probably become items of local, regional or national media interest;
    - There is a public health or environmental risk;
    - An incident involving chemicals where there is a large volume or the potential for over reaction (e.g., cyanide);
    - A spill of effluent or contaminated water or chemical substance to an area that lies outside the area of drainage control of the mine site (i.e., an external spill);
    - Mine operations may be stopped for more than two (2) days; and
    - Government authorities will become involved.

- Ensure all response teams, regulatory agencies and any other agency on emergency alert notice are advised when the emergency has ended;

- Ensure all documentation (i.e., notes, log sheets, written instructions, etc.) is gathered for the creation of the final report; and

- Participate in debriefing.

9.2.2 General Superintendents:

- General Services, Operations and Maintenance will report to the Emergency Control Room and support the General manager/Designate in whatever capacity required;
- They will also ensure that the Superintendent/Designate in each of their respective Department's is aware of the emergency; and
- They will assist with the investigation and write up of the final report.

9.2.3 Incident Commander: A Trained Staff Member (ERT Coordinators or Superintendent):

The responsibilities of the Incident Commander include:

- Ensure Security has been notified of emergency;
- Ensure the evacuation procedures have been activated, if required;
- Ensure that there are sufficient ERT members available to respond to the emergency;
- Ensure that the ERT has back-up support, a standby Team;
- Ensure that ERT Team has refreshments and nourishment (if the emergency requires several hours to resolve);
- Assess the size and severity of the emergency and the likely consequences. Establish response priorities; as well coordinate prevention of fire or explosion;
- Maintain communication with the ERT Captain;
- Advise the Official In-Charge of the ERT Team's activities, regarding the rescue and recovery operations;
- Appoint sufficient personnel, equipment and outside services are available. Utilize the members of the Emergency Control Team to organize these resources;
- Advise Official In-Charge when the emergency situation is under control and give the "All Clear";
- Participate in emergency investigation;
- Coordinate an orderly return to normal operating conditions;
- Arrange for a debriefing session, and utilize the services of all involved in resolving the emergency; and
- Assist to write the final report.

9.2.4 Emergency Response Team (ERT Team) Duties:

- The ERT Team Members must report to the Fire Hall, when paged for a “Code One” emergency;
- ERT Team Members will be given instructions on the emergency by the Incident Commander;
- ERT Team Members will follow instructions from the Incident Commander and will not put the Team at risk; and
- The ERT Team Captain will maintain radio contact with the Incident Commander throughout the emergency.

9.2.5 Environment and Critical Infrastructures Superintendent/Designate Duties:

The following are the responsibilities of the Environment and Critical Infrastructures Superintendent /Designate;

- Provide technical advice on probable environmental effects resulting from a spill and how to minimize them;
- Ensure that the ERT Members of his crew have responded to the “Code One” emergency;
- Provide advice to the Official-in-Charge for appropriate spill response procedures;
- Ensure that Environmental Staff are available to direct the spill response action plan; and
- Assist with restoring of the Operations back to normal operating standards.

9.2.6 Health and Safety Superintendent/Designate Duties:

The Health and Safety Superintendent/Designate will be responsible for:

- Ensure that an Incident Commander is in place to oversee the ERT Teams;
- Ensure that all Management respond to the emergency and meet in the emergency control room;
- Oversee all activities that require Security or Nursing and arrange for Medevac transport, if required;
- Assist with getting a “head count” for the Official in-charge; and
- Assist with obtaining outside help if required.

9.2.7 Energy and Infrastructures Superintendent/Designate Duties:

The following are the responsibilities of the Site Services Superintendent/Designate;

- Ensure that all his employees are accounted for;
- Ensure that all ERT Member on his Crew, respond to the “Code One” emergency;

- If the “Emergency” is involves the site facilities, assist the Official-in-Charge with the action plan to deal with the emergency;
- Assist as required by supplying equipment and/or manpower; and
- Assist with restoring of the Operations back to normal operating standards.

9.2.8 Human Resources Superintendent/Designate Duties:

The following are the responsibilities of the Human Resources (HR) Superintendent/Designate:

- Ensure that all HR employees are accounted for; and
- Provide assistance to the Official-in-Charge if there are employees issues, such as injuries, transportation requirements, etc.

9.2.9 Health Care Professional (Nurse/Medic):

The on-site health professionals are responsible for the following:

- Providing on-site first aid and other medical support;
- Establish a triage location if there are multiple casualties;
- Arrange for medevac transportation, if required; and
- Ensuring that the first aid room is maintained at all times, by using First Responders as support.

9.2.10 Security Department:

The on-site Security Supervisor is responsible for the following:

- Ensure that access points to the emergency are properly guarded;
- Notify the Baker Lake Gatehouse if the emergency involves the all-weather access road (AWAR); and
- Assist with other duties as requested by the Emergency Control Group.

9.3 Debriefing

After an incident has taken place and the location is brought back to normal operating standards a debriefing session will occur between ECG, Field Supervisors for the incident, ERT Captain(s), and the supervisor of the department involved with the spill.

The point of this debriefing session to determine the *who, what, where, when, why, and how* the incident occurred. It will also be the time to reflect on the steps that were taken to carry out the response and to determine what was done right and what corrective measures need to be put in place to better the response if needed in the future.

SECTION 10. GENERAL SPILL PROCEDURES

SPILL RESPONSE PRIORITIES

1. **Safety of the personnel working at or around the OHF**
    a. Contact all personnel working around the spud barge area and make them aware
    b. Make contact with the vessels Captain to make aware the ship and stop the transfer of the product (ensure to reduce the rate of flow and pressure in a safe and efficient manner) *
    c. Dawn appropriate PPE
    d. STOP the spill if possible
    e. Call Code One if major spill or out of control
2. **Make the facility safe**
    a. Create a no entry perimeter to ensure unaware persons do not enter the area in which the incident took place.
    b. Barricade entrances to the facility with red danger tape
    c. Have a person designated to watch entrances to ensure no community persons come on to site.
3. **Make the community of Baker Lake aware of the Spill to ensure measures can be taken to ensure safety of the community**
    a. Contact Mayor / Hamlet counsel
    b. Fire department
    c. RCMP
4. **Prevent fires or explosions / Stop all ignition sources**
    a. Disconnect power supplies
    b. Do not contain diesel or Jet-A fuel if vapors might ignite
    c. Allow fuel vapors to evaporate before intervention
5. **Minimize the Spill**
    a. When safe to proceed stop the spread of the product
    b. Use spill response equipment in emergency sea cans and ask for additional material if the spill is greater than $5m^3$
6. **Notice and Report the Spill**
    a. Spill need to be reported to Transport Canada, Coast Guard and Government of Nunavut immediately
    b. Other governing bodies will also be notified (see section 10.2)
7. **Environmental Impact**
    a. Deter wildlife from entering spill area. Keep track of any wildlife mortalities
    b. Determine what impacts the spill will have on the Environment
8. **Clean-up**

**manifold valves and tank valves at the OHF are not closed until relevant pumps are stopped, if the closing of the valves would cause dangerous over-pressurization of the pumping system*

10.1 Coordination with Government Agencies

10.1.1 Coordination with Transport Canada Technical Service Environmental Response

In the event of a marine spill Transport Canada Technical Service Environmental Response (TC) will be contacted immediately regarding the incident. Agnico Eagle will adhere to further recommendations from TC in response to the spill.

TC will also be contacted annually prior to the deposition of fuel at the OHF. As well, annual approval of this OPEP/OPPP will be required by TC Pollution prevention Officer.

10.1.2 Coordination with Canadian Coast Guard

In the event of a marine spill, the coordination with Canadian Coast Guard (CCG)[4] is required and they will be contacted to report the incident. A description of the event will be provided to the CCG Environmental Response. Agnico Eagle will adhere to further recommendations from CCG in response to the spill.

On an annual basis prior to the shipment of fuels to the OHF commencing, Agnico Eagle will contact the CCG and make them aware that the shipping season will be starting so they are aware that fuels will be travelling to Agnico Eagle's Baker Lake Fuel Tank Facility constructed in Baker Lake. Also, Agnico Eagle will inquire if there is any update to "*The Central and Arctic Regional Response Plan (2008).*"

Agnico Eagle's Environmental Group will annually, prior to fuel transfer, review "*The Central and Arctic Regional Response Plan (2008).*" A copy of this plan can be found in Appendix B for reference. The plan will be reviewed to ensure that the OPEP and the actions of Agnico Eagle's OHF meet all requirements listed for an OHF.

10.1.3 Other Government Agencies

Agnico Eagle will contact all government agencies associated with the Meadowbank Complex as is the norm for any reportable spill. These groups include: Government of Nunavut (GN) via 24 hour spill reporting line, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), Nunavut Water Board (NWB), Environment and Climate Change Canada (ECCC) and Kivalliq Inuit Association (KivIA).

10.2 Reporting Requirements

As per the Canada Shipping Act spills to the marine environment will be reported to the Transport Canada Technical Service Environmental Response and Canadian Coast Guard (contact numbers in Table 7). Marine spills will be reported in accordance with Transport Canada Vessel Pollution and Dangerous Chemicals Regulations Section 133 (SOR-2012-69). Others to receive the spill report include the Kivalliq Inuit Association, Hamlet of Rankin Inlet, Fisheries and Oceans Canada, Canadian Coast Guard, Crown-Indigenous Relations and Northern Affairs Canada and Environment and Climate Change Canada. Incidents that require media communications will be the responsibility of Agnico Eagle General Mine Manager or Public Affairs Corporate Director.

[4] CCG: 1-800-265-0237

Agnico Eagle is aware that under Section 182(1)(a) of the *Canada Shipping Act, 2021,* The Governor in Council may, on the recommendation of the Minister, make regulations for carrying out the purposes and provisions of this Part, including regulations respecting the circumstances in which operators of oil handling facilities shall report discharges or anticipated discharges of pollutants, the manner of making the reports and the persons to whom the reports shall be made.

To ensure compliance with Section 36(3) and 38(5) of the *Fisheries Act* and Section 5(1) of the *Migratory Birds Convention Act*, all spills of fuel or hazardous materials, regardless of quantity, into a water body or onto ice will be reported immediately to the NT-NU 24-HOUR SPILL REPORT LINE (phone: (867) 920-8130, fax: (867) 873-6924, spills@gov.nt.ca).

To ensure compliance with the Environmental Emergency Regulations (E2) all spills that are deemed to be an environmental emergency by using professional judgement, as per Section 18 of the regulations, must be reported verbally using the NT-NU 24-HOUR SPILL REPORT LINE (at 867.920.8130 and online at spills@gov.nt.ca). A written report of the environmental emergency must be reported in the form of a Schedule 8 and submitted electronically on the Single Window Information Management (SWIM) System. The written report must describe the nature of the event, the name and quantity of the substance involved, the state of the container system (if applicable), the impact of the release, and measures taken to prevent a recurrence.

Agnico Eagle possess a thorough internal spill reporting system that documents all spills for internal tracking. Regardless of the volume, these spills are all reported to the Environment Department and if the NT-NU spill limits are exceeded, if the spill occurs in a water body (regardless of quantity), or if the spill constitutes an E2 Emergency, the Environmental Department reviews the incident, produces the NT-NU spill report and submits the NT-NU spill report to the regulator listed above. Investigation of all reportable spills is completed by the Meadowbank Environment Department.

10.3 Treatment and Disposal

All diesel or Jet-A fuel recovered through the spill response and any contaminated material will be taken to the Meadowbank mine site for recovery. It could also be packaged for disposal/recycling by a certified hazardous waste management company in southern Canada.

10.4 Resuming Unloading

The unloading of fuel from the tanker to the OHF will not resume if it hinders the response to the spill in any way. Unloading will resume once all problems are corrected, thus ensuring that the spill will not continue.

SECTION 11. SPILL SCENARIOS AND RESPONSE STRATEGIES

Agnico Eagle will strive to prevent any accidental spills and take all reasonable steps to minimize the risk of spill incidents and their impact on the environment. In 2023, an exercise program scenario was developed as a prevention protocol for the OHF operation. Safety, including use of personal protective equipment around water, and spill response training were part of this training. This exercise program evaluated the effectiveness of all the aspects of the procedure, equipment and resources that are identified in the OPEP. A summary of the 2023 exercise is provided in Appendix D - 1.3. An exercise will be conducted annually and the summary will be provided in next year's revision of the OPEP. Written description of the annual exercise established to evaluate the effectiveness of all aspects of the procedures, equipment and resources that are identified in the plan, including exercises to be coordinated with vessels engaged in the loading or unloading of oil, vessels used to respond to oil pollution incidents, the Department of Transport and the Canadian Coast Guard will be provided to the Inspector at least 30 days before the day on which the exercise will be conducted.

11.1 Product Properties and Response Strategy

Jet fuel, Jet-A, Jet-A1, or kerosene is a type of aviation fuel designed for use in aircraft powered by gas-turbine engines. It is colourless to straw-coloured in appearance.

P50 Diesel is a bright oily substance that has a low viscosity. It spreads rapidly on the water, has a low solubility in salt water (60 mg/L), and a high evaporation rate as described in the text box below.

At Baker Lake, the wind is largely from the NW to N.

Predicted Evaporation Rate of Spilled Diesel

Weight percent Evaporation = (5.8 + 0.045T) in(t)
Where T = water temperature
t = time in minutes

After a time span of 60 minutes at a surface temperature of 5°C, up to 25 % weight of the spilled diesel would have evaporated.

After 240 minutes, or 4 hours, the weight percent of the diesel that would have evaporated would be 33%.

Source: *Environment Canada, Emergencies Science and Technology Division*

In relation to Jet-A Fuel we will use the same evaporation rate as diesel as per Journal of Petroleum Science Research states; "*Diesel fuel and similar oils, such as jet fuel, kerosene and the like, evaporate as a square root of time. The reasons for this are simply that diesel fuel and such like have a narrower range of compounds which evaporating at similar rates, yield rates which together sum as a square root.*"[5]

[5] Journal of Petroleum Science Research (JPSR) Volume 2 Issue 3, July 2013 - *Modeling Oil and Petroleum Evaporation* by Merv F. Fingas

As a result of the properties of diesel and Jet-A and the environmental conditions that predominate at Baker Lake, the spill response will need to aim to stop the spilled product from spreading across Baker Lake. This could include activating the Shipboard Oil Pollution Emergency Plan. The tanker would have response equipment on board and a fully trained crew in spill response. This, coupled with a shore based response under the OPEP, would ensure sufficient resources are available to control and recover as much diesel and Jet-A fuel as feasible.

11.2 Pipeline Safeguards

There are a number of safeguards in operating the ship-to-shore pipeline; these include:

- Save-all trays to capture any minor spills at the ends of the floating pipeline;
- Dry-break couplings at both ends of the floating pipeline;
- A pressure test will be performed before the diesel transfer to confirm the system is free of leaks; and
- Both the crew on the tanker and Agnico Eagle's shore-based personnel will be fully trained in spill response and spill recovery.

11.3 Wildlife

During a spill event, Agnico Eagle will take care to deter any animal that will be near the spill area to minimize the risk to wildlife. In a case of mortalities, Agnico Eagle will track any mortality and report these numbers to the GN and ECCC in case of migratory bird mortality.

11.4 Scenarios

The scenarios outlined below were developed in accordance with the Environmental Response Regulations Section 11 (1) (b). Refer to Sections 4.3 and 5 of this report for the assumptions on which the scenarios were based.

Three scenarios are considered, these being:

1. A spill between the ship and the flange of the OHF, the floating pipeline, resulting in a spill smaller than 1,000 L of diesel or Jet-A fuel;
2. A major failure between the ship and the flange of the OHF, the floating pipeline, resulting in a spill greater than 1,000 L but smaller than 5,000L of diesel or Jet-A fuel; and
3. Spill up to a maximum of 12,500 L (10,000 t of diesel or Jet-A fuel).

In most instances Agnico Eagle personnel and/or contractors will be able to respond to the spill but if necessary, backup can be requested by calling for the assistance of the Agnico Eagle Emergency Response Team that is stationed at the Meadowbank site located 110 kilometers away. The ERT can be at Baker Lake within 125 minutes to take charge of the spill response. Agnico Eagle will make every effort to have its equipment and resources deployed within 6 hours of an incident.

Diesel and Jet-A spills will be responded to in the same way. Review of the CANUTEC Emergency Response Guidebook designates the spill response to both products as the same.[6]

Scenario 1: **Loss between the ship and the flange of the OHF, the floating pipeline, resulting in spill smaller than 1,000L of diesel or Jet-A fuel.**

Appropriate Actions	Resources
1. Communicate with vessel and immediately stop the ship-to-shore transfer of fuel, if it's safe to do. The transfer should not restart in a manner that would interfere with the immediate, effective and sustained response to the oil pollution. 2. Make sure that the environment is safe for the facility and vessel personnel, the facility and Baker Lake community. 3. Make sure that risk of fire or explosion are minimize. 4. Contact person found on OHF Declaration to initiate the OPEP. 5. Minimize the oil pollution incident by containing the spilled fuel to spreading within the marine environment, if it's safe to do. 6. Notify CCG, local and regulatory authorities. 7. Containment boom is manned to prevent the escape of fuel outside the boom. 8. If necessary, place a diversion boom outside the containment boom to stop the diesel from getting onto the beach. 9. Spread absorbent material on the spill to capture it. 10. Monitor any fuel that could not be recovered and collect water samples near the spill site and in the access passage for analysis. Repeat as necessary. 11. If diesel reaches the beach, excavate the contaminated beach material and take it to the Landfarm area at the Meadowbank site.	a. Crew on the tanker trained in spill response. b. Agnico Eagle's shore-based personnel trained in spill response and recovery. c. Emergency Response Team to take control of the spill response and recovery. d. Spill response equipment and supplies maintained on board the tanker and also in the sea can located on shore of Agnico Eagle's Fuel Farm and Marshalling area. e. Save-alls (Pop-up pools) placed under the pipeline manifolds to collect minor spills. f. Shore-based boat to position booms. g. Absorbent booms to recover spilled diesel on sea water. h. Heavy equipment such as excavators, back hoes, vacuum trucks, and dump trucks available if beach is contaminated.

[6] 2012 Emergency Response Guidebook

Scenario 2: **Loss between the ship and the flange of the OHF, the floating pipeline, resulting in spill greater than 1,000L but smaller than 5,000L of diesel or Jet-A fuel.**

Appropriate Actions	Resources
1. Communicate with vessel and immediately stop the ship-to-shore transfer of fuel, if it's safe to do. The transfer should not restart in a manner that would interfere with the immediate, effective and sustained response to the oil pollution. 2. Make sure that the environment is safe for the facility personnel, the facility and Baker Lake community. 3. Make sure that risk of fire or explosion are minimize. 4. Contact person found on OHF Declaration to initiate the OPEP. 5. Minimize the oil pollution incident by containing the spilled fuel to spreading within the marine environment, if it's safe to do. 6. Notify CCG, local and regulatory authorities. 7. Containment boom is manned to prevent the escape of fuel outside the boom. 8. If necessary, place a diversion boom outside the containment boom to stop the diesel from getting onto the beach 9. Spread absorbent material on the spill to capture it 10. For larger amounts of spilled materials on water, use absorbent booms to collect the spilled diesel 11. Monitor any fuel that could not be recovered and collect water samples near the spill site and in the access passage for analysis. Repeat as necessary. 12. If diesel reaches the beach, excavate the contaminated beach material and take it to the Landfarm area at the Meadowbank site.	a. Crew on the small tanker trained in marine spill response. b. Crew from the large tanker anchored outside the access passage. c. Agnico Eagle 's shore-based personnel trained in near shore spill response and recovery. d. Emergency Response Team trained for near shore spill response. e. Shore-based boat to position booms and spread absorbent material. f. Spill response equipment and supplies maintained on board the tanker, in Agnico Eagle sea can locate at Agnico Eagle's Marshalling area. g. Additional booms to place outside the containment boom. h. Additional boats can be transported from the Meadowbank site as well local boats can be rented from local contracting companies i Heavy equipment such as excavators, back hoes, vacuum trucks, and dump trucks for waste materials. j. in the case of larger spills an Incident Command System will be set up at the Meadowbank site as laid out in the Meadowbank Emergency Response Plan.

Scenario 3: A spill >5,000 litres up to 12,500 L (10,000 tonnes)

In the case of an ***Extreme*** spill, Agnico Eagle follow the below actions listed to complete the best containment and clean up possible. Spill response supplies at the OHF (including all responses equipment and resources from Meadowbank, emergency trailer, emergency sea can along the AWAR) will need to be used to control and cleaned up. Tanker delivering fuel also has on board equipment that can be share with Agnico Eagle in case of extreme spill. However, at this point Agnico Eagle could require external assistance with the clean-up.

Appropriate Actions	Resources
1. Communicate with vessel and immediately stop the ship-to-shore transfer of fuel, if it's safe to do. The transfer should not restart in a manner that would interfere with the immediate, effective and sustained response to the oil pollution. 2. Make sure that the environment is safe for the facility personnel, the facility and Baker Lake community. 3. Make sure that risk of fire or explosion are minimize. 4. Call Code One and contact person found on OHF Declaration to initiate the OPEP. 5. Request for supplemental spill response material as detailed in Section 7 of the OPEP 6. Minimize the oil pollution incident by containing the spilled fuel to spreading within the marine environment, if it's safe to do. 7. Notify CCG, Transport Canada, local and regulatory authorities, and request for assistance if needed. 8. Containment boom is manned to prevent the escape of fuel outside the boom. 9. If necessary, place a diversion boom outside the containment boom to stop the diesel from getting onto the beach 10. Spread absorbent material on the spill to capture it 11. For larger amounts of spilled materials on water, use absorbent booms to collect the spilled fuel 12. Monitor any fuel that could not be recovered and collect water samples near the spill site and in the access passage for analysis. Repeat as necessary. 13. If diesel reaches the beach, excavate the contaminated beach material and take it to the Landfarm area at the Meadowbank site.	a. Crew on the small tanker trained in marine spill response. b. Crew from the large tanker anchored outside the access passage. c. Agnico Eagle's shore-based personnel trained in spill response and recovery. d. Emergency Response Team trained for spill response. e. Shore-based boat to position booms and spread absorbent material. f. Spill response equipment and supplies maintained on board the tanker, in Agnico Eagle sea can locate at Agnico Eagle's Marshalling area. g. Additional booms to place outside the containment boom. h. Additional boats can be transported from the Meadowbank site as well local boats can be rented from local contracting companies i Heavy equipment such as excavators, back hoes, vacuum trucks, and dump trucks for waste materials. j. in the case of larger spills an Incident Command System will be set up at the Meadowbank site as laid out in the Meadowbank Emergency Response Plan.

The Canadian Coast Guard (CCG) will be made aware each year prior the fuel transfer, there is a possibility that under direction of CCG that their spill depot supplies located in Baker Lake may be used.

SECTION 12. PREVENTIVE MEASURES

Agnico Eagle recognises that spill prevention is more desirable than any modern efficient cleanup measures after the fact. Preventive measures have been adopted in relation to any transport, transfer, use and storage of diesel and Jet-A fuel. The tankers carry a Ship Oil Pollution Emergency Plan (SOPEP) as per the MARPOL 73/78 requirement under Annex I. All ships with 400 GT and above must carry an oil prevention plan as per the norms and guidelines laid down by the International Maritime Organization (IMO).

A SOPEP contains the following things:

- The action plan contains duty of each crew member at the time of spill, including emergency muster and actions;
- General information about the ship and the owner of the ship etc.;
- Steps and procedure to contain the discharge of oil into the sea using SOPEP equipment;
- On-board Reporting procedure and requirement in case of oil spill;
- List of authorities to contact and reporting requirements in case of oil spill. Authorities like port state control, oil clean up team etc. are to be notified;
- Drawing of various fuel lines, along with other oil lines on board vessel with positioning of vents, save-all trays, etc.;
- General arrangement of ship, which includes location of all the oil tanks with capacity, content, etc.; and
- The location of the SOPEP locker and contents of the locker with a list of inventory. (Marine Insight 2012)

The Spill Contingency Plan, Emergency Response Plan and the OPEP/OPPP identify potential causes of emergencies and provides for the development and implementation of strategies to minimize the likelihood of the same.

As described in the Spill Contingency Plan, exercises are part of training for the Emergency Response Team. This will include comprehensive spill response exercise to practice the use of spill response equipment, including the use of booms and oil water separator.

The OPEP/OPPP will be updated annually based on the results of spill exercises, changes to the infrastructure at Agnico Eagle's Fuel Handling Facilities, changes to procedures and other variables. The updated OPEP/OPPP will be distributed to the Agnico Eagle Emergency Response Team, Transport Canada, the Kivalliq Inuit Association, the Municipality of Baker Lake and other agencies as appropriate.

12.1 Training

The environmental department and ERT team received training from a response organization and as a result will be able to respond to or assist with incidents that may occur at the OHF.

12.1.1 Meadowbank Site Personnel

A designated Emergency Response Team (ERT) consisting of on-site personnel is established at Agnico Eagle's Meadowbank Mine Site. Agnico Eagle will ensure that the ERT is trained and staffed in sufficient number so that the ERT is present at all times. All members of the team will be trained and familiar with

emergency and spill response resources, including their location and access, the Spill Contingency Plan, the Oil Pollution Emergency Plan and appropriate emergency spill response methodologies. The ERT will have up to 60 members, each of whom will train approximately 8 hours per month. At all times there are three ERT teams with six members on site and ready to respond. ERT members are from multiple departments on site including the environmental and energy and infrastructure departments.

The training will include the following:

- Worker health and safety during emergency interventions;
- A review of the spill response plan and responsibilities of the ERT members;
- The nature, status, and location of fuel and chemical storage facilities;
- The on-site and off-site spill response equipment and how to use it;
- Emergency contact lists;
- Communication methods and signals;
- Desktop exercises of “worst case” scenarios;
- Emergency evacuation;
- Fires or explosions;
- Emergency equipment and use;
- Personal protective equipment and clothing;
- Marine shoreline recovery operations; and
- The likely causes and possible effects of spills.

Every employee at the Meadowbank project will receive spill and waste management induction during their initial site orientation, so they are able to respond to small spills and raise the alarm if a larger response is required. ERT members will receive more extensive spill response training and learn how to respond while wearing personal protective clothing, use of specific spill response gear, proper deployment of absorbents and maritime boom.

The Environmental Department, mainly the environment technician, will regularly provide tool-box sessions to give information on spill response and reporting procedures.

Basic spill response training will continue to be completed in 2024 by all Agnico Eagle employees and contractors working on the Meadowbank Complex as part of the induction which is mandatory for all personnel coming to the Meadowbank site.

In February 2020, two technicians from the Environmental Department followed the Marine Spill Response Operation Course (MSROC) given by the Canadian Coast Guard (CCG). In 2022, Agnico Eagle hired a consultant to provide supplemental spill response training. The Spill Response Training was given by SWAT Consulting Inc. to the Environment Department and Emergency Response Team. The training took place at Whale Tail Mine and allowed the participants to gain experience on spill intervention and awareness of spill management gear.

12.1.2 OHF Personnel Training

Prior to the first discharge of fuel form the vessel to the OHF a mandatory training will take place. This will be a review with all the personnel responsible for the shore-based portion of the fuel transfer, including the third party contractor and the Baker Lake supervisor, the current OPEP/OPPP and make them aware of the procedures to follow in case of a spill before the first fuel barge arrived.

A meeting with all Departments of Agnico Eagle involved with fuel transfer is held annually. The OPEP/OPPP, prior to and during transfer checklists are reviewed..

12.1.3 Boat Operators

All people involved in the supervision during operation and / or on the spill response will complete the training course for the pleasure craft operator. Records of pleasure craft operator certification will be retained by the Meadowbank Training department.

All concerned persons working for Agnico Eagle Mines Ltd. must possess a pleasure craft operator card and provide proof of this certification prior to operating any boat relating to the Meadowbank project which includes the Baker Lake Marshalling facility. This includes emergency responders.

SECTION 13. WOODWARD GROUP OF COMPANIES

In Appendix A you will find the contact information for Woodward during the barge season. This will be reviewed with Woodward on an annual basis.

SECTION 14. REFERENCES

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APPENDIX A - SOPEP AND CONTACT INFO – WOODWARD GROUP OF COMPANIES

The WOODWARD GROUP OF COMPANIES

Coastal Shipping Limited
A Division of Woodward Group of Companies

Coastal Shipping Ltd.
The Woodward Group of Companies
114 Main Street, P.O. Box 910
Lewisporte, NL A0G 3A0 CANADA

Shipboard Marine Pollution Emergency Plan (SMPEP)

M/T "~~STEN FJORD~~"
KIVALLIQ W.

Change of Name
2018-06-2018

Prepared By: Poseidon Marine Consultants Ltd.
Document No.:16-060-003
Revision: 1
Revision Date: 17 June 2016

CONFIRMATION OF ACKNOWLEDGE

Shipboard Marine Pollution Emergency Plan

Date Entered:	Rank:	Name:	Signature:
			.

Document History

Revision	Date	Description	By
0	19 May 2016	Issued for delivery voyage only	AJM
1	17 June 2016	Issued for use	LAB
2	21 July 2016	Revised per DNVGL comments	AJM

Revision Summary

Revision	Affected Sections	Remarks	By
1	17 June 2016	General Revision	LAB
2	21 July 2016	Reference scenario "Cargo contamination yielding hazardous conditions. Reference amendment MEPC.138(53).	AJM

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Appendices

A Spill Equipment Inventory

B Vessel Drawings

- General Arrangement
- Diagram of Fuel Fill/Transfer
- Tank Capacity Plan
- Lubricating Oil System
- Stripping System
- Bilge System

1.0 Ship Particulars

SHIP'S IDENTIFICATION

DNV GL REGISTER NUMBER	G94069
NAME OF SHIP	STEN FJORD
CALL SIGN	XJAD
IMO NUMBER	9187409
TYPE OF SHIP	CHEMICAL / OIL TANKER
PORT OF REGISTRY	ST. JOHN'S
GROSS TONNAGE	8882
FLAG	CANADA
OFFICIAL NUMBER	839928

Owner / Managers: See Section 4, "Ship Interest Contacts"

2.0 Introduction

1. This Shipboard Marine Pollution Emergency Plan (hereafter referred to as the "Plan") is written in accordance with the requirements of regulation 26 of Annex I and regulation 16 of Annex II of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 there to and amended by Res. MEPC. 78 (43). As recommended by IMO this plan is a **combination of a Shipboard Oil Pollution Prevention Plan (SOPEP) and a Shipboard Marine Pollution Emergency Plan (SMPEP) for noxious liquid substances (NLS).**

2. The purpose of the Plan is to provide guidance to the Master, officers and operating personnel onboard the Ship, with respect to the steps to be taken when an oil or marine pollution incident has or is likely to occur. The appendices contain communication data of all contacts referenced in the Plan, as well as other reference material.

3. The Plan contains all information and operational instructions required by the "Guidelines for the development of the Shipboard Marine Pollution Emergency Plan" as developed by the Organization (IMO) and published under MEPC. 85(44) and MPEC.54 (32) amended by MPEC.86(44). .

4. This Plan has been examined by Transport Canada - Marine Safety, (herein after referred to as "the Board") and, except as provided below, no alteration or revision shall be made to any part of it without prior approval of the Board.

5. Changes to Sections 4 and the appendices will not be required to be approved by the Board. The appendices should be maintained up to date by the Owners, Operators, and Managers.

6. For the purposes of this Plan, the Master is taken to be that person who is a member of the vessel's operational personnel and to which is given senior responsibility for the vessel and any circumstances pertaining thereto.

7. Before entering a port of call, the Master should be aware of local emergency response procedures and organizations and have up to date contact information readily available.

3.0 Reason for Shipboard Marine Pollution Emergency Plan

1. This Plan is intended to assist the ship's personnel in dealing with an unexpected discharge of oil or noxious liquid substances. Its primary purpose is to set in motion the necessary actions to stop or minimize the discharge of those substances and to mitigate its effects. Effective planning ensures that the necessary actions are taken in a structured, logical and timely manner.

2. The primary objectives of this Plan are to:
   - prevent pollution
   - stop or minimize outflow when a damage to the ship or its requirement occurs
   - stop or minimize outflow when an operational spill occurs in excess of the quantity or instantaneous rate permitted under the present Convention.

3. Further, the purpose of the Plan is to provide the Master, officers and certain crew members with a practical guide to the prevention of marine spills and in carrying out the responsibilities associated with regulation 26 of Annex I and Reg. 16 of Annex II of MARPOL 73 / 78.
   - procedures to report an oil / marine incident.
   - Coastal States (Focal Points) and Port Contact Lists to be contacted in the event of any pollution incident.
   - co-ordination with national and local Authorities in combating a pollution.

4. In summary, the Plan will serve to promote a practiced response when the ship's personnel are faced with a spill.

5. Although the Plan is designed as a ship-specific tool it must be also be considered as an additional instrument and is a link to shore-based plans. With this, the Plans allow an efficient co-ordination between the ship and shore-based Authorities / Organizations in mitigating the effects of any pollution incident.

6. The Plan includes a summary flowchart (See page 8-9) to guide the Master through reporting and acting procedures required during an oil pollution incident response.

7. The Plan is likely to be a document used on board by the Master and the officers of the ship and must therefore be available in the working language used by them.

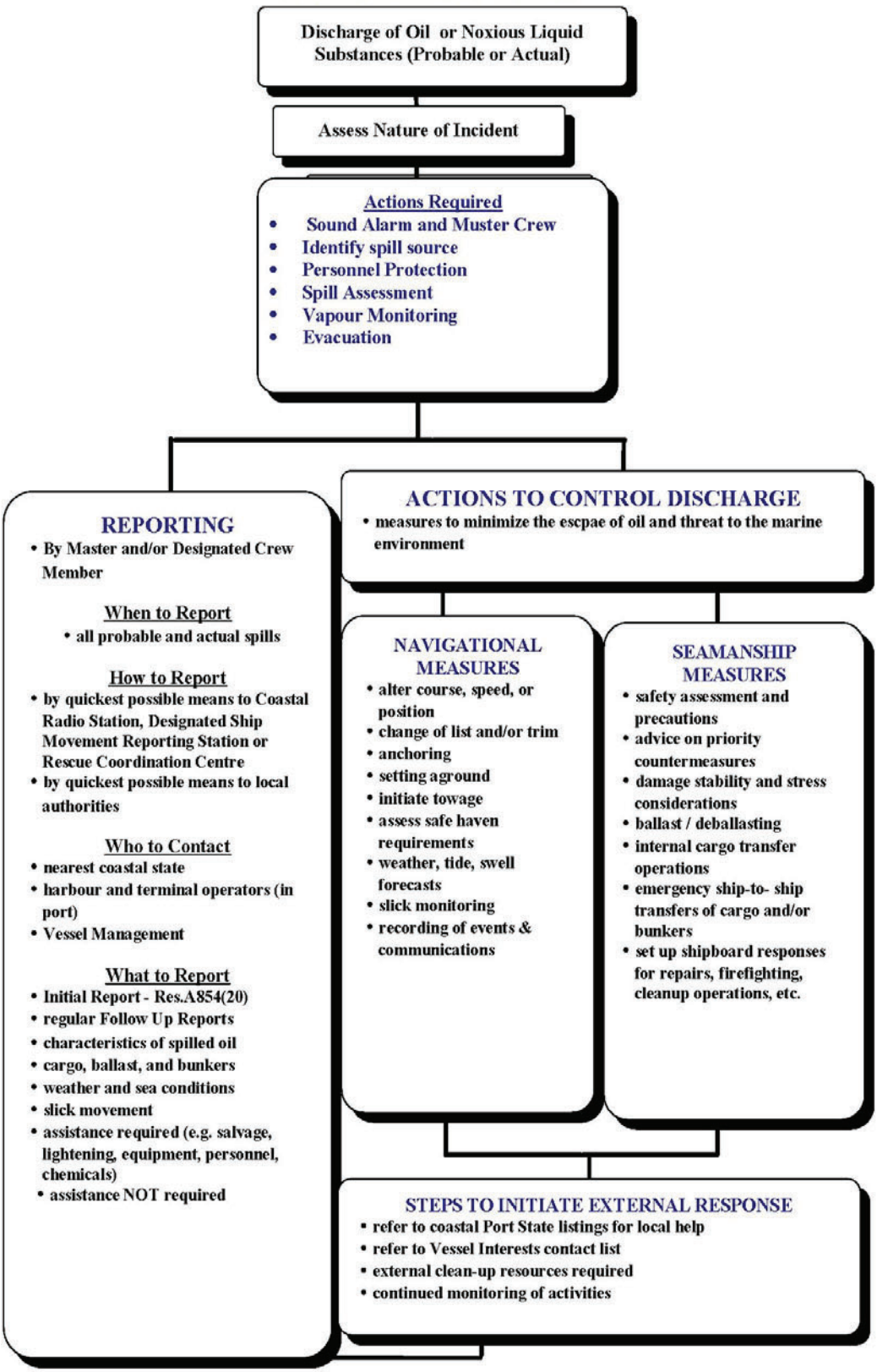
8. The Plan is not applicable if the vessel operates in U.S waters within the EEZ (exclusive economic zone). The Vessel Response Plan (VRP) has to be activated.

9. All Procedures in this Plan are in line with Coastal emergency procedures which can be found in the file Emergency Preparedness as part of the Safety Management System (SMS). They should be referred to in any case for obtaining additional information.

3.1 Shipboard Marine Pollution Emergency Plan – Summary Flow Chart

This flow diagram is an outline of the course of action that shipboard personnel should follow in responding to a pollution emergency based on the guidelines published by the Organization. This diagram is not exhaustive and should not be used as a sole reference in response. Consideration should be given inclusion of specific reference to the Plan. The steps are designed to assist ship personnel in action to stop or minimize the discharge of oil or NLS and mitigate its effects. These steps fall into two main categories - reporting and actions.

SUMMARY FLOWCHART



4.0 Reporting Requirements

4.1 General

The reporting requirements of this section comply with those of regulation 26 Annex I and16 Annex II of MARPOL 73 / 78.When the ship is involved in an incident which results in the discharge of oil or NLS, the Master is obliged under the terms of MARPOL 73 / 78 to report details of the incident, without delay, to the nearest Coastal state by means of the fastest telecommunication channels available.

The intent of these requirements are to ensure that Coastal States are informed, without delay, of any incident giving rise to pollution, or threat of pollution of the marine environment, as well as of the assistance and salvage measures, so that appropriate action may be taken.

Without interfering with ship owner's liability, some coastal states consider that it is their responsibility to define techniques and means to be taken against a marine pollution incident and approve such operations which might cause further pollution i.e. lightening. States are in general entitled to do so under the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 and the Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil, 1973.

4.2 Reporting Procedures

For easy reference the reporting requirements in the context of this plan are divided in to the following information blocks:

4.2.1 When to Report

Taking the summary flowchart as shown on page 9 as a basic guide into consideration reports are necessary in the following cases:

1. Actual Discharge

   The Master is obliged to report to the nearest Coastal state whenever there is a discharge of oil:
   - resulting from damage to the ship
   - resulting from damage to the ship's equipment
   - for the purpose of securing the safety of a ship or saving life at sea
   - during the operation of the Ship in excess of the quantity or instantaneous rate permitted under the present Convention.

2. Probable Discharge

   The Master is obliged to report even when no actual discharge of oil or NLS has occurred but there is a probability that one could occur.

However, as it is not practicable to lay down precise definitions of all types of situations involving probable discharge of oil / NLS which would warrant an obligation to report, the Master is obliged to judge by himself whether there is such a probability and whether a report should be made.

Therefore, it is recommended that, at least, the following events are carefully considered by the Master; taking into account the nature of the damage failure or breakdown of the ship, machinery or equipment as well as the ship's location , proximity to land, weather, state of the sea and traffic density - as cases in which a probable discharge is more likely:

- damage, failure or breakdown which affects the safety of the ship (e.g. collision, fire, grounding, explosion, structural failure, flooding, cargo, cargo shifting, list, etc.); or

- failure or breakdown of machinery or equipment which results in impairment of the safety of navigation (e.g. failure or breakdown of steering gear, propulsion, electrical generating system, essential shipborne navigation aids etc.)

If in doubt, the Master should always make a report in cases aforementioned.

In all cases the Authorities should be kept informed by the Master as how the situation progress and be advised when all threats of pollution have passed.

4.2.2 Information Required

As required in article 8 and Protocol I of MARPOL 73 / 78 Convention the Master or other persons having charge of the ship should report the particulars of any pollution incident. In this context the International Marine Organization (IMO), in 1997, adopted Resolution A.851(20) "General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents involving Dangerous Goods, Harmful Substances and / or Marine Pollutants" as amended with MEPC.138(53).

The intent of the Resolutions aforementioned is to enable Coastal States and other interested parties to be informed, without delay, of any incident giving rise to pollution, or threat of pollution of the marine environment, as well as of assistance and salvageable measures, so that appropriate action may be taken.

Nothing in this chapter relieves the Master in using sound judgment to make sure that any incident or probable discharge is reported as quickly as possible in the prevailing situation. When Transmitting initial reports to the authorities of the nearest Coastal State, the Master or other persons dealing with such a transmission should take note of IMO Resolution A.851(20) as amended with MEPC.138(53).

Especially the format of the initial report as well as supplementary follow up reports should conform to the guidance contained in Resolution A.851(20) as amended with MEPC.138(53). All reporting whether initial or follow up, should follow IMO's reporting format as outlined below and should contain the following information:

4.2.3 Format and Information Required for Official Report

AA VESSEL NAME, CALL SIGN, FLAG

BB DATE AND TIME (GMT) OF INCIDENT: 11/1935 meaning 11th of month at 7:35 pm.

CC SHIPS POSITION: 2230N 0600E meaning 22 deg. 30 min. N, 6 deg. E

DD SHIPS POSITION: By true bearing (3 digits) and distance from clearly identified landmark.

EE TRUE COURSE (3 digits)

FF SPEED IN KNOTS AND TENTHS OF A KNOT (3 DIGITS)

LL ROUTE INFORMATION – Intended Track

MM RADIO STATIONS AND FREQUENCIES GUARDED

NN TIME OF NEXT REPORT (same as in BB)

OO DRAFT (4 DIGITS - meters and centimeters)

PP TYPES AND QUANTITIES OF CARGO AND BUNKERS ON BOARD

QQ BRIEF DETAILS OF DAMAGE, LIMITATIONS ETC. (must include condition of vessel and ability to transfer cargo, ballast, or fuel)

RR BRIEF DETAILS OF ACTUAL POLLUTION (oil type, estimate of quantity discharged, whether discharge continues, cause, estimate of slick movement)

SS WEATHER AND SEA CONDITIONS (wind force/direction, relevant tidal and/or current information)

TT NAME, ADDRESS, FAX, TELEPHONE NUMBERS OF VESSEL OWNER OR REPRESENTATIVE.

UU DETAILS OF LENGTH, BREADTH, TONNAGE, AND TYPE OF VESSEL

WW TOTAL NUMBER OF PERSONS ON BOARD

XX MISC. DETAILS (This includes brief details of incident, actions taken, injuries sustained and assistance required. If no outside assistance is required, then this should be clearly stated.)

All follow up reports by the Master should include information relevant to the Coastal State Authorities to keep them informed as the incident develops.

Follow up reports should include information on any significant changes in the ship's condition, the rate of release and spread of the substances, weather and sea conditions and clean-up activities underway.

In this context details of bunker and cargo disposition, condition of any empty tanks and nature of any ballast carried are information needed by those involved in order to assess the threat posed by an actual or probable discharge from the damaged ship.

4.2.4 Whom to Contact

The Master is responsible for reporting any incident involving an actual or probable discharge of oil or NLS. Contact information for coastal State and other concerned parties (port contacts, vessel interest contacts) is located in Appendix 2.

4.2.4.1 Coastal State Contacts

The vessel, in accordance with the regulations, has onboard a **declaration** that the vessel's management has, in accordance with 167 of the Canada Shipping Act 2001, entered into an arrangement with a response organization to which a certificate of designation has been issued pursuant to section 169 in respect of the quantity of oil that is carried both as fuel and cargo on board the vessel.

Three response organizations (RO) have been established in Eastern Canada. Although each of the ROs is independent Corporations they are linked together through various support and mutual aid agreements. Each of the ROs has a specific Geographic Area of Response (GAR) and a certified response capability of 10,000 tonnes. The following table provides a list of the ROs and a general description of their GARs.

Response Organization	Geographic Area of Response (GAR)
• Eastern Canada Response Corporation Ltd. (ECRC)	• In general the waters of the Canadian Great Lakes, Quebec and the Atlantic Coast excluding areas covered by Alert and PTMS
• Atlantic Emergency Response Team ("ALERT") Inc.	• In general the Port of Saint John, New Brunswick and surrounding waters.
• Point Tupper Marine Services Limited (PTMS)	• In general the Port of Port Hawkesbury, Nova Scotia and surrounding waters.

Prior to commencing a voyage the master or his onboard designate is responsible to ensure that the necessary declarations for the intended voyage are onboard and necessary contact information has been inserted in the manual in Appendix 4: Who to contact under section "Additional Contact Information".

As an example of whom to contact please refer to the page 31 for Eastern Canada Response Corporation (ECRC) call out sheet. If conditions permit (i.e. time and prevailing conditions) the MASTER shall consult with vessel management contact prior to activation of any response organization. The person or persons identified in the **declaration** shall be responsible for contacting and mobilizing the response organization.

5.0 Steps to Control Discharge

Ship personnel will most probably be in the best position to take quick action to mitigate or control the discharge of oil or noxious liquid substances from their ship. Therefore, this Plan provides the Master with clear guidance on how to accomplish this mitigation for a variety of situations.

It is the Master's responsibility to initiate a response in the event of a discharge of oil / NLS or substantial threat of discharge - actual or probable - into waters.

In no case action should be taken that in any way could jeopardize the safety of personnel either onboard or ashore.

In cases of a discharge of noxious liquids substances the Master has to refer to the "Material Safety Data Sheet" (MSDS) provide onboard for any NLS cargo. Consideration is to have to be made to any danger resulting from discharge of such substances, i.e. mixing with water, air, other materials / substances.

Special consideration is to be taken in case of the necessity to transfer cargo into another compartment onboard of the compatibility of the material to be transferred and the material of pipes and tanks to be used for such actions.

In cases of small spills on deck, the vessel's crew should take whatever actions are necessary to prevent oil from escaping over the side. Once the spill is contained on deck, the crew will need to take action to clean up the oil. **Spilled oil shall not be washed over the side**. Once oil is in the water, the crew's ability to respond in a practical manner is greatly reduced.

The following list specifies different kinds of possible operational spills with regard to reactions to be taken.

5.1 Operational Spills

5.1.1 Operational Spill Prevention

All crew members shall maintain a close watch for the escape of oil or NLS during bunker or cargo operations.

Prior to bunker or cargo transfer the competent crew members should mobilize the spill equipment, as far as available on board, and place it close to the planned operation, e.g. along the railing on the side at which bunker operation takes place. All deck scuppers and open drains must be effectively plugged. Accumulations of water should be drained periodically and scupper plugs replaced immediately after the water has run off. Any free floating substances should be removed prior to draining.

Bunker or Cargo tanks which have been topped up should be checked frequently during the remaining operations to avoid an overflow.

Unless there are permanent means for retention of any slight leakage at ship / shore connections for bunker or cargo transfer, it is essential that a drip tray is in place to catch any leaking substance.

All crew members of the ship's crew should be familiar with the fundamentals of the ship's vital systems including the ventilation and electrical systems. Crew members should be able to isolate the accommodation and/or machinery spaces using the louvers and fan shutoffs and, from the distribution panels, isolate electrical circuits in areas of risk.

In the event of an operational spill which occurs during bunkering or cargo operations, it is important that the bunkering party terminate any and all bunkering operations and close all manifold valves.

Before closing any manifold valves, the bunkering / cargo party must immediately inform the terminal / loading master so that they may take action to eliminate the possibility of over- pressurization of the shore side transfer components.

After dealing with the cause of the spill, it may be necessary to obtain permission from local authorities and/or the terminal before resuming bunkering or cargo operations.

If the possibility of fire or explosion exists**,** nonessential air intakes to accommodations and machinery spaces should be closed and all sources of ignition should be eliminated. See Section 1.3.3 of this Plan.

Care must be taken to consider stability and stress when taking action to mitigate the spillage of oil. Internal transfers should be undertaken only with a full appreciation of the likely impact on the vessel's overall stress and stability. Please refer to the "Approved Stability Book" carried on board.

5.1.2 Operational Spill Checklist

Action Considered	Designated Person	Completed
Sound emergency alarm	Person Discovering Incident	Y / N
Mobilize Oil Pollution Prevention Team	Chief Engineer / Master	Y / N
Cease all bunkering operations	Chief / 2nd Engineer	Y / N
Locate source of leakage	Chief / 2nd Engineer	Y / N
Operate manifold valves	Chief / 2nd Engineer	Y / N
Close all nonessential vent intakes and tank vents as required	Chief / 2nd Engineer	Y / N
Stop or reduce outflow	Chief Engineer / Deckhand	Y / N
Assess fire risk	Chief Officer	Y / N
Commence clean up	Chief Officer	Y / N
Assess Stress / Stability	Master / Chief Officer	Y / N
Transfer fuel from damaged area to slack tanks or other containment space	Chief / 2nd Engineer	Y / N
Request outside assistance if required	Master	Y / N
Counter excessive list if required / possible	Chief Officer	Y / N

5.1.3 Pipeline Leakage

In the event of leakage from an oil / NLS pipeline, valve, hose or metal arm, the Chief Engineer must ensure that the following actions are taken:

- Stop oil flow, close manifold and other valves.
- Sound emergency alarm and mobilize Oil Pollution Prevention Team
- Locate source and drain affected section into an available empty or slack tank. Repair if possible
- If there is any possibility of vapours entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Absorb spill with any absorbent materials on hand and dispose of oil soaked materials in an appropriate container.
- If oil is overboard, report to proper authorities immediately (as per section 4 of this plan).

5.1.4 Tank Overflow

In the event of an oil tank overflow, the Chief Engineer must ensure that the following actions are taken:

- Stop oil flow, close manifold and other valves.
- Sound emergency alarm and mobilize Oil Pollution Prevention Team
- Place drain buckets under overflow pipes to contain possible spills.

- If there is any possibility of vapours entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Drain or transfer oil to slack or empty tanks if possible with due consideration paid to vessel stability. If no slack or empty tanks are available, oil may be pumped back ashore through delivery lines, having first gained permission to do so.
- Absorb spill with any absorbent materials on hand and dispose of oil soaked materials in an appropriate container.
- If oil is overboard, report to proper authorities immediately (as per section 4 of this plan).

5.1.5 Hull Leakage

If oil is noticed on the water near the vessel during normal operations and cannot be accounted for, the possibility of hull leakage should be suspected.

In the event of a hull leakage, the Master must ensure that the following actions are taken:

- Sound emergency alarm and mobilize Oil Pollution Prevention Team.
- Stop any transfer or bunkering operations.
- Identify damage and report to proper authorities immediately (as per section 4 of this plan). Consider a diver if necessary and possible.
- If possible, contain spill using materials on hand and dispose of oil soaked materials in an appropriate container.
- If there is any possibility of vapours entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Transfer fuel away from suspected leaks to empty or slack tanks if possible, or to a ballast tank if necessary. If in port, arrangements can be made to pump oil ashore to tanks or trucks. Due consideration is to be paid to vessel stress and stability.
- If it is not possible to identify the leaking tank, reduce level in all tanks in the vicinity, giving due consideration to vessel stress and stability.

5.1.6 Spills caused by Equipment in Machinery Spaces

If operational spills are caused by failure of equipment in machinery spaces, any further operation of this equipment should be stopped immediately and measures are to be taken to avoid a spill. Such equipment may be:

- Oily - water separating equipment or oil filtering equipment or oil filtering equipment to de-oil bilge water from the engine room bilges.
- Valves in pipes connecting ballast / cargo systems
- Cooling pipes in cooler systems
- Gearing of bow thruster
- Stern tubes
- Sound emergency alarm and mobilize Oil Pollution Prevention Team.
- Absorb spill with any absorbent material in hand and dispose of oil soaked materials in an appropriate container.
- Do not restart equipment until problem has been rectified.

5.2 Spills Resulting from Accidents

In the event of a casualty the Master's first priority will be to ensure the safety of personnel and the vessel and initiate action to prevent escalation of the incident and marine pollution.

5.2.1 Ship grounded / stranded

If the vessel grounds, the Master must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and Mobilize Oil Pollution Prevention Team once safe to do so.
- Eliminate all avoidable sources of ignition and ban smoking onboard. Action bust be taken to prevent hazardous vapours from entering accommodation and machinery spaces. See section 1.1.3.
- Identify damage by means of a visual inspection.
- Take soundings around vessel to determine the nature and gradient of seabed.
- Check differences in tidal range at grounding site.
- Evaluate tidal current in grounding area.
- Take soundings of all tanks on shell and compare with departure soundings.
- Determine probability and/or quantity of oil released
- If oil release is determined or is probably, this is to be included in the casualty report.
- Determine other possible hazards to the vessel such as sliding off the grounding site or further damage from seas / swell, and torsion forces.

At this point, determine risk of additional damage to vessel by attempting to refloat. If remaining aground is determined to be less of a risk then:

- Use anchors to prevent vessel movement.
- Take on ballast in empty tanks with due consideration paid to stress and stability. Please refer to the approved stability book.
- Consider transfer of fuel from damaged tanks with due consideration paid to stress and stability. Please refer to the approved stability book.
- Reduce longitudinal stress on the hull by transfer of fluids internally. Please refer to the approved stability book.
- If the change in stability and stress cannot be calculated onboard, contact the vessel's management to arrange for the necessary calculations. Refer to appendix 3 for information which should be provided.

5.2.1.1 Prevention of Fire and Explosion

If a fire or explosion occurs on board, the vessel's fire control party must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.

- Determine extent of damage and what damage control measures can be taken.
- Determine whether there are casualties.
- Request assistance as deemed necessary.
- Take necessary actions to prevent smoke and other hazardous vapours from entering the accommodation and machinery spaces.
- Assess possibility of oil leakage.
- Determine possible actions to control the discharge of oil. This will depend largely on the damage to the ship and cargo.
- If there is a discharge or possible discharge of oil, this to be included in the casualty report.
- Should abandonment be necessary, the Master must ensure that every effort is made to maneuver survival craft upwind of any oil spill.

5.2.1.2 Hull Damage / Hull Failure / Containment Failure

If the vessel suffers structural hull failure, the Master must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Reduce speed or stop to minimize stress on hull.
- Assess immediate danger of sinking or capsizing.
- Initiate damage control measures if possible.
- If lightening is required, all efforts should be made to wait for a barge or other ship to receive the cargo.
- If oil has spilled, or if it is necessary to jettison oil to maintain stability, make a report as per section 2.
- If the change in stability and stress cannot be calculated onboard, contact the vessel's management to arrange for the necessary calculations.
- Consider forecasted weather conditions and their effect on the situation.
- Should abandonment be necessary, the Master must ensure that every effort is made to maneuver survival craft upwind of any oil spill.

5.2.1.3 Procedures to reduce or Stop Outflow of Oil or NLS

The Master should assess the possibility of damage to the environment and whatever action can be taken to reduce further damage from any release, such as;

- Transfer /cargo internally, provided shipboard piping system is in an operational condition and in careful view of the compatibility of the substance and the tanks/pipes used for transfer, and taking into account the impact on the ship's overall stress and stability.
- Isolate damaged/penetrated tanks hermetically to ensure that hydrostatic pressure in tanks remains intact during tidal changes.
- Evaluate the necessity of transferring bunkers / cargo to barges or other ships and request such assistance accordingly.

- Evaluate the possibility of additional release of oil or NLS in close co-operation with coastal states.

In case of large differences between the tide levels, the Master should try to isolate the damaged tanks to reduce additional to reduce additional loss of substances.

5.2.1.4 Refloating by own means

The Master should also evaluate the question of refloating the vessel by own means. Before such an attempt is made, it must be determined:

- whether the ship is damaged in such a way that it may sink, break up or capsize after getting off
- whether the ship , after getting off, may have maneuvering problems upon leaving the dangerous area on its own.
- whether machinery, rudder or propeller are damaged due to grounding or may be damaged by trying to get off ground by own means.
- whether the ship may be trimmed or lightened sufficiently to avoid damage to other tanks in order to reduce additional pollution.
- weather evaluation; whether there is time/reason to await improvements in weather or tide.
- whether ship's structure permits refloating/consultation of GL Emergency Response Service
- whether all steps of Coastal Shipping Ltd. procedure "Grounding" have been complied with.

5.2.1.5 Securing the Ship

If the risk of further damage the ship is greater in an attempt to refloat the ship by own means, than in remaining aground until professional assistance has been obtained, the ship's Master should try to secure the ship as much as possible:

- Trying to prevent the ship from moving from its present position
- By dropping anchors (adequate water depth and anchor ground provided)
- By taking ballast into empty tanks, if possible
- Trying to reduce longitudinal strain on hull by transferring ballast or bunkers internally
- Reducing fire risk by removing all sources of ignition.

Inform in line with Section 2 all parties interested about Grounding and the actions taken so far.

5.2.2 Fire/Explosion

If an explosion and a fire occur onboard, sound the GENERAL ALARM immediately. Further actions should be initiated in accordance with the ship's Muster List. In case of fire and explosion the following priorities exist:

- Rescuing lives
- Limiting damage /danger to the ship and cargo
- Preventing environmental pollution

The Coastal Shipping Emergency Procedure **"Fire and Explosion"** in the file Emergency Preparedness should be complied with.

Steps to control the discharge of oil will depend largely on the damage to the ship and cargo. Special information thereto is contained in subparagraphs 3.2.4, 3.2.5 and 3.2.6. Inform in line with Section 2 all parties interested about the Fire /Explosion and the actions taken so far.

5.2.3 Collision

The Master shall follow the emergency plan as given in Coastal Shipping Ltd Emergency procedure "Collision" in file: Emergency Preparedness as follows:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Determine whether there are casualties.
- If there is a possibility of fire or explosion, eliminate all avoidable sources of ignition and ban smoking onboard. Action should be taken to prevent flammable vapours from entering the accommodation and machinery spaces. .
- Decide whether separation of vessels may cause or increase spillage of oil, or increase the risk of sinking.
- If any oil tanks are penetrated, isolate these tanks or transfer oil to slack or empty tanks with due attention paid to stress and stability of the vessel. Please refer to the approved stability book.
- If there is an oil spill, make a report as per section 4.
- If possible to maneuver, the Master, in conjunction with the appropriate shore authorities should consider moving his ship to a more suitable location in order to facilitate emergency repair work or lightening operations, or to reduce the threat posed to any sensitive shoreline areas.

5.2.4 Excessive List

Should the ship for some reasons suddenly start to list excessively during discharging/loading operations, or bunkering, all ongoing operations should be stopped immediately until the cause has been determined.

The Officer on duty should inform the Master and/or Chief Officer without delay.
The Master should try to determine the reason for excessive list, and take steps to rectify the situation and to stabilize the ship's condition:

- Check reasons for list
- Soundings / Ullage to be taken in all tanks

- Bunker / Ballast / Cargo pumps to be made ready
- Consider measures to minimize list in transferring liquid from one compartment to another
- Ensure water tightness of empty spaces
- Close all opening
- Secure vent pipes to avoid ingress of water
- If bunkering: change to corrective tanks for rectifying the situation
- If ballasting / de-ballasting: change to corrective tanks to rectify the situation
- If there is reason to believe that the list may cause any spill, notify as per Section 4
- If the ship's crew is in jeopardy, prepare lifeboats for launching, and notify as per Section 4

If the situation is brought under control, inform all parties interested.

5.2.5 Dangerous reaction of cargo / contamination yielding a hazardous condition

In case of spillage of NLS cargo on deck, to the sea, or incidental mixture with other cargo through internal tanks leakage, consider dangerous reactions of such mixtures. Promptly consult the Material Sheet Data Sheet (MSDS) available for the cargo onboard about possible hazards and necessary precautions. Take necessary actions to protect the crew from contact with spilled material or its vapours and review first aid procedures in the event of contact.

5.2.6 Other dangerous cargo and / or vapour release

In case of release of dangerous NLS take necessary actions for the protection of the crew against health hazards, especially by contact with materials or its toxic vapours. Avoid material or vapours spreading over the ship. If any dangerous material or vapour is released from any part of the containment system, take arrangements to free the deck area as far as possible by turning the ship to have the accommodation upwind of the point of release.

Evacuate crew members from the endangered area. If persons have to carry out any unavoidable duties within the endangered area, insure personal protection devices are used for those persons to avoid direct contact. All possible sources of ignition should be eliminated and non-essential air intakes shut down to prevent intake of vapour into accommodation and engine spaces.

Take measures to reduce tanks level or pressure to stop any emission of material or vapour. Report such spillage to nearest coastal state in order to arrange precautionary measures for the environment.

5.2.7 Loss of tank environmental control

Consider loss of environmental control as a possible explosion hazard. Consult the MSDS sheets for specific hazards. Avoid air intake to the spaces.

5.2.8 Ship submerged / foundered / wrecked

If the ship is wrecked to the extent that it or parts of it are submerged, take all measures to evacuate all persons onboard. Avoid contact with any spilled cargo or oil. Alert other shops and/or the nearest coastal state for assistance in rescuing lives and the as far as possible.

5.3 Priority Actions

Top priority shall in all cases of emergency be the safety of the persons onboard and to take actions to prevent escalation of the incident. Immediate consideration should be given to the protective measures against fire, explosions, and personal exposure to toxic vapour.

Detailed information about damage sustained to the ship and its containment system has to be obtained. On the basis of the information the Master can decide next actions for the protection of lives, the ship, the cargo and the environment.

The Master should take into account the following when he is determining whether salvage assistance will be needed or not:

- Nearest land or hazard to navigation
- Vessel's set and drift
- Estimated time of casualty repair
- Determination of nearest capable assistance and its response time.

Detailed information about the cargo, especially NLS Cargo has to be available and to be referred to further actions regarding the cargo.

In case of necessary movement of cargo within the ship careful consideration is to be given to hull strength and stability as well as to the compatibility of all material (cargo, tanks, coating, piping) in view of any transfer actions planned.

Plans / tables about location and specification of the current cargo as well as bunkers and ballast have to be readily available. Information about current cargo / bunker / ballast distribution and the MSDS for the carried cargo substances are available at:

- Cargo, bunkers, ballast distribution: Cargo Office
- Material Safety Data Sheets (MSDS); Alleyway opposite of the cargo office

5.4 Mitigating Activities

If safety of both the ship and the personnel has been addressed the Master shall care for the following issues:

- Assessment of the situation and monitoring of all activities as documented evidence
- Care for further protection of the personnel, use of protection gear, assessment of further risk for health and safety
- Containment of the spilled material by absorption and proper and safe disposal of all material onboard until proper delivery ashore under close guidance of the safety information given by the Product Data Sheet
- Decontamination of Personnel after finishing the cleanup process.

5.5 Transfer of Bunker / Cargo - Lightening

If the ship has sustained extensive structural damage, it may be necessary to transfer all or part of the cargo/bunker to another ship. In Ship to Ship transfer operations involving a specialized service ship, the Master of that ship will normally be in overall charge.

In the case of non-specialized ships the Master or other person in overall charge of the operation should be mutually agreed and clearly established by the Masters concerned prior to the start of operations. The actual bunker/cargo transfer should be carried out in accordance with the requirements of the receiving ship.

In all cases each Master remains responsible for the safety to be jeopardized by the action of the other Master, his owner, regulatory officials or others.

The ship to ship transfer operations should be coordinated with the appropriate responsible local Authority. When selecting the area of operation the Masters should consider the following points:

- The need to notify and obtain the agreements of any responsible authority
- The destinations of the ships concerned
- The shelter provided, particularly from sea and swell
- The sea area and depth of water, which should be sufficient for maneuvering during mooring, unmooring, and transfer operations and allow a safe anchorage if operations have to be undertaken at anchor
- The traffic density
- The weather conditions and weather forecasts.

Further, before commencing Ship to Ship Transfer operations each ship should carry out, as far as possible, appropriate preparations like:

- Pre-mooring preparations of the ship
- Positioning of fenders if such equipment is available on board

- Mooring equipment arrangements
- Checking the communication channels between the two ships.

In addition to the general principles of Ship to Ship operations as aforementioned the Master should take note of supplemented instructions issued in the Coastal Shipping Ltd bunkering procedures.

5.6 Damage Stability and Hull Stress Calculation

Whenever the tank status changes in the course of the incident the stability and stress of the vessel has to be checked using the class approved cargo computer.

In case of hull damage stability shall instantly be checked using the appropriate application of the cargo computer. The damage control plan should be referred to. In addition to that the **GL Emergency Response Service** is to be consulted for proper stress and stability calculations.

Whenever possible the contact to the **GL Emergency Response Service** will be via Coastal Shipping Ltd. office in order to reduce the workload onboard. Otherwise the vessel can contact the **GL Emergency Response Service** directly using the following numbers:

Phone: **011-49-40-3614-9134**
Mobile: **011-49-172-405-9713**
Fax: **011-49-40-361-493-620**
email: **matthias.galle@gl-group.com**

5.7 Vessel Stress and Stability Information

VOYAGE PARTICULARS

Departure Port

Departure Date

Time (GMT)

VESSEL CONDITION IMMEDIATELY BEFORE CASUALTY

Mean Draft Forward

Mean Draft Aft

KG(solid)

KG(fluid)

LCG of Vessel

Condition of Tanks and Compartments

#	COMPARTMENT	S.G.	TONNES

5.7.1General Responsibilities of the Master and designated Officers / crew members

The responsibilities of the Master Officers and the crew onboard in the event of a spill actual or probable to bring the accident under control on board, limit overflows or cleanup procedures, and to secure the ship immediately if an incident occurs.

The following is an example which can be used by the Master to aid in designating officers. Should changes to the team be made, please make a record in this section :

Master
Chief Mate
Chief Engineer

In the event of an emergency, the team should be called out as soon as it is safe to do so.

The team should be given necessary training in the use of such equipment as oil absorbents that the vessel may carry. All members crew should be aware of their duties should an oil spill occur.

Master

- In overall charge.
- Informs terminal authorities or coastal authorities of incident.
- Informs the local agent and requests agent to inform the local underwriter's representative.
- Advises the company's head office of the situation. Keeps everyone updated at regular intervals. and advises of any changes in status of the emergency.
- Keeps log of all events and progress of actions.

Chief Mate

- In charge of deck / cargo operations.
- In charge of lifeboats if required.
- Keeps the Master informed and updated on the situation and of the results of steps taken to contain any spills and limit outflow.
- Insures all openings in the deck and superstructure are closed to limit vapour entry.
- Position sorbent / clean up material to prevent any fluid escape.

Chief Engineer

- In charge of bunkering operations.
- Organizes distribution of oil spill detergents if required.
- Stops bunkering operations if applicable.
- Stops pumps and any unnecessary pieces of machinery.

Other Personnel

Deck Officer on duty

- Alerts and informs Chief Officer / Chief Engineer on the situation.
- Mobilize off duty crew as necessary.

Engineer on duty

- Assist the Chief Engineer.
- Prepare for fire fighting.
- Ensure sufficient power and water to deck.
- Organizes onboard clean up equipment.

Deck Officer off duty

- Under the direction of the Master, responsible for the reporting and record keeping of all events.

On duty Ratings

- Alerts the Officer on duty of any leakage.
- Position sorbent / clean up material to prevent any fluid escape.

Off duty personnel

- Assist as required

6.0 National and Local Co-Ordination Steps to Control Discharge

In accordance with the Canadian Pollutant Discharge Reporting Regulations, the Master or Owner of a ship must report, without delay, any discharge or anticipated discharge of a pollutant in Canadian waters or fishing zones, to a Pollution Prevention Officer (PPO). Reports must be made in the manner described in Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, TP 9834, or "General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants" adopted by the IMO by Resolution A.851(20) as amended with MEPC.138(53). These initial reports can be made to Marine Communication and Traffic Service (MCTS) or any other Canadian Coast Guard Radio Station (CGRS), on the frequencies listed in the publication, Radio Aids to Marine Navigation (RAMN).

In addition to the above process for reporting a spill from a vessel to a PPO through a CGRS or MCTS, the Canadian Coast Guard maintains a 24 hour Operations Center which can be contacted at:

Canadian Coast Guard Operations Center
344 Slater Street
Ottawa, Ontario
K1A 0N7

Tel: (613) 990-5600 Fax: (613) 995-4700

Alternatively, spills may be reported to the appropriate regional center or nearest Vessel Traffic Service
Center:

Newfoundland

St. John's	Tel:	1-709-772-2083
		1-800-563-2444 (24 hr.)
	Fax:	1-709-772-5369
Placentia Bay	Tel:	1-709-227-2182
	Fax:	1-709-227-5637
Port Aux Basques	Tel:	1-709-695-2167
	Fax:	1-709-695-7784
Goose Bay	Tel:	1-709-896-2252
	Fax:	1-709-896-8455
St. Anthony	Tel:	1-709-454-3852
	Fax:	1-709-454-3716

Nunavut

Nordreg Canada	Tel:	1-867-979-5724
P.O Box 189	Fax:	1-867-979-2464
Iqaluit, NU		
X0A 0H0		

Nova Scotia

Halifax	Tel:	1-902-426-9750 (MCTS Operations)
		1-902-426-9738 (Officer in Charge)
	Fax:	1-702-426-4483
Sydney	Tel:	1-902-564-7751 (MCTS Operations)
		1-902-564-7752 (Officer in Charge)
	Fax:	1-702-564-7662

New Brunswick

Saint John	Tel:	1-506-636-4696 (MCTS Operations)
		1-506-636-4269 (Officer in Charge)
	Fax:	1-506-636-5000

Quebec

Quebec City	Tel:	1-418-648-4427 (MCTS Operations)
		1-418-648-7459 (Officer in Charge)
	Fax:	1-418-648-7244
Montreal	Tel:	1-450-928-4544 (MCTS Operations)
		1-450-928-4547 (Officer in Charge)
	Fax:	1-450-928-4547
Riviere-Au-Renard	Tel:	1-418-269-5686 (MCTS Operations)
		1-418-269-7718 (Officer in Charge)
	Fax:	1-418-269-5514

Greenland

Spill Notification Point	Tel:	+299-101111
Groenlands Kommando	Fax:	+299-10112
Maritime Rescue Coordination Center Gronnedal		
KK-3930 Gronnndell		

Competant National Authority	Tel:	+45-31 578310
National Agency of Environmental Protection		+45-86 123099 (24hr)
Strandgade 29	Fax:	+45-31 572449/+45-86 181140
DK- 1401 Copenhagen		

Note:

The following contacts have been included as they are within the expected range of operation of the Vessel. Due to the nature of the Vessel's voyages and varied ports of call this list should not be considered exhaustive. For this reason space has been included at the end of this section for addenda.

Within Canada, administrative inquiries related to pollution prevention, compliance and enforcement, vessel regulations, design and construction should be directed to:

Director General, Marine Safety
Transport Canada
Mailstop: AMS
330 Sparks Street
Ottawa, Ontario
K1A 0N5
Tel: (613) 998-0610 Fax: (613) 954-1032

Inquiries relating to pollution response should be directed to:

Director General, Rescue and Environmental Response
Canadian Coast Guard
344 Slater Street
Ottawa, Ontario
K1A 0N7
Tel: (613) 990-3110 Fax: (613) 996-8902

ECRC East Coast Response Corporation
1201-275 Slater Street
Ottawa, Ontario
K1P 5H9
Tel:(613)930-9690

Additional Contact Information

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Vessel Contacts

Vessel Management

Coastal Shipping Limited (Owners)
P. O. Box 910
Lewisporte, NL
A0G 3A0
Canada
Ph: (709) 535-6944
Fax: (709) 535-3354

24 Hour Emergency Contacts

Vice President, Operations	Dennis White	(709) 896-2421 work (709) 896-1404 cell (709) 896-2870 home
General Manager	Paul Gersok	(709) 535-6944 work (709) 541-1807 cell pgersok@woodwards.nf.ca
Marine Superintendent/DPA	Craig Farrell	(709) 535-6944 work (709) 541-0789 cell cfarrell@woodwards.nf.ca
Engineering Superintendents	Jim Babij	(709) 579-6127 work (709) 727-5065 cell (709) 576-0160 home
	Kevin Brewer	(709) 579-6127 work (709) 682-0826 cell (709) 227 2600 home

Appendix A:

Spill Equipment Inventory

MT Sten Fjord

List of Oil Spill Equipment

All equipment to be kept in the forepeak storage room with the exception of small quantities kept in the SOPEP bin located for ready access on the Poop Deck.

- 8 bags sawdust
- 26 booms
- 25 boxes rags
- 50 bags absorb-all
- 11 boom anchors
- 1 windy pump

Also to be kept onboard a sufficient quantity of squeegees, straw brooms, shovels, brushes, mops, degreaser, disposal bags, and personal protective equipment.

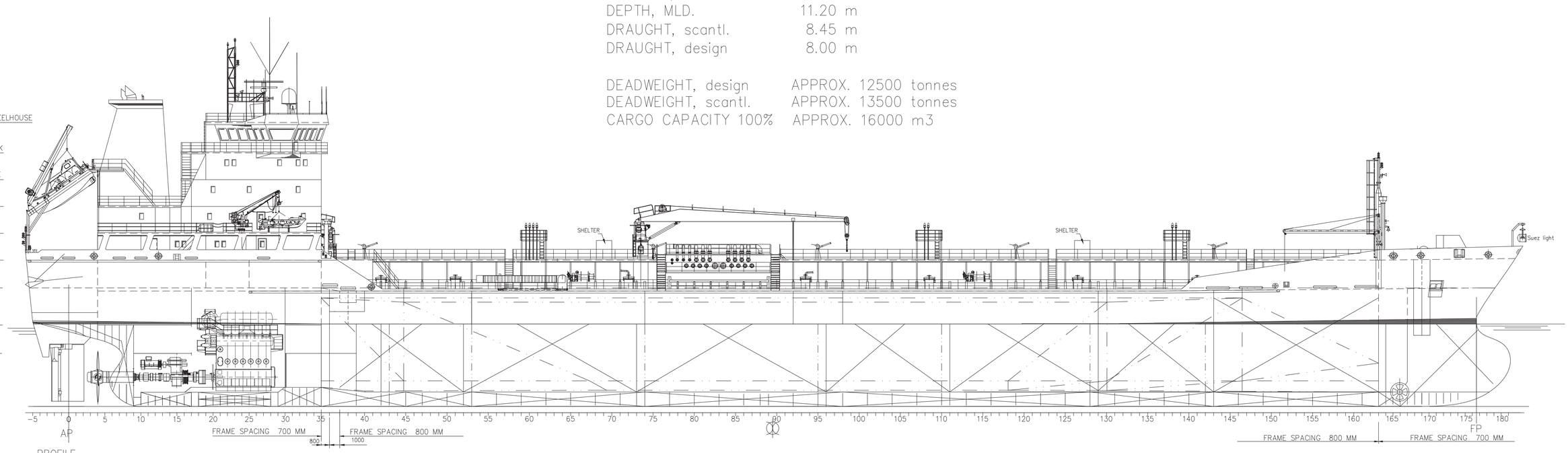
Appendix B:

Vessel Drawings

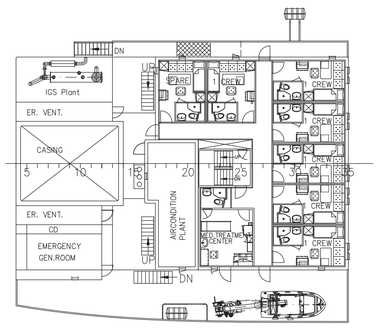
GENERAL ARRANGEMENT

PRINCIPAL PARTICULARS

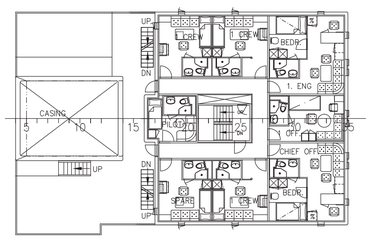
LENGTH O. A.	abt.	145.30 m
LENGTH P. P.		136.60 m
BREADTH, MLD.		20.80 m
DEPTH, MLD.		11.20 m
DRAUGHT, scantl.		8.45 m
DRAUGHT, design		8.00 m
DEADWEIGHT, design		APPROX. 12500 tonnes
DEADWEIGHT, scantl.		APPROX. 13500 tonnes
CARGO CAPACITY 100%		APPROX. 16000 m3



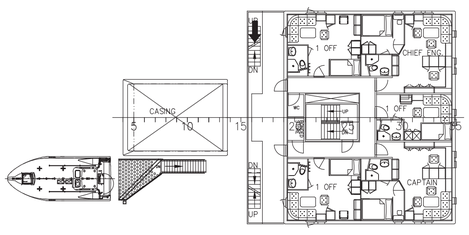
PROFILE



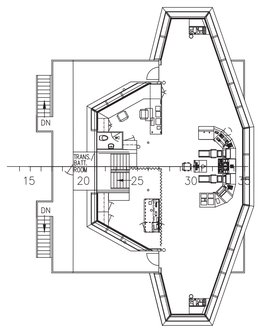
02–DECK



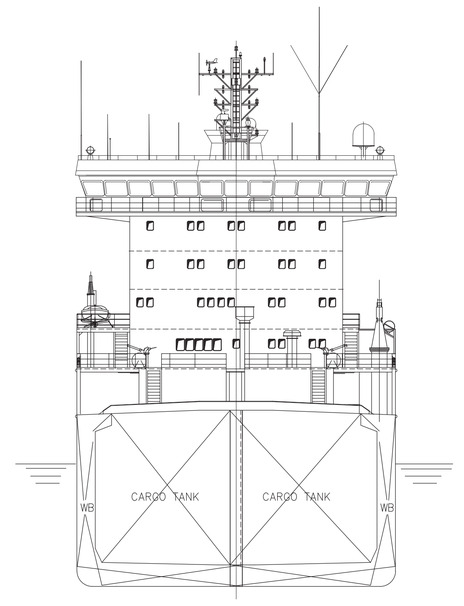
03–DECK



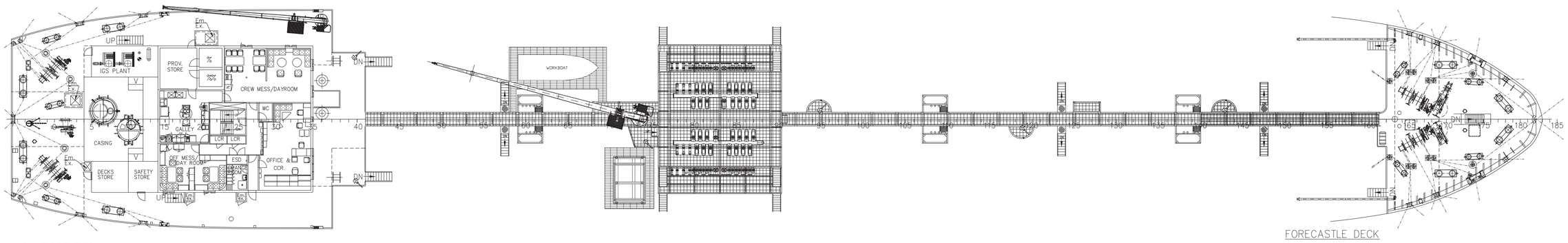
04–DECK



05–BRIDGE DECK

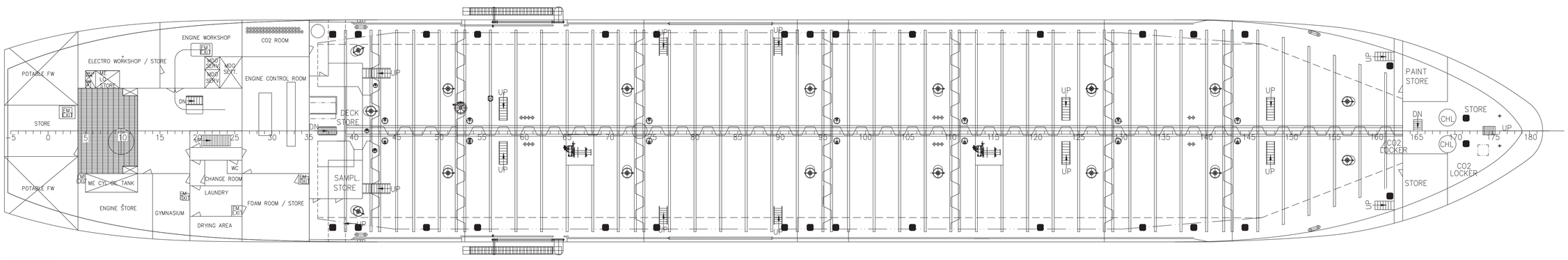


TRANSVERSE SECTION

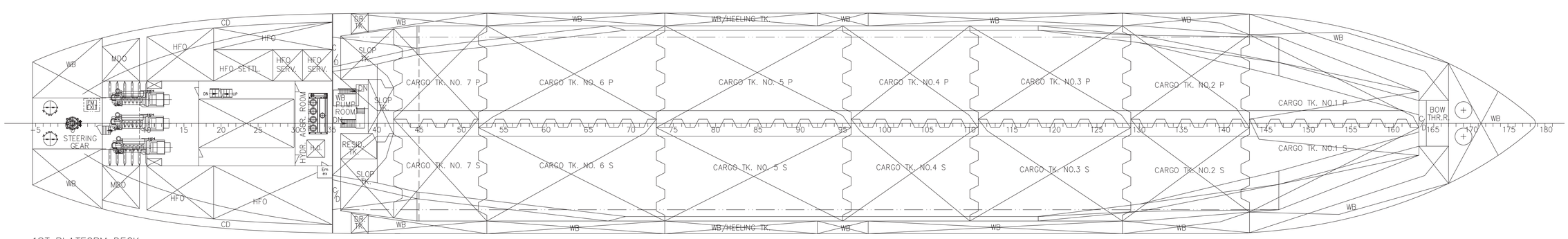


01–POOP DECK

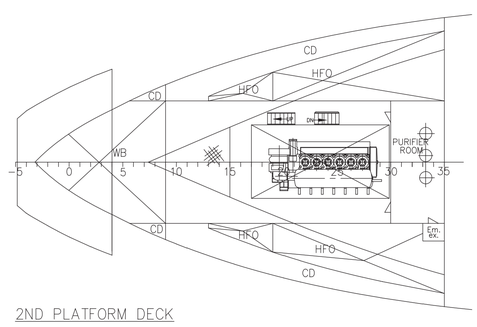
FORECASTLE DECK



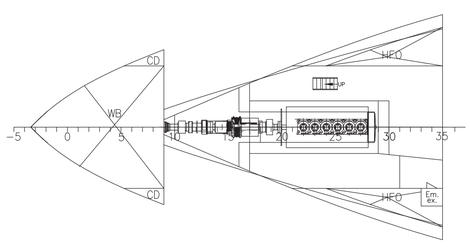
MAIN DECK



1ST PLATFORM DECK



2ND PLATFORM DECK



TANK TOP

BASED ON ORIGINAL REDERIET STENERSEN AS DRAWING NO 16112.101.001 DATED 11.09.96

REV	DATE	DESCRIPTION	BY	CHK	APP	CLT

Poseidon marine consultants limited

391 STAVANGER DRIVE
ST. JOHN'S, NL, CANADA
A1A 0A1

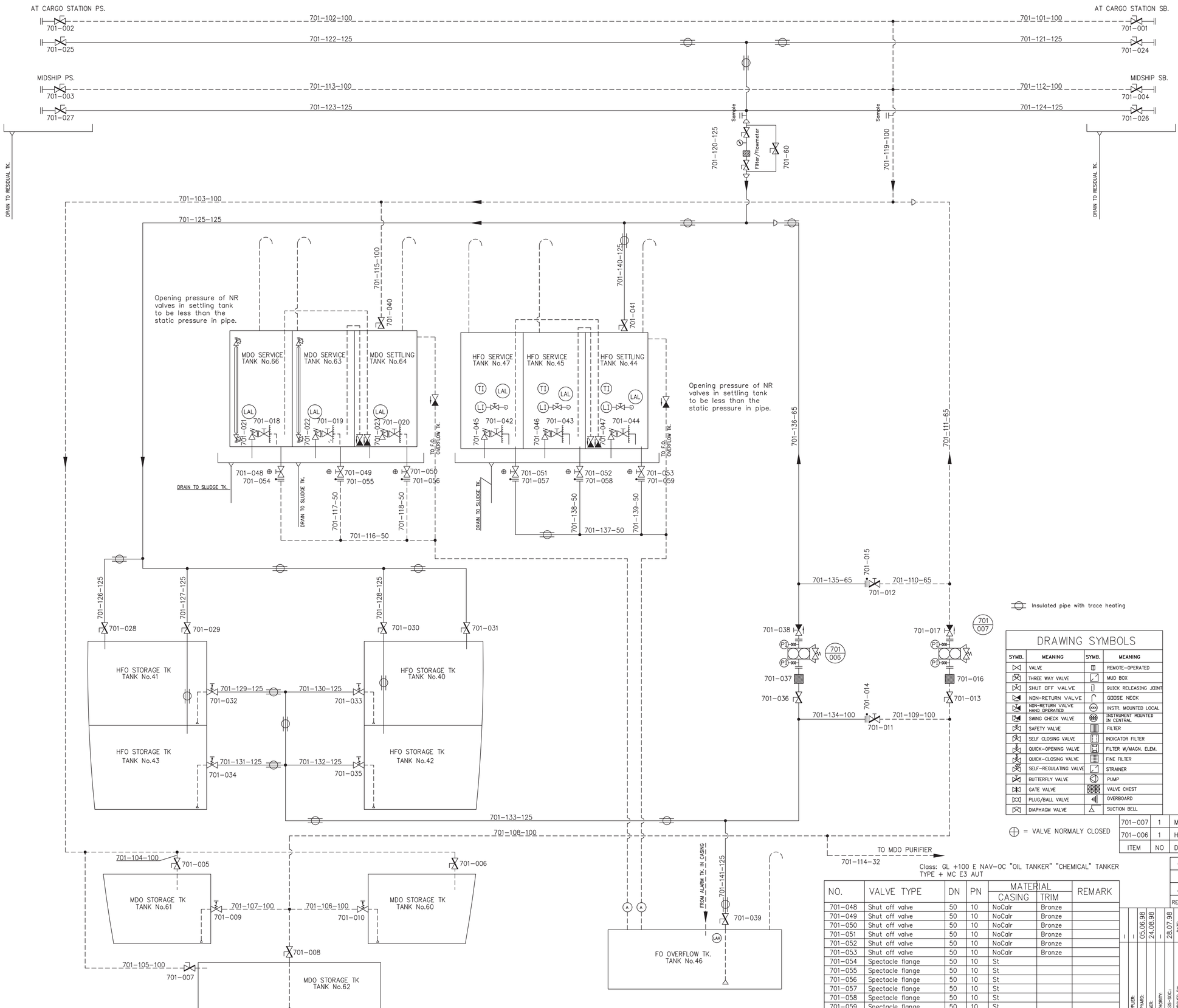
PH: (709) 739-4321
FAX: (709) 739-4421
www.poseidonmarine.nf.ca

CLIENT: COASTAL SHIPPING LTD.

VESSEL: STEN FJORD

TITLE: GENERAL ARRANGEMENT

TCMS:	PROJECT NO.: 16–060	DWG. NO.: 16–060–104	
CLASS:	SCALE/SIZE: 1 : 200 A0	SHEET: 1 OF 1	DATE: 15 JUNE 16



PIPE No.	DIM.	MAT.	FROM	TO
701-101-100	114x4,0	St.	Filling station MDO SB	Pipe no: 701-103-100
701-102-100	114x4,0	St.	Filling station MDO PS	Pipe no: 701-103-100
701-103-100	114x4,0	St.	Filling stations MDO	MDO storage tk. (no.60)
701-104-100	114x4,0	St.	Pipe no: 701-103-100	MDO storage tk. (no.61)
701-105-100	114x4,0	St.	Pipe no: 701-103-100	MDO storage tk. (no.62)
701-106-100	114x4,0	St.	MDO storage tk. (no.60)	Pipe no: 701-108-100
701-107-100	114x4,0	St.	MDO storage tk. (no.61)	Pipe no: 701-108-100
701-108-100	114x4,0	St.	MDO storage tk. (no.62)	MDO transfere pump
701-109-100	114x4,0	St.	Pipe no: 701-108-100	HFO transfere system
701-110-65	76x3	St.	Pipe no: 701-111-100	HFO transfere system
701-111-65	76x3	St.	MDO transfere pump	Pipe no: 701-103-100
701-112-100	114x4,0	St.	Filling station MDO SB	Pipe no: 701-103-100
701-113-100	114x4,0	St.	Filling station MDO PS	Pipe no: 701-103-100
701-114-32	42x3	St.	Pipe no: 701-108-100	MDO separator
701-115-100	114x4,0	St.	Pipe no: 701-103-100	MDO settling tk. (64)
701-116-50	60x3,5	St.	MDO service tk. (no.66)	Overflow pipe
701-117-50	60x3,5	St.	MDO service tk. (no.63)	Overflow pipe
701-118-50	60x3,5	St.	MDO Settling tk. (no.64)	Overflow pipe
701-119-100	114x4,0	St.	Filling stations MDO	Pipe no: 701-103-100
701-120-125	140x4,0	St.	Filling stations HFO	Pipe no: 701-125-125
701-121-125	140x4,0	St.	Filling station HFO SB	Pipe no: 701-120-125
701-122-125	140x4,0	St.	Filling station HFO PS	Pipe no: 701-120-125
701-123-125	140x4,0	St.	Filling station HFO SB	Pipe no: 701-120-125
701-124-125	140x4,0	St.	Filling station HFO PS	Pipe no: 701-120-125
701-125-125	140x4,0	St.	Filling stations HFO	HFO storage tk. (no.40)
701-126-125	140x4,0	St.	Pipe no: 701-125-125	HFO storage tk. (no.41)
701-127-125	140x4,0	St.	Pipe no: 701-125-125	HFO storage tk. (no.43)
701-128-125	140x4,0	St.	Pipe no: 701-125-125	HFO storage tk. (no.42)
701-129-125	140x4,0	St.	HFO storage tk. (no.41)	Pipe no: 701-133-125
701-130-125	140x4,0	St.	HFO storage tk. (no.40)	Pipe no: 701-133-125
701-131-125	140x4,0	St.	HFO storage tk. (no.43)	Pipe no: 701-133-125
701-132-125	140x4,0	St.	HFO storage tk. (no.42)	Pipe no: 701-133-125
701-133-125	140x4,0	St.	HFO storage tank's	HFO transgfere pump
701-134-100	114x4,0	St.	MDO transfere system	Pipe no: 701-133-125
701-135-65	76x3	St.	MDO transfere system	Pipe no: 701-136-125
701-136-65	76x3	St.	HFO transgfere pump	Pipe no: 701-125-125
701-137-50	60x3,5	St.	HFO service tk. (no.47)	Overflow pipe
701-138-50	60x3,5	St.	HFO service tk. (no.45)	Overflow pipe
701-139-50	60x3,5	St.	HFO settling tk. (no.44)	Overflow pipe
701-140-125	140x4,0	St.	Pipe no: 701-125-125	HFO settling tk. (no.44)
701-141-125	140x4,0	St.	Fo overflow tk. (no.46)	Pipe no: 701-133-125

NO.	VALVE TYPE	DN	PN	MATERIAL		REMARK
				CASING	TRIM	
701-001	Butterfly valve	100	10	Calr	Bronze	
701-002	Butterfly valve	100	10	Calr	Bronze	
701-003	Butterfly valve	100	10	Calr	Bronze	
701-004	Butterfly valve	100	10	Calr	Bronze	
701-005	Butterfly valve	100	10	Calr	Bronze	
701-006	Butterfly valve	100	10	Calr	Bronze	
701-007	Butterfly valve	100	10	Calr	Bronze	
701-008	Butterfly valve	100	10	Calr	Bronze	
701-009	Quick closing valve	100	10	NoCalr	Bronze	
701-010	Quick closing valve	100	10	NoCalr	Bronze	
701-011	Butterfly valve	100	10	Calr	Bronze	
701-012	Butterfly valve	65	10	Calr	Bronze	
701-013	Butterfly valve	100	10	Calr	Bronze	
701-014	Blind flange	100	10	--	--	
701-015	Blind flange	65	10	--	--	
701-016	Filter	100	10	Calr	--	
701-017	NR shut off valve	65	10	Calr	Bronze	
701-018	Shut off valve	40	10	NoCalr	Bronze	
701-019	Shut off valve	40	10	NoCalr	Bronze	
701-020	Shut off valve	40	10	NoCalr	Bronze	
701-021	Self closing valve	40	10	Calr	Bronze	
701-022	Self closing valve	40	10	Calr	Bronze	
701-023	Self closing valve	40	10	Calr	Bronze	
701-024	Butterfly valve	125	10	Calr	Bronze	
701-025	Butterfly valve	125	10	Calr	Bronze	
701-026	Butterfly valve	125	10	Calr	Bronze	
701-027	Butterfly valve	125	10	Calr	Bronze	
701-028	Butterfly valve	125	10	Calr	Bronze	
701-029	Butterfly valve	125	10	Calr	Bronze	
701-030	Butterfly valve	125	10	Calr	Bronze	
701-031	Butterfly valve	125	10	Calr	Bronze	
701-032	Quick closing valve	125	10	NoCalr	Bronze	
701-033	Quick closing valve	125	10	NoCalr	Bronze	
701-034	Quick closing valve	125	10	NoCalr	Bronze	
701-035	Quick closing valve	125	10	NoCalr	Bronze	
701-036	Butterfly valve	125	10	Calr	Bronze	
701-037	Filter	125	10	--	--	
701-038	NR shut off valve	65	10	Calr	Bronze	
701-039	Butterfly valve	125	10	Calr	Bronze	
701-040	Butterfly valve	100	10	Calr	Bronze	
701-041	Butterfly valve	125	10	Calr	Bronze	
701-042	Shut off valve	40	10	NoCalr	Bronze	
701-043	Shut off valve	40	10	NoCalr	Bronze	
701-044	Shut off valve	40	10	NoCalr	Bronze	
701-045	Self closing valve	40	10	Calr	Bronze	
701-046	Self closing valve	40	10	Calr	Bronze	
701-047	Self closing valve	40	10	Calr	Bronze	

DRAWING SYMBOLS

SYMB.	MEANING	SYMB.	MEANING
	VALVE		REMOTE-OPERATED
	THREE WAY VALVE		MUD BOX
	SHUT OFF VALVE		QUICK RELEASING JOINT
	NON-RETURN VALVE		GOOSE NECK
	NON-RETURN VALVE HAND OPERATED	xxx	INSTR. MOUNTED LOCAL
	SWING CHECK VALVE	xxx	INSTRUMENT MOUNTED IN CENTRAL
	SAFETY VALVE		FILTER
	SELF CLOSING VALVE		INDICATOR FILTER
	QUICK-OPENING VALVE		FILTER W/MAGN. ELEM.
	QUICK-CLOSING VALVE		FINE FILTER
	SELF-REGULATING VALVE		STRAINER
	BUTTERFLY VALVE		PUMP
	GATE VALVE		VALVE CHEST
	PLUG/BALL VALVE		OVERBOARD
	DIAPHAGM VALVE		SUCTION BELL

ITEM	NO	DESCRIPTION	CAPACITY	MAKER / TYPE
701-007	1	M.D.O. Transfer pump	20m3/h-3.0bar	----
701-006	1	H.F.O. Transfer pump	20m3/h-3.0bar	----

REV.	TEXT	DATE	SIGN.
C	Comm. from owner and yard	20.10.98	KE
B	Approved by GL	12.08.98	KE
A	Div. corrections	05.07.98	KE

SUPPLIER:		DATE:	
SHIPYARD:		DATE:	05.06.98
OWNER:		DATE:	24.08.98
AUTHORITY:		DATE:	
CLASS-SOC.:		DATE:	
APPROVED BY:		DATE:	28.07.98

SK 40/83-1
TANKER FOR OIL PRODUCTS - 13500 DWT

JIANGYANG SHIPYARD
YARD NO. JY97-125/126

TITLE:
FUEL OIL SYSTEM
FILLING AND TRANSFER

SCALE: %

DATE: 01.01.98
CONSTR.: TE/ken
CONTR.: --

SKIPSKONSULENT AS
SHIP DESIGN CONSULTANTS
Johan Berentsens 63 - 5031 Laksevåg, Bergen - Norway
Phone: +47 55 94 90 00 Fax +47 55 94 90 01

CAD FILE/DRAWING NO.: 15649
REVISION: C

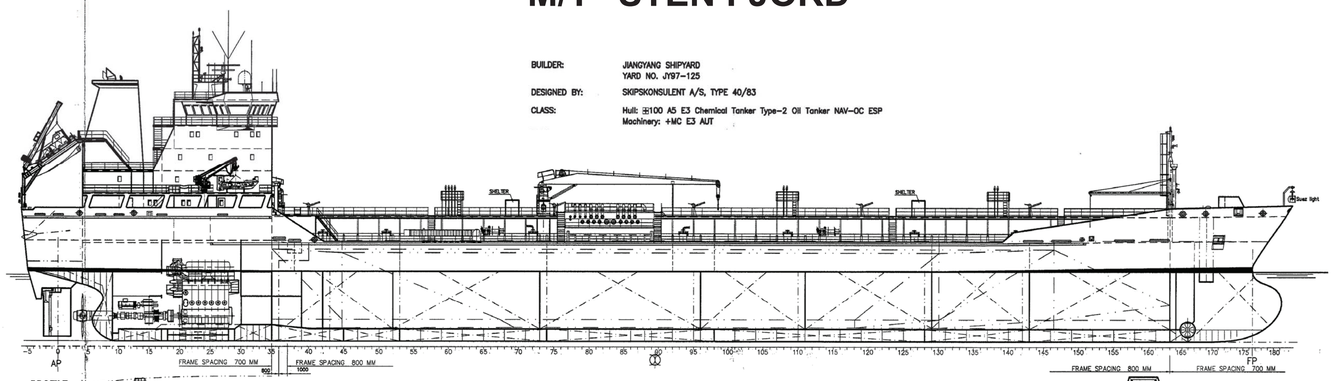
SFI NO.: 701
SK O.NO.: 9708601
PLOT DATE: 05.06.98

CAPACITY PLAN
M/T "STEN FJORD"

BUILDER: JIANGYANG SHIPYARD
YARD NO. JY97-125

DESIGNED BY: SKIPSKONSULENT A/S, TYPE 40/83

CLASS: Hull: ⊞100 A5 E3 Chemical Tanker Type-2 Oil Tanker NAV-OC ESP
Machinery: +MC E3 AUT



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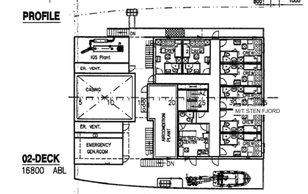
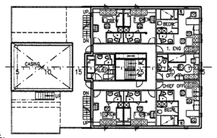


02-DECK
16800 ABL



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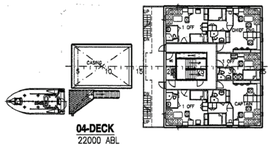
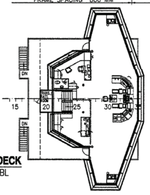
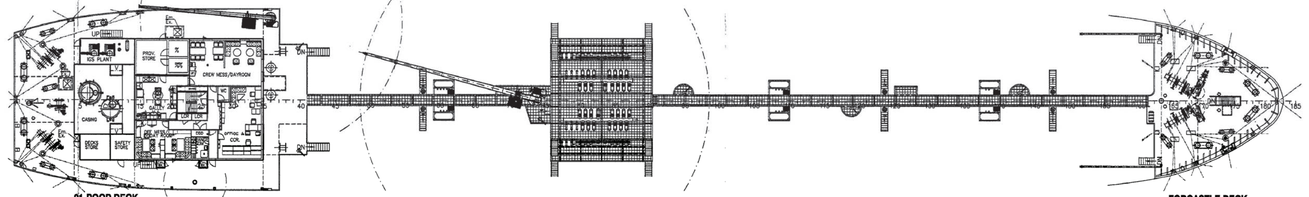


04-DECK
22000 ABL

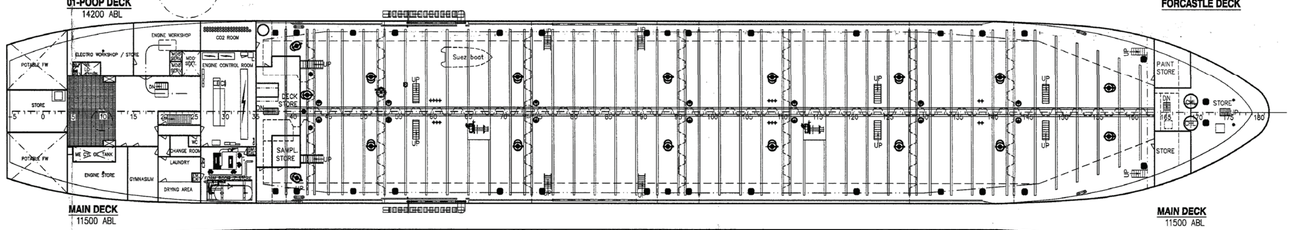


05-BRIDGE DECK
24600 ABL



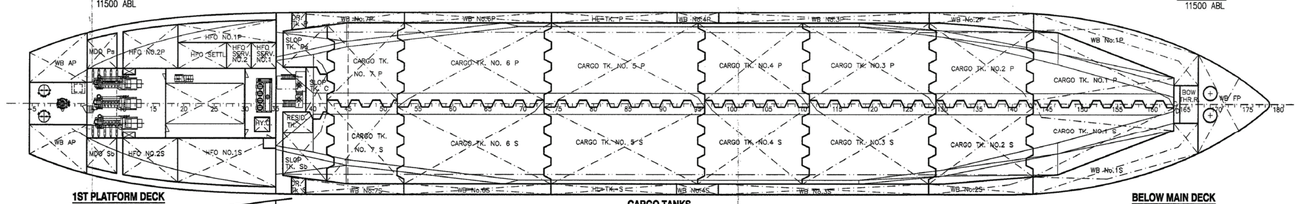
01-POOP DECK
14200 ABL

FORCASTLE DECK



MAIN DECK
11500 ABL

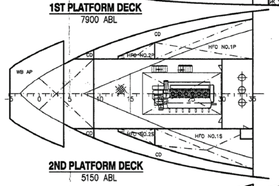
MAIN DECK
11500 ABL



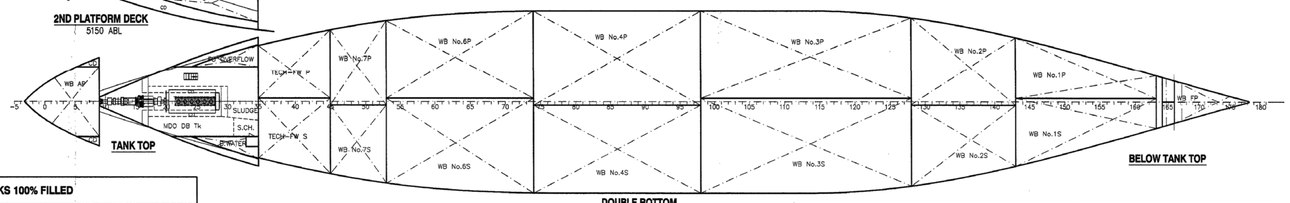
1ST PLATFORM DECK
7900 ABL

CARGO TANKS

BELOW MAIN DECK



2ND PLATFORM DECK
5150 ABL



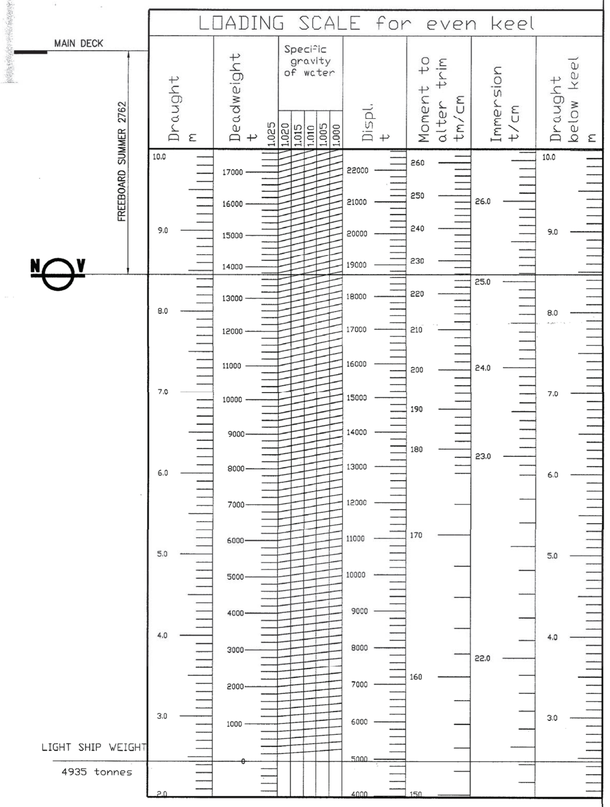
TANK TOP

DOUBLE BOTTOM

BELOW TANK TOP

DEADWEIGHT SCALE

ALL FIGURES INDICATED IN THE D.W. SCALE ARE BASED ON METRIC UNITS



WATER BALLAST 100% FILLED

TANK	VOLUME	VCG	LCG FROM AP	TCG
FOREPEAK TANK	335,3	6,15	133,11	0,00
WINGTK. No.1 SB	447,8	5,24	120,02	4,83
WINGTK. No.1 PS	429,9	5,42	120,06	-5,03
WINGTK. No.2 SB	328,1	4,09	105,04	7,05
WINGTK. No.2 PS	341,5	3,95	105,04	-6,77
WINGTK. No.3 SB	681,2	3,45	87,09	7,10
WINGTK. No.3 PS	654,3	3,56	87,09	-7,39
WINGTK. No.4 SB	341,5	1,82	66,79	6,19
WINGTK. No.4 PS	363,0	1,75	66,72	-5,82
WINGTK. No.6 SB	472,5	3,48	47,52	7,04
WINGTK. No.6 PS	453,6	3,60	47,52	-7,33
WINGTK. No.7 SB	274,5	4,78	33,51	7,80
WINGTK. No.7 PS	281,3	4,78	33,58	-7,46
HL-TK. SB	183,7	6,68	63,10	9,70
HL-TK. PS	183,7	6,68	63,10	-9,70
AFT PEAK TANK	207,5	9,21	0,80	0,00
TOTAL	5979,4			

CARGO TANKS 100% FILLED

TANK	VOLUME	VCG	LCG FROM AP	TCG
CARGO TK NO.1 S	869,1	6,81	117,70	2,87
CARGO TK NO.1 P	873,2	6,80	117,73	-2,86
CARGO TK NO.2 S	908,1	6,59	104,98	4,05
CARGO TK NO.2 P	904,9	6,59	105,00	-4,06
CARGO TK NO.3 S	1287,2	6,42	92,26	4,47
CARGO TK NO.3 P	1290,4	6,42	92,32	-4,46
CARGO TK NO.4 S	1080,3	6,40	79,10	4,51
CARGO TK NO.4 P	1083,5	6,40	79,15	-4,49
CARGO TK NO.5 S	1585,0	6,40	64,30	4,50
CARGO TK NO.5 P	1587,9	6,40	64,30	-4,51
CARGO TK NO.6 S	1491,3	6,45	47,17	4,44
CARGO TK NO.6 P	1494,6	6,45	47,12	-4,43
CARGO TK NO.7 S	659,2	6,63	34,70	4,09
CARGO TK NO.7 P	652,8	6,63	34,74	-4,13
SLOP TK. S	315,6	6,67	28,12	4,36
SLOP TK. P	180,5	7,13	28,27	-5,71
SLOP TK. CENTRE	134,5	6,46	29,17	-1,27
TOTAL	16407,3			

PRINCIPAL PARTICULARS

LENGTH O. A.	abt.	145.30 m
LENGTH P. P.		136.60 m
BREADTH, MLD.		20.80 m
DEPTH, MLD.		11.20 m
DRAUGHT, design		8.00 m
DRAUGHT, scantl.		8.45 m
DEADWEIGHT, design		12556 tonnes
DEADWEIGHT, scantl.		13687 tonnes
CARGO CAPACITY 100%		16407 m3

SKIPSKONSULENT
Date 01 DES. 2003
BERGEN - NORWAY

FUEL OIL TANKS 100% FILLED

TANK		VOLUME	VCG	LCG FROM AP	TCG
HFO TK. 1 SB		224,4	8,37	19,65	6,07
HFO TK. 1 PS		120,2	7,74	20,32	-6,54
HFO TK. 2 SB		57,8	9,69	10,47	5,75
HFO TK. 2 PS		57,8	9,69	10,47	-5,75
HFO SETTLING TK.		48,9	9,42	16,13	-5,46
HFO SERVICE TK. 2		31,0	9,02	20,30	-5,44
FUEL OVERFLOW TK		40,2	0,99	22,48	-2,63
HFO SERVICE TK. 1		31,0	9,02	23,10	-5,44
TOTAL		611,3			

FRESH WATER TANKS 100% FILLED

TANK	VOLUME	VCG	LCG FROM AP	TCG
TECH. FW TK. SB	87,9	0,81	28,69	3,23
TECH. FW TK. PS	79,6	0,82	28,64	-3,61
POTABLE FW SB	104,3	12,90	-0,40	5,29
POTABLE FW PS	104,3	12,90	-0,40	-5,29
TOTAL	376,0			

DIESEL OIL TANKS 100% FILLED

TANK	VOLUME	VCG	LCG FROM AP	TCG
MDO TK. SB	16,2	10,06	4,72	5,26
MDO TK. PS	16,2	10,06	4,72	-5,26
MDO DB TK.	71,1	1,03	14,93	0,03
MDO SERVICE TK.	6,6	12,85	15,40	-4,87
MDO SETTLING TK.	16,7	12,85	17,15	-5,48
MDO SERVICE TK.	4,5	12,85	15,40	-5,35
TOTAL	131,4			

LUB OIL TANKS 100% FILLED

TANK	VOLUME	VCG	LCG FROM AP	TCG
LO SYSTEM TK.	9,3	1,03	16,10	0,00
HYDR. OIL STORAGE TK.	10,4	9,70	23,63	2,38
ME LO STORAGE TK.	10,0	12,85	5,58	-4,83
AUX. ENG. LO TK.	3,3	12,85	4,04	-4,96
CPP LO TK.	0,9	12,85	3,75	-4,35
LUB. OIL SYSTEM TK.	23,2	12,85	5,95	4,88
HYDR. OIL OVERFLOW TK.	–			
TOTAL	57,1			

MISCELLANEOUS TANKS 100% FILLED

TANK	VOLUME	VCG	LCG FROM AP	TCG
WASTE OIL TK.	9,8	0,35	16,10	0,00
SLUDGE TK.	15,1	0,93	22,48	0,97
BILGE WATER TK.	14,8	1,08	22,07	4,05
RESIDUAL TK.	15,9	10,49	26,96	2,10
DRAIN TK.	3,9	10,69	27,10	9,29
DRAIN TK.	3,9	10,69	27,10	-9,29
TOTAL	63,4			

EQUIPMENT

SFI No.

- 2 - HULL

200	Plates and Profiles in general	: GL-A
27/28	Painting, general	: Epoxy system IP
	Ice belt	: Intershield Inerla 160
	Cargo tanks	: Marine Line, High Performance Siloxirane Coating
	WB. tanks	: Intergard 403 light color

- 3 - CARGO EQUIPMENT

	Max. cargo S.G.	: 1,54 t/m3.
350	Segregation	: Full segregation of 14 cargo tanks. Simultaneous discharge of six (6) grades via separate pumps and manifolds. Simultaneous loading of six (6) grades over manifolds and direct drop lines to cargo tanks.
351	Cargo pumps : – 14 off Framo SD150, 330 m3/h – 110 mlc	
	Slop tanks : – 3 off Framo SD100, 120 m3/h – 110 mlc	
	Portable pump	: 1 off Framo TK150, 125 m3/h – 70 mlc
351	El. Hydr.Power pack	: El. motor 4 off 300 kW – 440V/60Hz/3 phase
352	Cargo piping, stainless steel AISI 316L : – manifold, 3 crossovers 6" – ANSI 150 flanges (slop) – manifold, 14 crossovers 10" – ANSI 250 flanges (cargo) – manifold collectors, 2 logitudinal lines 12"– DN 300 – one vapour return manifold 8"– ANSI 200 flanges	
365	Cargo heating by steam at 8 bar delivered directly to double loop heating coils	
375	Tank vent P/V high velocity valves – 18 off Press-Vac ND125 Type 2374/2376 Pressure side 0.20 kg/cm2 Vacuum side 0.035 kg/cm2	
376	Nitrogen System	: 20 off 200 bar N2 bottles, each 50 l
376	Inert gas syst.	: Smith Sinus Inert gas generator, cap. 2500 m3/h
380	Loading computer	: CDC
381	Cargo controll system	: Kongsberg Norcontrol and Auxitrol
382	TK cleaning machines	: Scanjet Clean AB
	31 off Scanjet	: Scanjet SC50TP Portable drive unit SC235 (4 off) 14m 3/h
	2 off Scanjet	: Junior Jetstream 16,2 m3/h
	Framo tank cleaning pump	: 1 off 4VF1-F-HH032-B260-F 80m3/h-11 bar
382	Oil discharge monitoring	: JOWA Cleantoll 9000
383	Hose handling deck crane	: TTS-NORLIFT AS Type: GPH 160-0520
	SWL: 51 Max. Outreach:	: 20 m, Min. Outreach : 4 m

- 4 - SHIP EQUIPMENT

402	Rudder	: Becker – Type FKSR 3150/610/440/1
403	Steering gear	: Ulstein Tenfjord, Type SR723
404	Bow thruster	: SCHOTTEL Type STT 550 LK 750 kW 1400 rpm
411	Radars	: (for tank sounding) Auxitrol
412	Navigation systems :	
	–GPS/DGPS Navigator	: AP 100 JRC
	–Loran C	: Not applicable
413	Gyro compass	: NAVIGATX MK1 C. Plath
	Autopilot	: NAVPILOT – AD-11/G C. Plath
414	Logg. Doppler speed repeater	: JLN 2030 JRC
	Echo Sounder	: JFE 570SB JRC
421	– Sat. com.	: JUE-75C JRC
	– Navtex receiver	: NCR-300A JRC
424	VHF Portable set	: ICOM IC- GM 1500E JRC
	VHF W.DSC	: JHS-32A JRC
430	Equipment number	: (2) 1564 Number of register: 130
431	Anchor	: 2 off 4590 kg Blom & Voss
	Chains	: 550 m, dia. 54mm, Stern anchor (St.Lawrence): Spek 2460kg K3
433	Windlass / Mooring	: 2off Ulstein Brattvåg, Double drum, 6 ton SWL
434	Mooring Winch	: 2 off Ulstein Brattvåg, Double drum, 10 t SWL : 2off Ulstein Brattvåg, Single drum, 4 t SWL : 1off Ulstein Brattvåg, St.Lawrence anchor windlass
445	Incinerator	: Luzhou (Golar) OG200, 465 kW

- 5 - EQUIPMENT FOR CREW

501	Lifeboat	: 1 off Freefall, Fassmer GAR-T 6,7
	Davit	: Freefall , Davit International
501	Mob. boat	: Fassmer RR 4.2, 6 persons.
	Davit	: Davit International
502	Liferafts	: 2 off 25 persons, 1 off 6 persons, Viking
563	Provision crane	: Norlift – SWL 3 ton, 3 – 15 M
571	Air condition	: Helen & Hopman

- 6 - MAIN MACHINERY COMP.

601	Main engine	: MAN B&W 6S42 MC – 5490kW, 120 rpm
634	C.P. Propeller	: MAN B&W Alpha Diesel dia. 4900 mm, 120 rpm, 4 blades
637	Tunnel / PTO	: Flender
641	Steam boiler	: HDW – 10,0 t/h – 8.0 bar
646	Combined boiler	: HDW, 0.7 t/h – 1,0 t/h – 8 bar
651	Aux. Generator sets	: 3 off MAN B&W 5L23/30 – 650 kW
660	Shaft generator	: Avon Kolck – Type DSU 74 L1-4, 1400 kW
665	Emerg. gener.	: Norhavn AS GASI 7 – 06 100kW, 3x450V/60 Hz

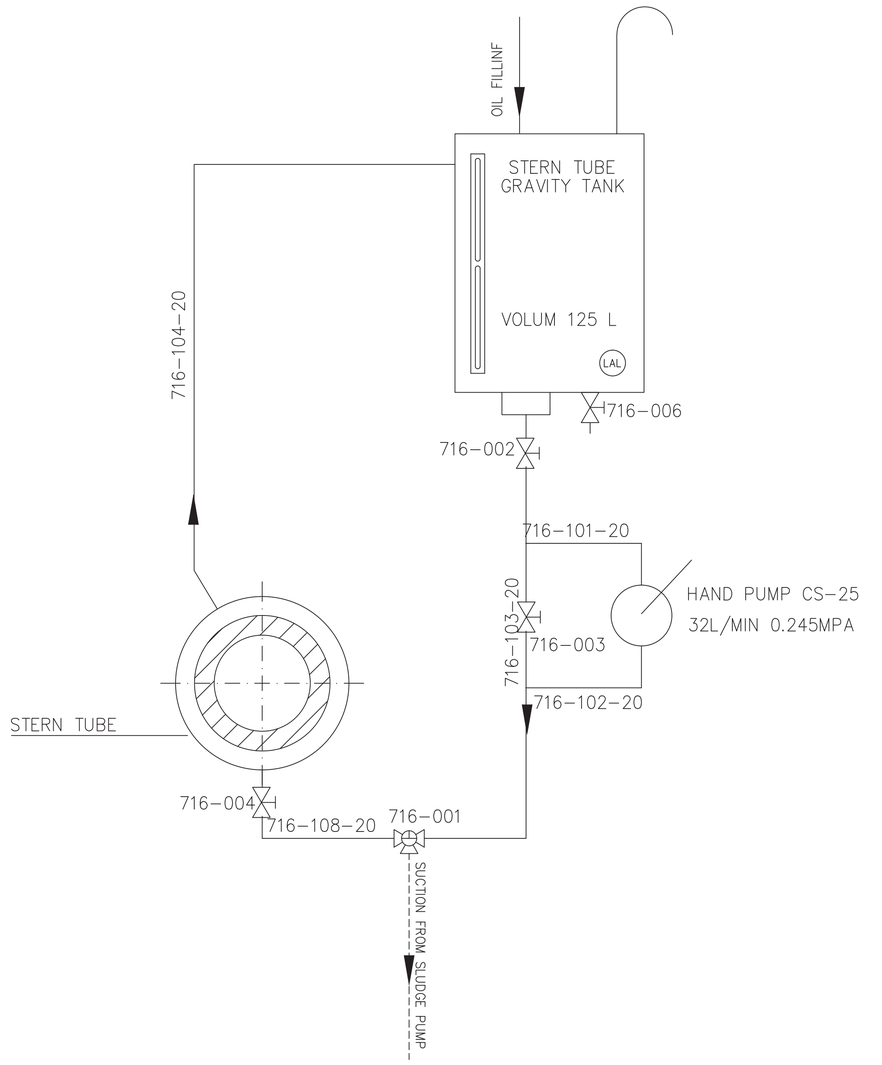
- 7 - MACHINERY SYSTEMS

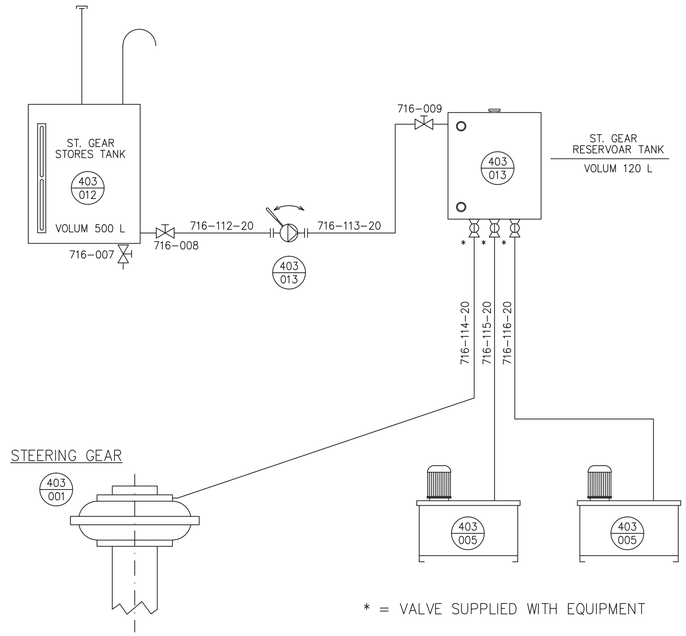
701	HFO Transfer pump	: Behrens ZB 111/a – 20 m3/h – 3 bar
	DO Transfer pump	: Behrens ZB 111/a – 20 m3/h – 3 bar
702	MDO Separator	: Westfalia OSC 5 – 1370 l/h
	HFO Separator	: Westfalia OSC 15 – 1840 l/h
	HFO Module	: Kopke & Wolf
711	LO Transfer pump	: Behrens ASE032N – 3 m3/h – 2.5 bar
712	LO Separator	: Westfalia OSCS – 910 l/h
712	Sludge pump	: Behrens B-EL600, 15 m3/h, 2.5 bar
	SW pump FW generator	: 45 m3/h, 3.5 bar
	SW scrubber pump, IGS plant:	Behrens VRW5/290G, 190 m3/h, 3.5 bar
	SW sealing pump, IGS plant	: Behrens CRN2-20F, 3 m3/h, 1 bar
	SW scooling pump	: 3 off Behrens VRW5 350G – 220 m3/h, 2 bar
722	L.T. FW Cooling pump	: 3 off Behrens VRF5/350G – 220m3/h – 3 bar
	H.T. FW Cooling pump	: 2 off Behrens SFN80G – 50 m3/h – 3.0 bar
	FW Central Cooler	: 2 off Alfa Laval M20-MFM-362/400 m3/h
731	Starting air comp.	: 2 off Sauer & Sohn MP 45 L, 60 m3/h, 30 bar
733	Working air comp.	: 1 off Sauer & Sohn SOK 76, 492 m3/h, 10 bar
761	FW. Generator	: Alfa Laval, JWSP-26-C80, 15 m3/24h

- 8 - SHIP SYSTEMS

801	Ballast pumps:	: 2 off Framo VH 300/250-ISO-500m3/h-20 mlc
	Ballast ejectors	: 2 off GOLAR 8-8-10M, 100 m3/h – 0.7 bar : 1 off GOLAR C5-6-8, 160 m3/h
803	Bilge pump	: Behrens S-100-80 – 70 m3/h, 2.5 bar
	Oily water separator	: RWO, SKIT 55.0 – 5 m3/h
	General service pump	: Behrens VRW5/350G, 150 m3/h, 10 bar
813	Fire pump	: Behrens VRW5/350G, 150 m3/h, 9.5 bar
	Emerg. fire pump	: Behrens SFS80 – 50 m3/h, 9.5bar
815	CO2	: Unitor
816	Foam system	: Unitor 6 off foam monitors
831	Remote control of valves	: Auxitrol
861	Main switchboard	: CLAUSE-D Christophel

BUILT:	M/T STEN FJORD	JIANGYANG SHIPYARD Y.NO. JY97-125			
SUPPLIER:	TANKER FOR OIL PRODUCTS – 13500 DWT				
YARD NO.:	TITLE: CAPACITY PLAN W/DEADWEIGHT SCALE	SCALE: ~	DATE: 24.11.00		
OWNER:			CONSTR.: JAH/st		
AUTHORITY:			CONTR.:		
CLASS-SIGN.:	SKIPSKONSULENT Member of the Vik-Sandvik Group	Johan Berentsensvei 63 5031 Laksevåg Bergen – Norway Tlf: +47 55 94 90 00 Fax: +47 55 94 90 01 ss@skipskonsulent.no	CAD FILE/DRAWING NO.: 013289	REVISION B	
			DOCODE: 107	SK. ORD.: 9708601	SHEET: 1/1
					POST DATE: 28.08.03



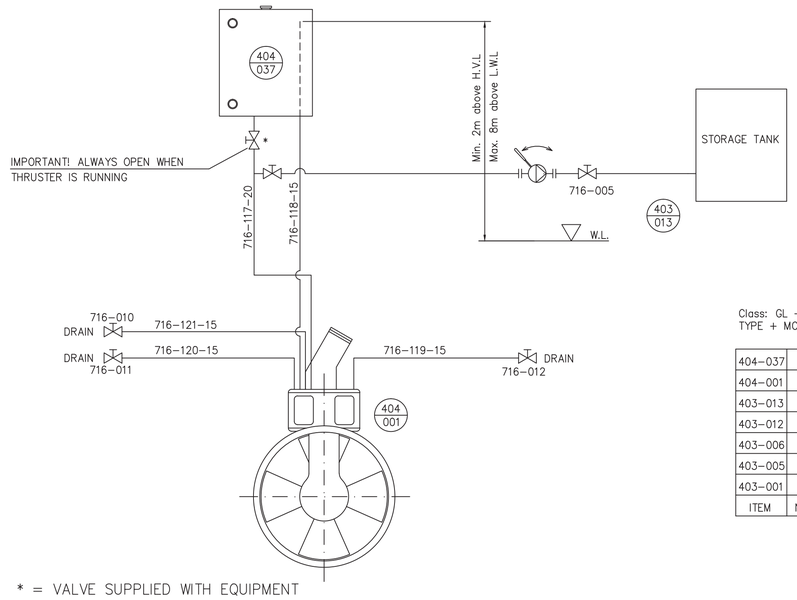


PIPE No.	DIM.	MAT.	FROM	TO
716-101-20	27x2,5	St.	716-103-20	HAND PUMP
716-102-20	27x2,5	St.	HAND PUMP	716-103-20
716-103-20	27x2,5	St.	S.T. GRAVITY TANK	STERN TUBE
716-104-20	27x2,5	St.	STERN TUBE	S.T. GRAVITY TANK
716-108-20	27x2,5	St.	STERN TUBE	3- WAY VALVE
716-112-20	27x2,5	St.	ST. GEAR STORES TK.	MAN. PUMP
716-113-20	27x2,5	St.	MAN. PUMP	ST. GEAR RESERV. TK.
716-114-20	27x2,5	St.	ST. GEAR RESERV. TK.	STEARING GEAR
716-115-20	27x2,5	St.	ST. GEAR RESERV. TK.	SERVO PUMPS ST.G.
716-116-20	27x2,5	St.	ST. GEAR RESERV. TK.	SERVO PUMPS ST.G.
716-117-20	27x2,5	St.	EXPS. TK. THRUSTER	THRUSTER
716-118-15	22x2,5	St.	THRUSTER	EXPS. TK. THRUSTER
716-119-15	22x2,5	St.	THRUSTER	DRAIN
716-120-15	22x2,5	St.	THRUSTER	DRAIN
716-121-15	22x2,5	St.	THRUSTER	DRAIN
–	–	–	–	–
–	–	–	–	–

NO.	VALVE TYPE	DN	PN	MATERIAL		REMARK
				CASING	TRIM	
716-001	3-way Shutt off valve	20	10	Calr	Bronze	
716-002	Shutt off valve	20	10	Calr	Bronze	
716-003	Shutt off valve	20	10	Calr	Bronze	
716-004	Shutt off valve	20	10	Calr	Bronze	
716-005	Shutt off valve	15	10	Calr	Bronze	
716-006	Shutt off valve	15	10	Calr	Bronze	
716-007	Shutt off valve	15	10	Calr	Bronze	
716-008	Shutt off valve	20	10	Calr	Bronze	
716-009	Shutt off valve	20	10	Calr	Bronze	
716-010	Shutt off valve	15	10	Calr	Bronze	
716-011	Shutt off valve	15	10	Calr	Bronze	
716-012	Shutt off valve	15	10	Calr	Bronze	
–	–	–	–	–	–	
–	–	–	–	–	–	

DRAWING SYMBOLS

SYMB.	MEANING	SYMB.	MEANING
	VALVE		REMOTE-OPERATED
	THREE WAY VALVE		MUD BOX
	SHUT OFF VALVE		QUICK RELEASING JOINT
	NON-RETURN VALVE		GOOSE NECK
	NON-RETURN VALVE HAND OPERATED		INSTR. MOUNTED LOCAL
	SWING CHECK VALVE		INSTRUMENT MOUNTED IN CENTRAL
	SAFETY VALVE		FILTER
	SELF CLOSING VALVE		INDICATOR FILTER
	QUICK-OPENING VALVE		FILTER W/MAGN. ELEM.
	QUICK-CLOSING VALVE		FINE FILTER
	SELF-REGULATING VALVE		STRAINER
	BUTTERFLY VALVE		PUMP
	GATE VALVE		VALVE CHEST
	PLUG/BALL VALVE		OVERBOARD
	DIAPHAGM VALVE		SUCTION BELL



Class: GL +100 E NAV-OC "OIL TANKER" "CHEMICAL" TANKER
TYPE + MC E3 AUT

404-037	1	Side thruster expasion tk.	------- kW	----
404-001	1	Side thruster	------- kW	----
403-013	1	St.g. hydr oil reservoar tk.	120 l	----
403-012	1	St.g. hydr. oil stores tk.	500 l	----
403-006	1	St.g. hydr. oil supply pump	------ kW	----
403-005	2	St.g. hydraulic pover pack	------ kW	----
403-001	1	Steering gear		----
ITEM	NO	DESCRIPTION	CAPACITY	MAKER / TYPE

REV.	TEXT	DATE	SIGN.
C	Approved by owner	21.10.98	KE
B	Approved by GL	12.08.98	KE
A	Div. corrections	06.07.98	KE

SUPPLIER: | SHIPYARD: | OWNER: | AUTHORITY: | CLASS-SOC.: | APPROVED BY: | DATE:
| | | | | | 28.07.98

SK 40/83-1
TANKER FOR OIL PRODUCTS – 13500 DWT

JIANGYANG SHIPYARD
YARD NO. JY97-125/126

TITLE:
LUB OIL SYSTEM
ST.TUBE-STEER.GEAR-THRUSTER

SCALE: %

DATE: 01.01.98
CONSTR.: TE/ken
CONTR.: –

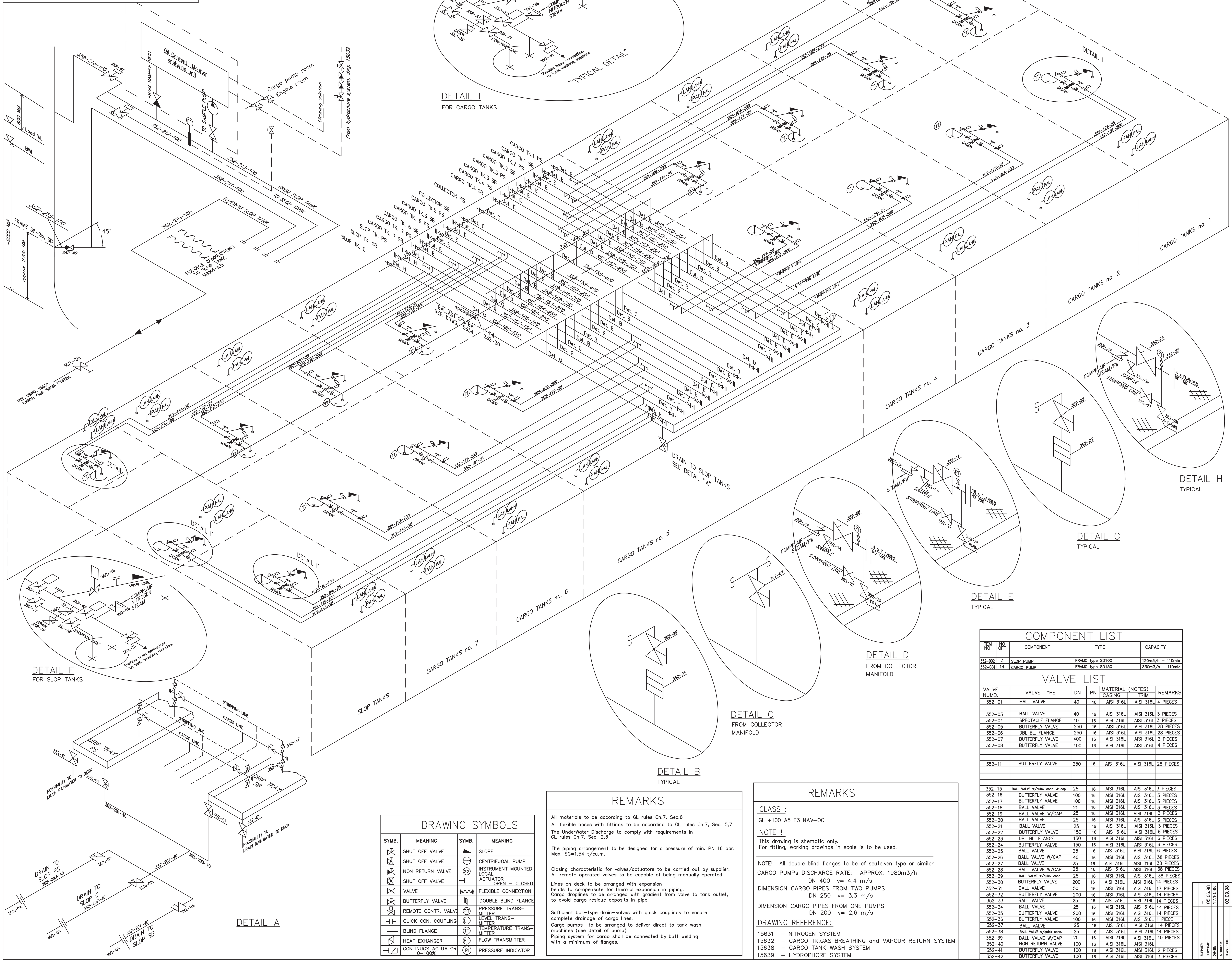
SKIPSKONSULENT AS
SHIP DESIGN CONSULTANTS
Johan Berentsensv.63 – 5031 Laksevl, Bergen – Norway
Phone: +47 55 94 90 00 Fax +47 55 94 90 01

CAD FILE/DRAWING NO.: 15655
REVISION: C
SFI NO.: 716
SK. O.NO.: 9708601
PLOT DATE:

REMARKS

THE CARGO PUMP max. CAPACITY TO BE 70m3/h
WHEN DISCHARGING CONTAMINATED WATER DURING
TANK CLEANING OPERATION. (TANK CLEANING PUMP CAP. 80m3/h)

$$\text{min. DIAM. } D = \frac{Q \times \sin 45^\circ}{5 \times L} = \frac{80 \times 0,7}{5 \times 115} = 0,098\text{m}$$



PIPE LIST

PIPE NUMB.	DIM.	MAT.	FROM	TO	REMARKS
352–100–200	ø219x3	AISI 316L	CARGO TK 1 PS	PIPE 352–117	(TO CROSSOVER)
352–101–200	ø219x3	AISI 316L	CARGO TK 1 SB	PIPE 352–117	(TO CROSSOVER)
352–102–200	ø219x3	AISI 316L	CARGO TK 2 PS	PIPE 352–118	(TO CROSSOVER)
352–103–200	ø219x3	AISI 316L	CARGO TK 2 SB	PIPE 352–118	(TO CROSSOVER)
352–104–200	ø219x3	AISI 316L	CARGO TK 3 PS	PIPE 352–119	(TO CROSSOVER)
352–105–200	ø219x3	AISI 316L	CARGO TK 3 SB	PIPE 352–119	(TO CROSSOVER)
352–106–200	ø219x3	AISI 316L	CARGO TK 4 PS	PIPE 352–120	(TO CROSSOVER)
352–107–200	ø219x3	AISI 316L	CARGO TK 4 SB	PIPE 352–120	(TO CROSSOVER)
352–008–200	ø219x3	AISI 316L	CARGO TK 5 PS	PIPE 352–121	(TO CROSSOVER)
352–009–200	ø219x3	AISI 316L	CARGO TK 5 SB	PIPE 352–121	(TO CROSSOVER)
352–110–200	ø219x3	AISI 316L	CARGO TK 6 PS	PIPE 352–122	(TO CROSSOVER)
352–111–200	ø219x3	AISI 316L	CARGO TK 6 SB	PIPE 352–122	(TO CROSSOVER)
352–112–200	ø219x3	AISI 316L	CARGO TK 7 PS	PIPE 352–123	(TO CROSSOVER)
352–113–200	ø219x3	AISI 316L	CARGO TK 7 SB	PIPE 352–123	(TO CROSSOVER)
352–114–100	ø114,3x3	AISI 316L	SLOP TK PS	PIPE 352–124	(TO CROSSOVER)
352–115–100	ø114,3x3	AISI 316L	SLOP TK C	PIPE 352–124	(TO CROSSOVER)
352–116–100	ø114,3x3	AISI 316L	SLOP TK SB	PIPE 352–124	(TO CROSSOVER)
***					
***					
352–149–300	ø323,8x3,5	AISI 316L	CROSSOVERS	COLLECT. MANIF.	
352–150–250	ø273x3,5	AISI 316L	PIPE 352–100	MANIFOLD	CROSSOVER
352–151–250	ø273x3,5	AISI 316L	PIPE 352–101	MANIFOLD	CROSSOVER
352–152–250	ø273x3,5	AISI 316L	PIPE 352–102	MANIFOLD	CROSSOVER
352–153–250	ø273x3,5	AISI 316L	PIPE 352–103	MANIFOLD	CROSSOVER
352–154–250	ø273x3,5	AISI 316L	PIPE 352–104	MANIFOLD	CROSSOVER
352–155–250	ø273x3,5	AISI 316L	PIPE 352–105	MANIFOLD	CROSSOVER
352–156–250	ø273x3,5	AISI 316L	PIPE 352–106	MANIFOLD	CROSSOVER
352–157–250	ø273x3,5	AISI 316L	PIPE 352–107	MANIFOLD	CROSSOVER
352–158–400	ø406x3,5	AISI 316L	PIPE 352–168	MANIFOLD	CROSSOVER
352–159–400	ø406x3,5	AISI 316L	PIPE 352–169	MANIFOLD	CROSSOVER
352–160–250	ø273x3,5	AISI 316L	PIPE 352–108	MANIFOLD	CROSSOVER
352–161–250	ø273x3,5	AISI 316L	PIPE 352–109	MANIFOLD	CROSSOVER
352–162–250	ø273x3,5	AISI 316L	PIPE 352–110	MANIFOLD	CROSSOVER
352–163–250	ø273x3,5	AISI 316L	PIPE 352–111	MANIFOLD	CROSSOVER
352–164–250	ø273x3,5	AISI 316L	PIPE 352–112	MANIFOLD	CROSSOVER
352–165–250	ø273x3,5	AISI 316L	PIPE 352–113	MANIFOLD	CROSSOVER
352–166–150	ø168,2x3	AISI 316L	PIPE 352–114	MANIFOLD	CROSSOVER
352–167–150	ø168,2x3	AISI 316L	PIPE 352–116	MANIFOLD	CROSSOVER
352–168–150	ø168,2x3	AISI 316L	PIPE 352–115	MANIFOLD	CROSSOVER
352–169–300	ø323,8x3,5	AISI 316L	CROSSOVERS	COLLECT. MANIF.	
***					
352–170–25	ø33,4x2	AISI 316L	CARGO TK 1 PS	PIPE 352–187	STRIPPING LINE
352–171–25	ø33,4x2	AISI 316L	CARGO TK 1 SB	PIPE 352–187	STRIPPING LINE
352–172–25	ø33,4x2	AISI 316L	CARGO TK 2 PS	PIPE 352–188	STRIPPING LINE
352–173–25	ø33,4x2	AISI 316L	CARGO TK 2 SB	PIPE 352–188	STRIPPING LINE
352–174–25	ø33,4x2	AISI 316L	CARGO TK 3 PS	PIPE 352–189	STRIPPING LINE
352–175–25	ø33,4x2	AISI 316L	CARGO TK 3 SB	PIPE 352–189	STRIPPING LINE
352–176–25	ø33,4x2	AISI 316L	CARGO TK 4 PS	PIPE 352–190	STRIPPING LINE
352–177–25	ø33,4x2	AISI 316L	CARGO TK 4 SB	PIPE 352–190	STRIPPING LINE
352–178–25	ø33,4x2	AISI 316L	CARGO TK 5 PS	PIPE 352–191	STRIPPING LINE
352–179–25	ø33,4x2	AISI 316L	CARGO TK 5 SB	PIPE 352–191	STRIPPING LINE
352–180–25	ø33,4x2	AISI 316L	CARGO TK 6 PS	PIPE 352–192	STRIPPING LINE
352–181–25	ø33,4x2	AISI 316L	CARGO TK 6 SB	PIPE 352–192	STRIPPING LINE
352–182–25	ø33,4x2	AISI 316L	CARGO TK 7 PS	PIPE 352–193	STRIPPING LINE
352–183–25	ø33,4x2	AISI 316L	CARGO TK 7 SB	PIPE 352–193	STRIPPING LINE
352–184–25	ø33,4x2	AISI 316L	SLOP TANK, PS	PIPE 352–194	STRIPPING LINE
352–185–25	ø33,4x2	AISI 316L	SLOP TANK, C	PIPE 352–194	STRIPPING LINE
352–186–25	ø33,4x2	AISI 316L	SLOP TANK, SB	PIPE 352–194	STRIPPING LINE
***					
352–200–40	ø48,3x2	AISI 316L	DRIP TRAY SB	PIPE 352–202	
352–201–40	ø48,3x2	AISI 316L	DRIP TRAY PS	PIPE 352–202	
352–202–40	ø48,3x2	AISI 316L	PIPE 352–200/201	PIPE 352–203/204/207	
352–203–40	ø48,3x2	AISI 316L	PIPE 352–202	SLOP TANK PS	
352–204–40	ø48,3x2	AISI 316L	PIPE 352–202	SLOP TANK SB	
352–207–40	ø48,3x2	AISI 316L	PIPE 352–202	SLOP TANK C	
***					
352–210–100	ø114,3x3	AISI 316L	SLOP TK.	TANKWASH SYST.	(TANKWASH)
352–211–100	ø114,3x3	AISI 316L	SLOP TK	PIPE 352–215	(OVERBOARD)
352–212–100	ø114,3x3	AISI 316L	VALVE 352–41	SLOP TK.	
352–213–100	ø114,3x3	AISI 316L	SLOP TK.	VALVE 352–41	(OVERBOARD)
352–214–100	ø114,3x6,3	AISI 316L	VALVE 352–41	OVERBOARD	(OVERBOARD)
352–215–100	ø114,3x6,3	AISI 316L	PIPE 352–211	OVERBOARD	(OVERBOARD)

COMPONENT LIST

ITEM NO	NO OFF	COMPONENT	TYPE	CAPACITY
352–002	3	SLOP PUMP	FRAMO type SD100	120m3/h – 110mlc
352–001	14	CARGO PUMP	FRAMO type SD150	330m3/h – 110mlc

VALVE LIST

VALVE NUMB.	VALVE TYPE	DN	PN	MATERIAL (NOTES) CASING	TRIM	REMARKS
352–01	BALL VALVE	40	16	AISI 316L	AISI 316L	4 PIECES
352–03	BALL VALVE	40	16	AISI 316L	AISI 316L	3 PIECES
352–04	SPECTACLE FLANGE	40	16	AISI 316L	AISI 316L	3 PIECES
352–05	BUTTERFLY VALVE	250	16	AISI 316L	AISI 316L	28 PIECES
352–06	DBL BL. FLANGE	250	16	AISI 316L	AISI 316L	28 PIECES
352–07	BUTTERFLY VALVE	400	16	AISI 316L	AISI 316L	2 PIECES
352–08	BUTTERFLY VALVE	400	16	AISI 316L	AISI 316L	4 PIECES
352–11	BUTTERFLY VALVE	250	16	AISI 316L	AISI 316L	28 PIECES
352–15	BALL VALVE w/quick conn. & cap	25	16	AISI 316L	AISI 316L	3 PIECES
352–16	BUTTERFLY VALVE	100	16	AISI 316L	AISI 316L	3 PIECES
352–17	BUTTERFLY VALVE	100	16	AISI 316L	AISI 316L	3 PIECES
352–18	BALL VALVE	25	16	AISI 316L	AISI 316L	3 PIECES
352–19	BALL VALVE W/CAP	25	16	AISI 316L	AISI 316L	3 PIECES
352–20	BALL VALVE	25	16	AISI 316L	AISI 316L	3 PIECES
352–21	BALL VALVE	25	16	AISI 316L	AISI 316L	3 PIECES
352–22	BUTTERFLY VALVE	150	16	AISI 316L	AISI 316L	6 PIECES
352–23	DBL BL. FLANGE	150	16	AISI 316L	AISI 316L	6 PIECES
352–24	BUTTERFLY VALVE	150	16	AISI 316L	AISI 316L	6 PIECES
352–25	BALL VALVE	25	16	AISI 316L	AISI 316L	6 PIECES
352–26	BALL VALVE W/CAP	40	16	AISI 316L	AISI 316L	38 PIECES
352–27	BALL VALVE	25	16	AISI 316L	AISI 316L	38 PIECES
352–28	BALL VALVE W/CAP	25	16	AISI 316L	AISI 316L	38 PIECES
352–29	BALL VALVE w/quick conn.	25	16	AISI 316L	AISI 316L	38 PIECES
352–30	BUTTERFLY VALVE	200	16	AISI 316L	AISI 316L	14 PIECES
352–31	BALL VALVE	50	16	AISI 316L	AISI 316L	17 PIECES
352–32	BUTTERFLY VALVE	200	16	AISI 316L	AISI 316L	14 PIECES
352–33	BALL VALVE	25	16	AISI 316L	AISI 316L	14 PIECES
352–34	BALL VALVE	25	16	AISI 316L	AISI 316L	14 PIECES
352–35	BUTTERFLY VALVE	200	16	AISI 316L	AISI 316L	14 PIECES
352–36	BUTTERFLY VALVE	100	16	AISI 316L	AISI 316L	1 PIECE
352–37	BALL VALVE	25	16	AISI 316L	AISI 316L	14 PIECES
352–38	BALL VALVE w/quick conn.	25	16	AISI 316L	AISI 316L	14 PIECES
352–39	BALL VALVE W/CAP	25	16	AISI 316L	AISI 316L	40 PIECES
352–40	NON RETURN VALVE	100	16	AISI 316L	AISI 316L	
352–41	BUTTERFLY VALVE	100	16	AISI 316L	AISI 316L	2 PIECES
352–42	BUTTERFLY VALVE	100	16	AISI 316L	AISI 316L	3 PIECES

DRAWING SYMBOLS

SYMB.	MEANING	SYMB.	MEANING
	SHUT OFF VALVE		SLOPE
	SHUT OFF VALVE		CENTRIFUGAL PUMP
	NON RETURN VALVE	(XX)	INSTRUMENT MOUNTED LOCAL
	SHUT OFF VALVE		ACTUATOR OPEN – CLOSED
	VALVE		FLEXIBLE CONNECTION
	BUTTERFLY VALVE		DOUBLE BLIND FLANGE
	REMOTE CONTR. VALVE	(PT)	PRESSURE TRANS–MITTER
	QUICK CON. COUPLING	(LT)	LEVEL TRANS–MITTER
	BLIND FLANGE	(TT)	TEMPERATURE TRANS–MITTER
	HEAT EXHANGER	(FT)	FLOW TRANSMITTER
	CONTINUOS ACTUATOR 0–100%	(PI)	PRESSURE INDICATOR

REMARKS

All materials to be according to GL rules Ch.7, Sec.6
All flexible hoses with fittings to be according to GL rules Ch.7, Sec. 5,7
The UnderWater Discharge to comply with requirements in GL rules Ch.7, Sec. 2,3

The piping arrangement to be designed for a pressure of min. PN 16 bar. Max. SG=1.54 t/cu.m.

Closing characteristic for valves/actuators to be carried out by supplier.
All remote operated valves to be capable of being manually operated.

Lines on deck to be arranged with expansion bends to compensate for thermal expansion in piping.
Cargo droplines to be arranged with gradient from valve to tank outlet, to avoid cargo residue deposits in pipe.

Sufficient ball–type drain–valves with quick couplings to ensure complete drainage of cargo lines.
Cargo pumps to be arranged to deliver direct to tank wash machines (see detail of pump).
Piping system for cargo shall be connected by butt welding with a minimum of flanges.

REMARKS

CLASS :

GL +100 A5 E3 NAV–OC

NOTE !

This drawing is shematic only.
For fitting, working drawings in scale is to be used.

NOTE! All double blind flanges to be of seutelven type or similar

CARGO PUMPs DISCHARGE RATE: APPROX. 1980m3/h
DN 400 v= 4,4 m/s

DIMENSION CARGO PIPES FROM TWO PUMPS
DN 250 v= 3,3 m/s

DIMENSION CARGO PIPES FROM ONE PUMPS
DN 200 v= 2,6 m/s

DRAWING REFERENCE:

15631 – NITROGEN SYSTEM
15632 – CARGO TK.GAS BREATHING and VAPOUR RETURN SYSTEM
15638 – CARGO TANK WASH SYSTEM
15639 – HYDROPHORE SYSTEM

REV.	TEXT	DATE	SIGN.
C	Corrected acc. to comments from JY	19.05.99	SOL
B	Div. modifications, approved by owner and class	16.10.98	KE
A	Corrected accord. to specification & comm. from yard	25.05.98	KE

SUPPLIER:	SHIPYARD:	OWNER:	AUTHORITY:	CLASS–SOC.:	APPROVED BY:
–	–	05.06.98	12.10.98	–	03.09.98

DATE:

SK 40/83–1
TANKER FOR OIL PRODUCTS – 13500 DWT

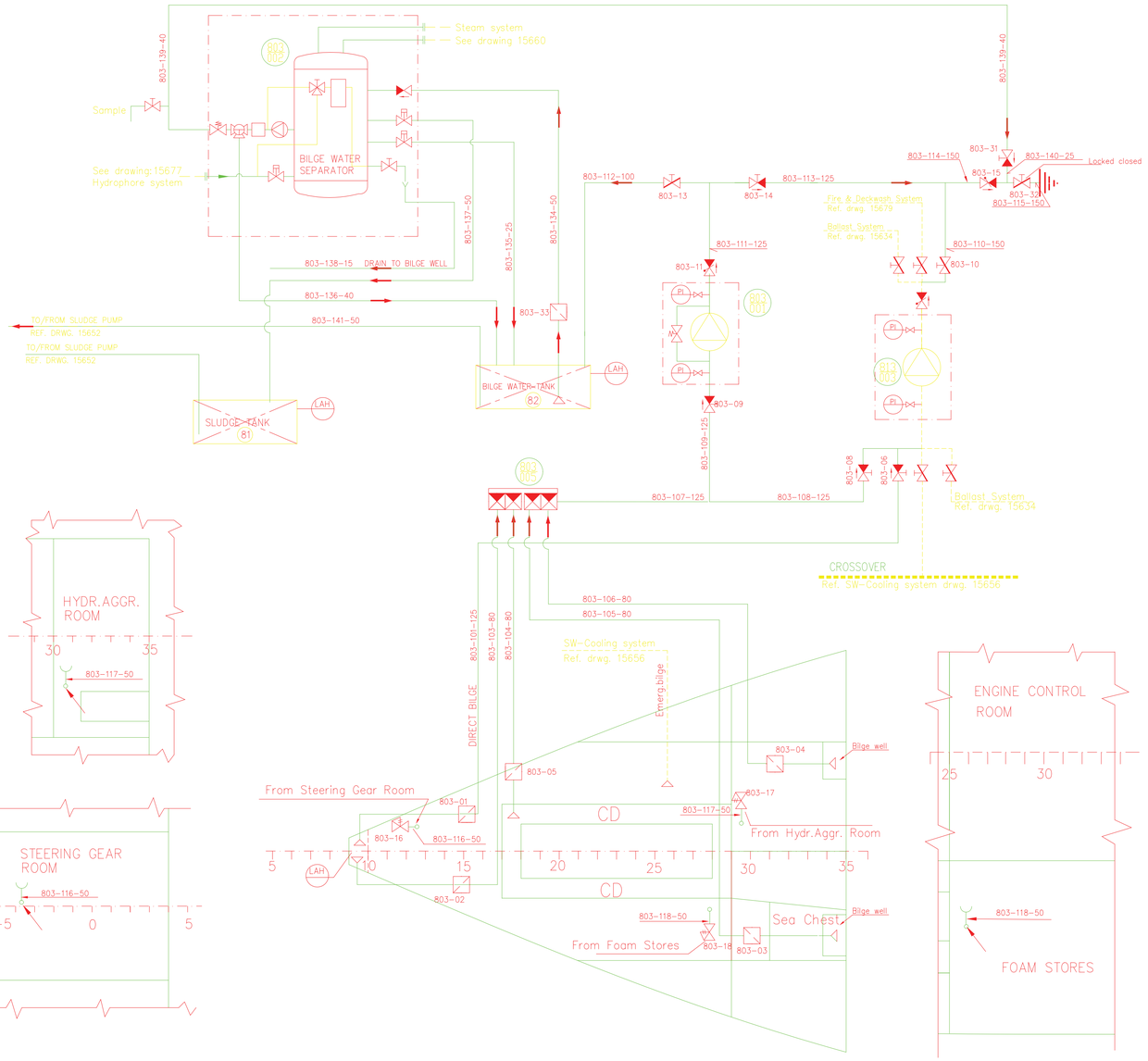
JIANGYANG SHIPYARD
YARD NO. JY97–125/126

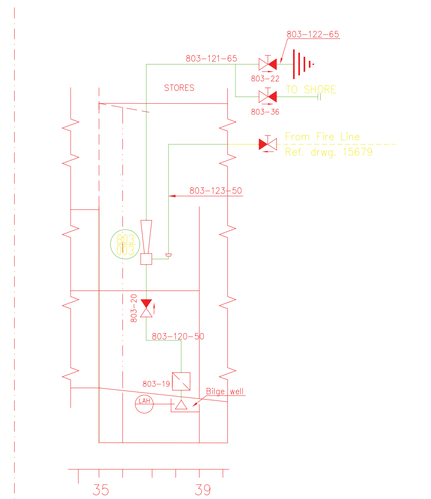
TITLE: CARGO & STRIPPING SYSTEM

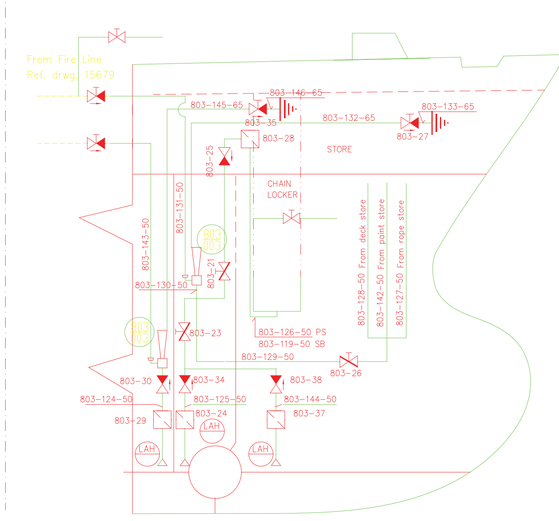
SCALE: —
DATE: 22.01.98
CONSTR.: AJ
CONTR.: —

SKIPSKONSULENT AS
SHIP DESIGN CONSULTANTS
Damsgårdsgt.167 – 5031 Laksevåg, Bergen – Norway
Phone: +47 55 34 60 00 Fax +47 55 34 36 55

CAD FILE/DRAWING NO.: 012727
REVISION: C
SFI NO.: 352
SK O.NO.: 9708601
PLOT DATE: 19.05.99







BILGE VALVE LIST

VALVE NUMB.	VALVE TYPE	DN	PN	MATERIAL (NOTES) CASING	MATERIAL (NOTES) TRIM	REMARKS
803-01	MUD BOX	125	1	Calr	StSt	Angular
803-02	MUD BOX	80	1	Calr	StSt	Angular
803-03	MUD BOX	80	1	Calr	StSt	Angular
803-04	MUD BOX	80	1	Calr	StSt	Angular
803-05	MUD BOX	80	1	Calr	StSt	Angular
803-06	NR SHUT OFF VALVE	100	10	Calr	Bronze	
803-08	NR. SHUT OFF VALVE	125	10	Calr	Bronze	
803-09	NR. SHUT OFF VALVE	125	10	Calr	Bronze	
803-10	BUTTERFLY VALVE	150	10	Calr	Bronze	
803-11	SWING CHECK VALVE	125	10	Calr	Bronze	
803-13	BUTTERFLY VALVE	100	16	Calr	Bronze	
803-14	NR SHUT OFF VALVE	125	16	Calr	Bronze	
803-15	SWING CHECK VALVE	150	16	Calr	Bronze	
803-16	LEVER OPERATING VALVE	50	2.5	Calr	Bronze	SELF CLOSING
803-17	LEVER OPERATING VALVE	50	2.5	Calr	Bronze	SELF CLOSING
803-18	LEVER OPERATING VALVE	50	2.5	Calr	Bronze	SELF CLOSING
803-19	MUD BOX	50	1	Calr	StSt	Angular
803-20	NR VALVE	50	16	Calr	Bronze	
803-21	BUTTERFLY VALVE	50	16	Calr	Bronze	
803-22	NR SHUT OFF VALVE	65	25	NoCalr	Bronze	GL-cert.
803-23	BUTTERFLY VALVE	50	16	Calr	Bronze	
803-24	MUD BOX	50	1	Calr	StSt	Angular
803-25	NR VALVE	50	10	Calr	Bronze	
803-26	BUTTERFLY VALVE	50	16	Calr	Bronze	
803-27	NR SHUT OFF VALVE	65	25	NoCalr	Bronze	GL-cert.
803-28	MUD BOX	50	1	Calr	StSt	Angular
803-29	MUD BOX	50	1	Calr	StSt	Angular
803-30	NR VALVE	50	16	Calr	Bronze	
803-31	NR SHUT OFF VALVE	40	16	Calr	Bronze	
803-32	BUTTERFLY VALVE	150	16	NoCalr	Bronze	GL-cert.
803-33	FILTER	50	2	Calr	StSt	
803-34	NR VALVE	50	10	Calr	Bronze	
803-35	NR SHUT OFF VALVE	65	25	NoCalr	Bronze	GL-cert.
803-36	NR SHUT OFF VALVE	50	10	NoCalr	Bronze	GL-cert.
803-37	NR VALVE	50	10	Calr	Bronze	
803-38	MUD BOX	50	10	Calr	StSt	Angular

BILGE PIPE LIST

PIPE NUMB.	DIM.	MAT.	FROM	TO	REMARKS
803-101-125	?40x4,5	GlSt.	BILGE WELL AFT	GS PUMP	DIRECT BILGE
803-103-80	?9x4,5	GlSt.	BILGE WELL AFT	BILGE CHEST	
803-104-80	?9x4,5	GlSt.	BILGE WELL C/D	BILGE CHEST	
803-105-80	?9x4,5	GlSt.	BILGE WELL FWD SB	BILGE CHEST	
803-106-80	?9x4,5	GlSt.	BILGE WELL FWD PS	BILGE CHEST	
803-107-125	?40x4,5	GlSt.	BILGE CHEST	PIPE 803-108/109	
803-108-125	?40x4,5	GlSt.	PIPE 803-107	GS PUMP	
803-109-125	?40x4,5	GlSt.	PIPE 803-107	BILGE PUMP	
803-110-150	?68x5	GlSt.	GS PUMP	PIPE 803-114	
803-111-125	?40x4,5	GlSt.	DAILY BILGE PUMP	PIPE 803-112	
803-112-100	?114x4,5	GlSt.	PIPE 803-111/113	BILGE WATER TK.	
803-113-125	?40x4,5	GlSt.	PIPE 803-111	PIPE 803-114	
803-114-150	?68x5	GlSt.	PIPE 803-113	PIPE 803-115	
803-115-150	?68x10	GlSt.	PIPE 803-114	OVERBOARD	
803-116-50	?0x4,5	GlSt.	STEERING GEAR RM.	BILGE WELL AFT	
803-117-50	?0x4,5	GlSt.	HYDR.AGGR.ROOM.	BILGE WELL FWD PS	
803-118-50	?0x4,5	GlSt.	FOAM STORES	BILGE WELL FWD SB	
803-119-50	?0x4,5	GlSt.	CHAIN LOCKER SB	BILGE CHEST	
803-120-50	?0x4,5	GlSt.	PUMP ROOM, SUCTION	BILGE EJECTOR	
803-121-65	?6x4,5	GlSt.	BILGE EJECTOR	PIPE 803-122	
803-122-65	?6x7,5	GlSt.	PIPE 803-121	OVERBOARD	
803-123-50	?0x4,5	GlSt.	PIPE 813-XXX	BILGE EJECTOR	
803-124-50	?0x4,5	GlSt.	COFFERD. SUCTION	BILGE EJECTOR	
803-125-50	?0x4,5	GlSt.	BT.ROOM, SUCTION	BILGE CHEST	
803-126-50	?0x4,5	GlSt.	CHAIN LOCKER PS	BILGE CHEST	
803-127-50	?0x4,5	GlSt.	ROPE STORE	PIPE 803-129	
803-128-50	?0x4,5	GlSt.	DECK STORE	PIPE 803-129	
803-129-50	?0x4,5	GlSt.	PIPE 803-127/128	BILGE CHEST	
803-130-50	?0x4,5	GlSt.	BILGE SUCTION	BILGE EJECTOR	
803-131-50	?0x4,5	GlSt.	PIPE 813-XXX	BILGE EJECTOR	
803-132-65	?6x4,5	GlSt.	BILGE EJECTOR	PIPE 803-133	
803-133-65	?6x6,5	GlSt.	PIPE 803-132	OVERBOARD	
803-134-50	?0x4,5	GlSt.	BILGE WATER TK.	OILY WATER SEP.	
803-135-25	?4x4	GlSt.	BILGE WATER SEP.	BILGE WATER TK.	
803-136-40	?8x4,5	GlSt.	BILGE WATER SEP.	BILGE WATER TK.	
803-137-50	?0x4,5	GlSt.	BILGE WATER SEP.	SLUDGE TANK	
803-138-15	?2x2,5	GlSt.	BILGE WATER SEP.	BILGE WELL	
803-139-40	?8x4,5	GlSt.	BILGE WATER SEP.	PIPE 803-140	
803-140-25	?4x4,5	GlSt.	PIPE 803-139	PIPE 803-115	
803-141-50	?0x4,5	GlSt.	BILGE WATER SEP.	SLUDGE PUMP	
803-142-50	?0x4,5	GlSt.	STORES	PIPE 803-129	
803-143-50	?0x4,5	GlSt.	PIPE 813-XXX	BILGE EJECTOR	
803-144-50	?0x4,5	GlSt.	SPEED LOG TANK	BILGE CHEST	
803-145-65	?6x4,5	GlSt.	BILGE EJECTOR	PIPE 803-146	
803-133-65	?6x6,5	GlSt.	PIPE 803-145	OVERBOARD	

DRAWING SYMBOLS

SYMB.	MEANING	SYMB.	MEANING
	VALVE		REMOTE-OPERATED
	THREE WAY VALVE		MUD BOX
	SHUT OFF VALVE		QUICK RELEASING JOINT
	NON-RETURN VALVE		FILTER
	NON-RETURN SHUT OFF VALVE		SWAN NECK
	SWING CHECK VALVE		SUCTION VALVE GROUP
	SAFETY VALVE		INSTR. MOUNTED LOCAL
	SELF CLOSING VALVE		INSTRUMENT MOUNTED IN CENTRAL
	QUICK-OPENING VALVE		SOUNDING/FILLING PIPE WITH COVER (CAP)
	QUICK-CLOSING VALVE		BLIND FLANGE
	SELF-REGULATING VALVE		PUMP
	BUTTERFLY VALVE		EJECTOR
	GATE VALVE		OVERBOARD
	PLUG/BALL VALVE		SUCTION BELL
	DIAPHRAGM VALVE		DRAIN

REMARKS

NOTE !

Diameter of branch bilge pipes in eng.room

$d_1 = 2{,}15 \sqrt{18{,}2(20{,}8+11{,}2)^1} + 25 = 76{,}886\text{mm} \Rightarrow$ Dn 80

Main bilge pipe

$d = 3{,}0 \sqrt{18{,}2(20{,}8+11{,}2)} + 35 = 107{,}4\text{mm} \Rightarrow$ Dn 125

Direct bilge as Main bilge

140x4,5 mm (Dn 125)

Branch pipes in pump room/thruster room

$d = 2{,}15 \sqrt{3{,}4(20{,}8+11{,}2)^1} + 25 = 47{,}426\text{mm} \Rightarrow$ Dn 50

Required capacity for each bilge pump.

$Q = 5{,}75 \times 10^{-3} \times (107{,}4)^2 = 67\ m^3/h$

REMARKS

CLASS :

GL + 100 A5 E3 NAV – OC

NOTE !

This drawing is shematic only.
For fitting, working drawings in scale is to be used.

Bilge wells shall have a capacity of minimum 0,2 m^3
– in accordance with GL rules Pt.1, Ch.1, Sec.8, B.5.3
Direct bilge pipe suctions to be located in bilge wells.

Steering gear room, hydr.power pack room and foam room to be provided with drain pipes to engine room, fitted with self-closing valves.

The bilge separator/filter to be of approved type and fitted with oil discharge monitoring and control system or 15 ppm alarm system
A sampling device to be arranged in the discharge line

Piping system	Test pressure
Bilge	1,5 x max. working pressure

Piping system	Class I		Class II		Class III	
	P bar	t °C	P bar	t °C	P bar	t °C
Bilge and ballast	>40	or>300	≤40	and≤300	≤16	and≤200

For Class II and III piping both specified conditions are to be met, for Class I piping one condition only is sufficient.

Material certificates:

Component	Class of piping system	Nominal Diameter	Type of certificate EN 10204 (DIN 50 049) 3.1C (GL)	3.1B	2.2
Pipes / Valves	I, II	>32	X		
	III	>32			X
	I, II	≤32		X	
	III	≤32			X

ITEM NO	NO OFF	COMPONENT	TYPE	CAPACITY/REMARKS
813-003	1	GENERAL SERVICE PUMP	Vert.,centrifugal	Ab. 150 m3/h – 10 bar
803-005	1	BILGE SUCTION VALVE GROUP		Dn 80/125
803-003	3	BILGE EJECTOR	Galar 1 1/2–2–2 1/2	15 m3/h
803-002	1	BILGE WATER SEPARATOR	RWO	5 m3/h
803-001	1	BILGE PUMP	Positive Displasement	70 m3/h – 2 bar

COMPONENT LIST

REV.	TEXT	DATE	SIGN.
C	Corrected according to comments from yard and owner	02.12.98	KE
B	Approved by GL	14.08.98	KE
A	Added bilge wells, ejector in cofferdam forw.	08.05.98	MHB

	SUPPLIER:	SHIPYARD:	OWNER:	AUTHORITY:	CLASS-SOC.:	APPROVED BY:	DATE:
I		05.06.98	–				20.07.98

SK 40/83-1
TANKER FOR OIL PRODUCTS – 13500 DWT

JIANGYANG SHIPYARD
YARD NO. JY97-125/126

TITLE: BILGE SYSTEM

SCALE: –
DATE: 05.02.98
CONSTR.: MHB
CONTR.:

SKIPSKONSULENT AS
SHIP DESIGN CONSULTANTS
Johan Berentsensv.63 – 5031 Laksev/, Bergen – Norway
Phone: +47 55 94 90 00 Fax +47 55 94 90 01

CAD FILE/DRAWING NO.: 15663
REVISION: C

SFI NO.: 803
SK O.NO.: 9708601
PLOT DATE: 12.05.98

The WOODWARD GROUP OF COMPANIES

Coastal Shipping Limited
A Division of Woodward Group of Companies

Coastal Shipping Ltd.
The Woodward Group of Companies
114 Main Street, P.O. Box 910
Lewisporte, NL A0G 3A0 CANADA

Shipboard Marine Pollution Emergency Plan (SMPEP)

M/T "QIKIQTAALUK W."

APPROVED
MARPOL, Annex I, Reg.37, Annex II, Reg. 17
SEE LETTER Date: 2018-11-21

Prepared By: Poseidon Marine Consultants Ltd.
Document No.:18-057-004
Revision: 0
Revision Date: 14 November 2018

CONFIRMATION OF ACKNOWLEDGE

Shipboard Marine Pollution Emergency Plan

Date Entered	Rank	Name	Signature

Document History

Revision	Date	Description	By
0	14 November 2018	Updated per internal review and issued for approval	MDP

Record of Changes

Amendment Number	Section and Page Affected	Date Entered	Remarks	By

Table of Contents

1.0 Ship Particulars

SHIP'S IDENTIFICATION

DNV GL REGISTER NUMBER	36929
NAME OF SHIP	QIKIQTAALUK W.
CALL SIGN / SIGNAL LETTERS	CIZ7896
IMO NUMBER	9421221
TYPE OF SHIP	CHEMICAL / OIL TANKER
PORT OF REGISTRY	ST. JOHN'S
GROSS TONNAGE	13097
FLAG	CANADA
OFFICIAL NUMBER	841795

SHIP'S DIMENSIONS

LOA	149.95 M
LBP	142.80 M
BREADTH MOULDED	23.20 M
DEPTH	13.05 M
DESIGN DRAFT	9.86 M

2.0 Introduction

1. This Shipboard Marine Pollution Emergency Plan (SMPEP, hereafter referred to as the "Plan") is written in accordance with the requirements of regulation 37 of Annex I and regulation 17 of Annex II of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 there to and amended by Res. MEPC. 78 (43). As recommended by IMO, this plan is a **combination of a Shipboard Oil Pollution Prevention Plan (SOPEP) and a Shipboard Marine Pollution Emergency Plan (SMPEP) for noxious liquid substances (NLS).**

2. The purpose of the Plan is to provide guidance to the Master, officers, and operating personnel onboard the Ship, with respect to the steps to be taken when an oil or marine pollution incident has or is likely to occur. The appendices contain communication data of all contacts referenced to in the Plan, as well as other reference material.

3. The Plan contains all information and operational instructions required by the "Guidelines for the development of the Shipboard Marine Pollution Emergency Plan for Oil and/or Noxious Liquid Substances" published under Res.MEPC.54(32) and in compliance with IMO Res.MEPC.85(44) as amended by IMO Res.MEPC.137(53).

4. This Plan is to be reviewed and approved by Class (DNVGL) on behalf of Transport Canada – Marine Safety (TCMS, hereafter referred to as "the Board") and, except as provided below, no alteration or revision shall be made to any part of it without prior approval of the Board.

5. Changes to the appendices will not be required to be approved by the Board. The appendices should be maintained, and kept up to date by the Owners, Operators, and Managers.

6. For the purposes of this Plan, the Master is taken to be that person who is a member of the vessel's operational personnel and to which is given senior responsibility for the vessel and any circumstances pertaining thereto.

7. Before entering a port of call, the Master should be aware of local emergency response procedures and organizations, and have up to date contact information readily available.

3.0 Reason for Shipboard Marine Pollution Emergency Plan

1. This Plan is intended to assist the ship's personnel in dealing with an unexpected discharge of oil or noxious liquid substances. Its primary purpose is to set in motion the necessary actions to stop or minimize the discharge of those substances and to mitigate their effects. Effective planning ensures that the necessary actions are taken in a structured, logical and timely manner.

2. The primary objectives of this Plan are to:
    - prevent pollution
    - stop or minimize outflow when a damage to the ship or its requirement occurs
    - stop or minimize outflow when an operational spill occurs in excess of the quantity or instantaneous rate permitted under the present Convention.

3. Further, the purpose of the Plan is to provide the Master, officers and certain crew members with a practical guide to the prevention of marine spills and in carrying out the responsibilities associated with regulation 37 of Annex I and Reg. 17 of Annex II of MARPOL 73 / 78.
    - procedures to report an oil / marine incident.
    - Coastal States (Focal Points) and Port Contact Lists to be contacted in the event of any pollution incident.
    - co-ordination with national and local Authorities in combating a pollution.

4. In summary, the Plan will serve to promote a practiced response when the ship's personnel are faced with a spill.

5. Although the Plan is designed as a ship-specific tool it must be also be considered as an additional instrument and is a link to shore-based plans. With this, the Plans allow an efficient co-ordination between the ship and shore-based Authorities / Organizations in mitigating the effects of any pollution incident.

6. The Plan includes a summary flowchart (See page 4-5) to guide the Master through reporting and acting procedures required during an oil pollution incident response.

7. The Plan is likely to be a document used on board by the Master and the officers of the ship and must therefore be available in the working language used by them.

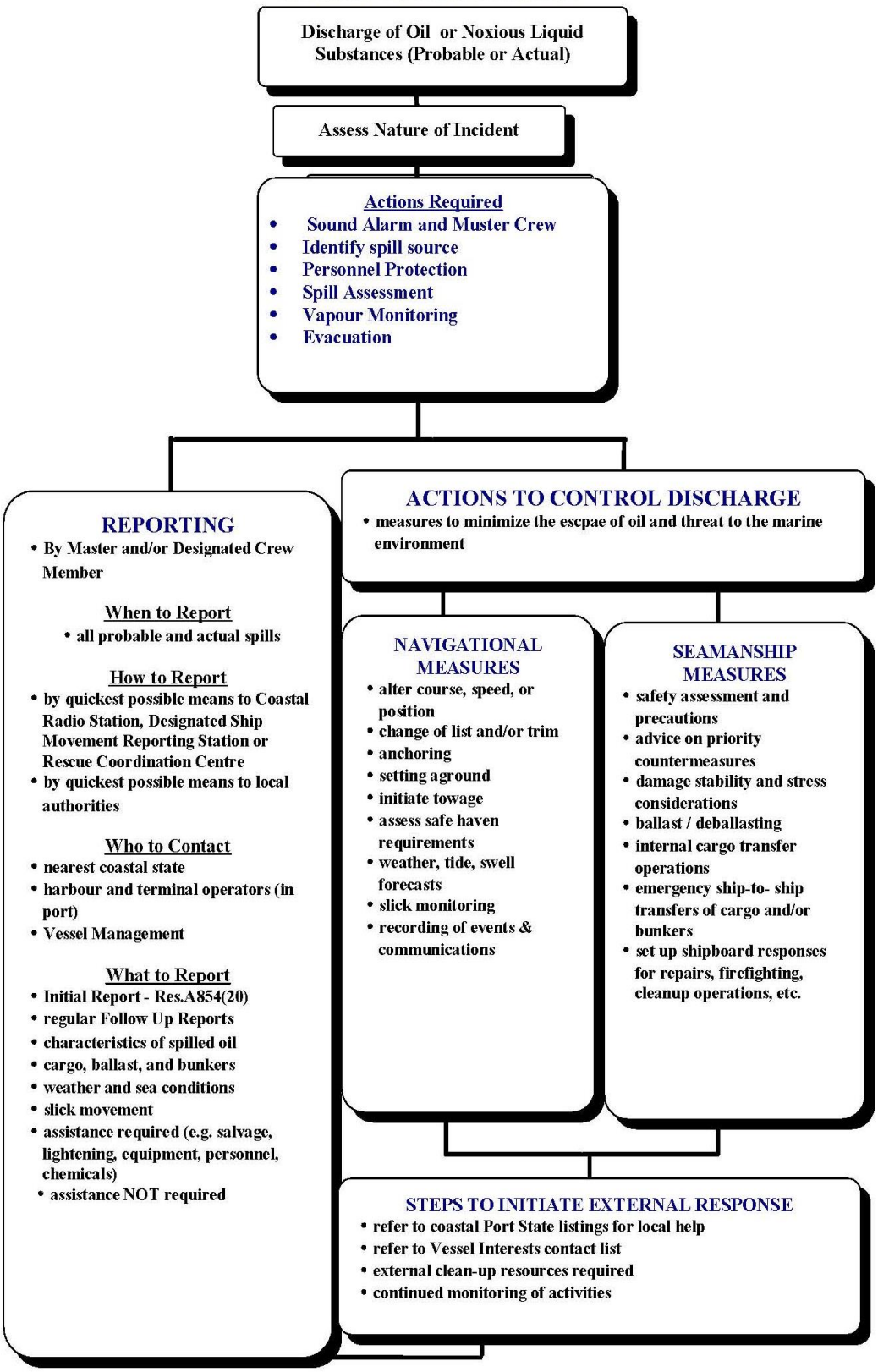
8. The Plan is not applicable if the vessel operates in U.S waters within the EEZ (exclusive economic zone). For U.S. waters, the Vessel Response Plan (VRP) is to be activated.

9. All Procedures in this Plan are in line with Coastal emergency procedures which can be found in the file *"Emergency Preparedness"* as part of the Safety Management System (SMS). They should be referred to in any case for obtaining additional information.

3.1 Shipboard Marine Pollution Emergency Plan – Summary Flow Chart

This flow diagram is an outline of the course of action that shipboard personnel should follow in responding to a pollution emergency based on the guidelines published by the Organization. This diagram is not exhaustive and should not be used as a sole reference in response. Consideration should be given inclusion of specific reference to the Plan. The steps are designed to assist ship personnel in action to stop or minimize the discharge of oil or NLS and mitigate its effects. These steps fall into two main categories - reporting and actions.

SUMMARY FLOWCHART



4.0 Reporting Requirements

4.1 General

The reporting requirements of this section comply with those of regulation 37 Annex I and 17 of Annex II of MARPOL 73 / 78. When the ship is involved in an incident which results in the discharge of oil or NLS, the Master is obliged under the terms of MARPOL 73 / 78 to report details of the incident, without delay, to the nearest Coastal state by means of the fastest telecommunication channels available.

The intent of these requirements are to ensure that Coastal States are informed, without delay, of any incident giving rise to pollution, or threat of pollution of the marine environment, as well as of the assistance and salvage measures, so that appropriate action may be taken.

Without interfering with ship owner's liability, some coastal states consider that it is their responsibility to define techniques and means to be taken against a marine pollution incident and approve such operations which might cause further pollution (i.e. lightening). States are in general entitled to do so under the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 and the Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil, 1973.

4.2 Reporting Procedures

For easy reference the reporting requirements in the context of this plan are divided in to the following information blocks:

4.2.1 When to Report

Taking the summary flowchart, as shown on page 5, as a basic guide into consideration reports are necessary in the following cases:

4.2.1.1 Actual Discharge

The Master is obligated to report to the nearest Coastal State whenever there is a discharge of oil:

- resulting from damage to the ship
- resulting from damage to the ship's equipment
- for the purpose of securing the safety of a ship or saving life at sea
- during the operation of the Ship in excess of the quantity or instantaneous rate permitted under the present Convention.

4.2.1.2 Probable Discharge

The Master is obligated to report even when no actual discharge of oil or NLS has occurred but there is a probability that one could occur.

However, as it is not practicable to lay down precise definitions of all types of situations involving probable discharge of oil / NLS which would warrant an obligation to report, the Master is obligated to judge by himself whether there is such a probability and whether a report should be made.

Therefore, it is recommended that, at least, the following events are carefully considered by the Master; taking into account the nature of the damage, failure or breakdown of the ship, machinery, or equipment, as well as the ship's location, proximity to land, weather, state of the sea and traffic density - as cases in which a probable discharge is more likely:

- damage, failure or breakdown which affects the safety of the ship (e.g. collision, fire, grounding, explosion, structural failure, flooding, cargo, cargo shifting, list, etc.); or

- failure or breakdown of machinery or equipment which results in impairment of the safety of navigation (e.g. failure or breakdown of steering gear, propulsion, electrical generating system, essential shipborne navigation aids etc.)

If in doubt, the Master should always make a report in cases aforementioned.

In all cases the Authorities should be kept informed by the Master as how the situation progress and be advised when all threats of pollution have passed.

4.2.2 Information Required

As required in article 8 and Protocol I of MARPOL 73 / 78 Convention the Master or other persons having charge of the ship should report the particulars of any pollution incident. In this context the International Marine Organization (IMO), in 1997, adopted Resolution A.851(20) "General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents involving Dangerous Goods, Harmful Substances and / or Marine Pollutants" as amended with MEPC.138(53).

The intent of the Resolutions aforementioned is to enable Coastal States and other interested parties to be informed, without delay, of any incident giving rise to pollution, or threat of pollution of the marine environment, as well as of assistance and salvageable measures, so that appropriate action may be taken.

Nothing in this chapter relieves the Master in using sound judgment to make sure that any incident or probable discharge is reported as quickly as possible in the prevailing situation. When transmitting initial reports to the authorities of the nearest Coastal State, the Master or other persons dealing with such a transmission should take note of IMO Resolution A.851(20) as amended with MEPC.138(53).

Especially the format of the initial report, as well as supplementary follow up reports should conform to the guidance contained in Resolution A.851(20) as amended with MEPC.138(53). All reporting whether initial or follow up, should follow IMO's reporting format as outlined below and should contain the following information:

4.2.3 Format and Information Required for Official Report

AA VESSEL NAME, CALL SIGN, FLAG

BB DATE AND TIME (GMT) OF INCIDENT: 11/1935 meaning 11th of month at 7:35 pm.

CC SHIPS POSITION: 2230N 0600E meaning 22 deg. 30 min. N, 6 deg. E

DD SHIPS POSITION: By true bearing (3 digits) and distance from clearly identified landmark.

EE TRUE COURSE (3 digits)

FF SPEED IN KNOTS AND TENTHS OF A KNOT (3 DIGITS)

LL ROUTE INFORMATION – Intended Track

MM RADIO STATIONS AND FREQUENCIES GUARDED

NN TIME OF NEXT REPORT (same as in BB)

OO DRAFT (4 DIGITS - meters and centimeters)

PP TYPES AND QUANTITIES OF CARGO AND BUNKERS ON BOARD

QQ BRIEF DETAILS OF DAMAGE, LIMITATIONS ETC. (must include condition of vessel and ability to transfer cargo, ballast, or fuel)

RR BRIEF DETAILS OF ACTUAL POLLUTION (oil type, estimate of quantity discharged, whether discharge continues, cause, estimate of slick movement)

SS WEATHER AND SEA CONDITIONS (wind force/direction, relevant tidal and/or current information)

TT NAME, ADDRESS, FAX, TELEPHONE NUMBERS OF VESSEL OWNER OR REPRESENTATIVE.

UU DETAILS OF LENGTH, BREADTH, TONNAGE, AND TYPE OF VESSEL

WW TOTAL NUMBER OF PERSONS ON BOARD

XX MISC. DETAILS (This includes brief details of incident, actions taken, injuries sustained and assistance required. If no outside assistance is required, then this should be clearly stated.)

A sample format for initial notification can be found in Appendix A.

All follow up reports by the Master should include information relevant to the Coastal State Authorities to keep them informed as the incident develops.

Follow up reports should include information on any significant changes in the ship's condition, the rate of release and spread of the substances, weather and sea conditions and clean-up activities underway.

In this context details of bunker and cargo disposition, condition of any empty tanks and nature of any ballast carried are information needed by those involved in order to assess the threat posed by an actual or probable discharge from the damaged ship.

4.2.4 Whom to Contact

The Master is responsible for reporting any incident involving an actual or probable discharge of oil or NLS. Taking into consideration the summary flow chart on page 5, the Master of the ship involved in any kind of actual or probable discharge of oil, cases of which are defined under Section 4 (sub-paragraph 4.2.1.1 and 4.2.1.2) of this Plan should report details on the incident immediately.

Nothing in this chapter relieves the Master from using sound judgement to make sure that any incident is reported as quickly as possible in the prevailing situation.

4.2.4.1 Coastal State Contacts

In order to expedite response and minimize damage from an oil pollution incident at sea, it is essential that appropriate Coastal States be notified without delay. In this context the use of the list of agencies or officials of Administrations responsible for receiving and processing reports (so called “Focal Points”) as developed by the Organization (IMO) in conformity with article 8 of the Convention is recommended. This list can be found in Appendix B: Coastal State Contacts.

Ship’s that transit Canadian waters are required to have an arrangement with a certified response organization. The vessel, in accordance with the regulations, has onboard a **declaration** that the vessel’s management has, in accordance with 167 of the Canada Shipping Act 2001, entered into an arrangement with a response organization to which a certificate of designation has been issued pursuant to section 169 in respect of the quantity of oil that is carried both as fuel and cargo on board the vessel.

Three response organizations (RO) have been established in Eastern Canada. Although each of the ROs is independent Corporations they are linked together through various support and mutual aid agreements. Each of the ROs has a specific Geographic Area of Response (GAR) and a certified response capability of 10,000 tonnes. The following table provides a list of the ROs and a general description of their GARs.

Response Organization	Geographic Area of Response (GAR)
• Eastern Canada Response Corporation Ltd. (ECRC)	• In general the waters of the Canadian Great Lakes, Quebec and the Atlantic Coast excluding areas covered by Alert and PTMS
• Atlantic Emergency Response Team ("ALERT") Inc.	• In general the Port of Saint John, New Brunswick and surrounding waters.
• Point Tupper Marine Services Limited (PTMS)	• In general the Port of Port Hawkesbury, Nova Scotia and surrounding waters.

Prior to commencing a voyage, the Master or his onboard designate is responsible to ensure that the necessary declarations for the intended voyage are onboard and necessary contact information had been inserted in the manual in Appendices.

In the event of an incident, if conditions permit (i.e. time and prevailing conditions) the Master shall consult with vessel management contacts prior to activation of any response organization. The person or persons identified in the **declaration** shall be responsible for contacting and mobilizing the response organization.

4.2.4.2 Port Contacts

For the ship in port, notification of local agencies, combating teams or clean-up companies will speed response. If an oil spill occurs during the ship's stay in a port, whether operational or as a result of an accident, the Master should inform the appropriate agencies (e.g. National Response Center, Terminal/Port Authorities etc.) without undue delay.

If the ship is engaged in a regular service between port/terminals the Master or any other person aboard delegated by the Master should provide a list with the relevant port contact addresses for each port served regularly of the Authorities/persons/and terminals dealing with oil spill.

This list should be regularly updated.

The 'Port Contact List' is shown in Appendix C: Port Contacts

If a change in the ship's range of trade or a change in the addresses of persons/ Authorities of the ports/terminals served regularly takes place, the Master or any other person aboard delegated by the Master is required to issue a new list.

Where ship's service makes it not feasible to prepare such a list the Master should seek guidance concerning such local Port Contacts and local reporting procedures upon arrival in port.

Addresses obtained in this way should be documented aboard in the form that the Master considers most effective and should be attached to the Plan.

4.2.4.3 Ship Interest Contacts

For Ship Interest Contacts is it necessary to have information at the Master's disposal in case of accidental discharge of oil or NLS for informing the home office of the ship's owner or operator, the local agent of the company, the appropriate P&I Club and correspondents, clean-up contractors etc.

This information should be provided in the form of a so-called 'Ship Interest Contact List". The "Ship Interest Contact List" is shown in Appendix D.

5.0 Steps to Control Discharge

Ship personnel will most probably be in the best position to take quick action to mitigate or control the discharge of oil or noxious liquid substances from their ship. Therefore, this Plan provides the Master with clear guidance on how to accomplish this mitigation for a variety of situations.

It is the Master's responsibility to initiate a response in the event of a discharge of oil / NLS or substantial threat of discharge - actual or probable - into waters.

In no case should action be taken that in any way could jeopardize the safety of personnel either onboard or ashore.

In cases of a discharge of noxious liquids substances the Master has to refer to the "Material Safety Data Sheet" (MSDS) provide onboard for any NLS cargo. Considerations will have to be made to any danger resulting from discharge of such substances, i.e. mixing with water, air, other materials / substances.

Special consideration is to be taken in case of the necessity to transfer cargo into another compartment onboard of the compatibility of the material to be transferred and the material of pipes and tanks to be used for such actions.

In cases of small spills on deck, the vessel's crew should take whatever actions are necessary to prevent oil from escaping over the side. Once the spill is contained on deck, the crew will need to take action to clean up the oil. **Spilled oil shall not be washed over the side**. Once oil is in the water, the crew's ability to respond in a practical manner is greatly reduced.

The following list specifies different kinds of possible operational spills with regard to reactions to be taken.

5.1 Operational Spills

5.1.1 Operational Spill Prevention

All crew members shall maintain a close watch for the escape of oil or NLS during bunker or cargo operations.

Prior to bunker or cargo transfer the competent crew members should mobilize the spill equipment, as far as available on board, and place it close to the planned operation, e.g. along the railing on the side at which bunker operation takes place. All deck scuppers and open drains must be effectively plugged. Accumulations of water should be drained periodically and scupper plugs replaced immediately after the water has run off. Any free-floating substances should be removed prior to draining.

Bunker or Cargo tanks which have been topped up should be checked frequently during the remaining operations to avoid an overflow.

Unless there are permanent means for retention of any slight leakage at ship / shore connections for bunker or cargo transfer, it is essential that a drip tray is in place to catch any leaking substance. The removed bunker oil and the used clean-up material should be retained on board in proper containment units until it can be discharged to a reception facility.

All crew members of the ship's crew should be familiar with the fundamentals of the ship's vital systems including the ventilation and electrical systems. Crew members should be able to isolate the accommodation and/or machinery spaces using the louvers and fan shutoffs and, from the distribution panels, isolate electrical circuits in areas of risk.

In the event of an operational spill which occurs during bunkering or cargo operations, it is important that the bunkering party terminate any and all bunkering operations and close all manifold valves.

Before closing any manifold valves, the bunkering / cargo party must immediately inform the terminal / loading master so that they may take action to eliminate the possibility of over- pressurization of the shore side transfer components.

After dealing with the cause of the spill, it may be necessary to obtain permission from local authorities and / or the terminal before resuming bunkering or cargo operations.

If the possibility of fire or explosion exists, nonessential air intakes to accommodations and machinery spaces should be closed and all sources of ignition should be eliminated. See Section 5.2.1.1 of this Plan.

Care must be taken to consider stability and stress when taking action to mitigate the spillage of oil. Internal transfers should be undertaken only with a full appreciation of the likely impact on the vessel's overall stress and stability. Please refer to the "Approved Stability Book" carried on board.

5.1.2 Operational Spill Checklist

Action Considered	Designated Person	Completed
Sound emergency alarm	Person Discovering Incident	Y / N
Mobilize Oil Pollution Prevention Team	Chief Engineer / Master	Y / N
Cease all bunkering operations	Chief / 2nd Engineer	Y / N
Locate source of leakage	Chief / 2nd Engineer	Y / N
Operate manifold valves	Chief / 2nd Engineer	Y / N
Close all nonessential vent intakes and tank vents as required	Chief / 2nd Engineer	Y / N
Stop or reduce outflow	Chief Engineer / Deckhand	Y / N
Assess fire risk	Chief Officer	Y / N
Commence clean up	Chief Officer	Y / N
Assess Stress / Stability	Master / Chief Officer	Y / N
Transfer fuel from damaged area to slack tanks or other containment space	Chief / 2nd Engineer	Y / N
Request outside assistance if required	Master	Y / N
Counter excessive list if required / possible	Chief Officer	Y / N

5.1.3 Pipeline Leakage

In the event of leakage from an oil / NLS pipeline, valve, hose or metal arm, the Chief Engineer must ensure that the following actions are taken:

- Stop oil flow, close manifold and other valves.
- Sound emergency alarm and mobilize Oil Pollution Prevention Team
- Locate source and drain affected section into an available empty or slack tank. Repair if possible.
- If there is any possibility of vapors entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Absorb spill with any absorbent materials on hand and dispose of oil-soaked materials in an appropriate container on board until it can be discharged to a reception facility.
- If oil is overboard, report to proper authorities immediately (as per section 4 of this plan).

5.1.4 Tank Overflow

In the event of an oil tank overflow, the Chief Engineer must ensure that the following actions are taken:

- Stop oil flow, close manifold and other valves.
- Sound emergency alarm and mobilize Oil Pollution Prevention Team
- Place drain buckets under overflow pipes to contain possible spills.

- If there is any possibility of vapors entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Drain or transfer oil to slack or empty tanks if possible with due consideration paid to vessel stability. If no slack or empty tanks are available, oil may be pumped back ashore through delivery lines, having first gained permission to do so.
- Absorb spill with any absorbent materials on hand and dispose of oil-soaked materials in an appropriate container on board until it can be discharged to a reception facility.
- If oil is overboard, report to proper authorities immediately (as per section 4 of this plan).

5.1.5 Hull Leakage

If oil is noticed on the water near the vessel during normal operations and cannot be accounted for, the possibility of hull leakage should be suspected.

In the event of a hull leakage, the Master must ensure that the following actions are taken:

- Sound emergency alarm and mobilize Oil Pollution Prevention Team.
- Stop any transfer or bunkering operations.
- Identify damage and report to proper authorities immediately (as per section 4 of this plan). Consider a diver if necessary and possible.
- If possible, contain spill using materials on hand and dispose of oil-soaked materials in an appropriate container.
- If there is any possibility of vapors entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Transfer fuel away from suspected leaks to empty or slack tanks if possible, or to a ballast tank if necessary. If in port, arrangements can be made to pump oil ashore to tanks or trucks. Due consideration is to be paid to vessel stress and stability.
- If it is not possible to identify the leaking tank, reduce level in all tanks in the vicinity, giving due consideration to vessel stress and stability.

5.1.6 Spills caused by Equipment in Machinery Spaces

If operational spills are caused by failure of equipment in machinery spaces, any further operation of this equipment should be stopped immediately, and measures are to be taken to avoid a spill. Such equipment may be:

- Oily - water separating equipment or oil filtering equipment or oil filtering equipment to de-oil bilge water from the engine room bilges.
- Valves in pipes connecting ballast / cargo systems
- Cooling pipes in cooler systems
- Gearing of bow thruster
- Stern tubes

If oil spill is caused by failure of equipment, the following measures are to be taken:

- Sound emergency alarm and mobilize Oil Pollution Prevention Team.
- Absorb spill with any absorbent material in hand and dispose of oil-soaked materials in an appropriate container.
- Do not restart equipment until problem has been rectified.

The removed bunker oil and the used clean-up material should be retained on board in proper containment units until it can be discharged to a reception facility.

5.2 Spills Resulting from Accidents

In the event of a casualty the Master's first priority will be to ensure the safety of personnel and the vessel and initiate action to prevent escalation of the incident and marine pollution.

5.2.1 Ship grounded / stranded

In order to determine remedial action to be taken for ensuring the safety of the ship and its crew, the Master's priority should be to ensure that he receives detailed information about the damage the ship has sustained as soon as possible.

If the vessel grounds, the Master must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Eliminate all avoidable sources of ignition and ban smoking onboard. Action bust be taken to prevent hazardous vapors from entering accommodation and machinery spaces. See section 5.1.1
- Identify damage by means of a visual inspection.
- Take soundings around vessel to determine the nature and gradient of seabed.
- Check differences in tidal range at grounding site.
- Evaluate tidal current in grounding area.
- Take soundings of all tanks on shell and compare with departure soundings.
- Determine probability and/or quantity of oil released.
- If oil release is determined or is probable, this is to be included in the casualty report.
- Determine other possible hazards to the vessel such as sliding off the grounding site or further damage from seas / swell, and torsion forces.

At this point, the Master should evaluate the question of refloating the vessel by own means. Before such an attempt is made, it must be determined:

- whether the ship is damaged in such a way that it may sink, break up or capsize after getting off
- whether the ship, after getting off, may have maneuvering problems upon leaving the dangerous area on its own.
- whether machinery, rudder or propeller are damaged due to grounding or may be damaged by trying to get off ground by own means.

- whether the ship may be trimmed or lightened sufficiently to avoid damage to other tanks in order to reduce additional pollution.
- weather evaluation; whether there is time/reason to await improvements in weather or tide.
- whether ship's structure permits refloating/consultation of DNV-GL Emergency Response Service (ERS)
- whether all steps of Coastal Shipping Ltd. procedure "Grounding" have been complied with.

If remaining aground is determined to be less of a risk then:

- Use anchors to prevent vessel movement.
- Take on ballast in empty tanks with due consideration paid to stress and stability. Please refer to the approved stability book.
- Consider transfer of fuel from damaged tanks with due consideration paid to stress and stability. Please refer to the approved stability book.
- Reduce longitudinal stress on the hull by transfer of fluids internally. Please refer to the approved stability book.
- If the change in stability and stress cannot be calculated onboard, contact the vessel's management to arrange for the necessary calculations. Refer to 5.8 Vessel Stress and Stability Information for information which should be provided.
- Reduce fire risk by removing all sources of ignition.

5.2.2 Fire/Explosion

If the ship is aground and therefore cannot manoeuvre, all possible sources of ignition should be eliminated and action taken to prevent flammable vapors from entering the machinery spaces or the accommodation spaces.

If a fire or explosion occurs on board, the vessel's fire control party must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Determine extent of damage and what damage control measures can be taken.
- Determine whether there are casualties.
- Request assistance as deemed necessary.
- Take necessary actions to prevent smoke and other hazardous vapors from entering the accommodation and machinery spaces.
- Assess possibility of oil leakage.
- Determine possible actions to control the discharge of oil. This will depend largely on the damage to the ship and cargo.
- If there is a discharge or possible discharge of oil, this to be included in the casualty report.

- Should abandonment be necessary, the Master must ensure that every effort is made to maneuver survival craft upwind of any oil spill.

The Coastal Shipping Emergency Procedure "Fire and Explosion" in the file Emergency Preparedness should be complied with.

5.2.3 Hull Failure

If the vessel suffers structural hull failure, the Master must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Reduce speed or stop to minimize stress on hull.
- Assess immediate danger of sinking or capsizing.
- Initiate damage control measures if possible.
- If lightening is required, all efforts should be made to wait for a barge or other ship to receive the cargo.
- If oil has spilled, or if it is necessary to jettison oil to maintain stability, make a report as per Section 4.
- If the change in stability and stress cannot be calculated onboard, contact the vessel's management to arrange for the necessary calculations.
- Consider forecasted weather conditions and their effect on the situation.
- Should abandonment be necessary, the Master must ensure that every effort is made to maneuver survival craft upwind of any oil spill.

5.2.4 Excessive List

Should the ship for some reasons suddenly start to list excessively during discharging/loading operations, or bunkering, all ongoing operations should be stopped immediately until the cause has been determined.

The Officer on duty should inform the Master and/or Chief Officer without delay.
The Master should try to determine the reason for excessive list, and take steps to rectify the situation and to stabilize the ship's condition:

- Check reasons for list.
- Soundings / Ullage to be taken in all tanks.
- Bunker / Ballast / Cargo pumps to be made ready.
- Consider measures to minimize list in transferring liquid from one compartment to another.
- Ensure water tightness of empty spaces.
- Close all openings.
- Secure vent pipes to avoid ingress of water.
- If bunkering: change to corrective tanks for rectifying the situation.
- If ballasting / de-ballasting: change to corrective tanks to rectify the situation.

- If there is reason to believe that the list may cause any spill, notify as per Section 4.
- If the ship's crew is in jeopardy, prepare lifeboats for launching, and notify as per Section 4.

If the situation is brought under control, inform all parties interested.

5.2.5 Cargo Containment System Failure

In the event of cargo containment system failure, the following priorities must be observed:

- Safety of life
- Control of damage to the vessel and cargo
- Prevention of environmental pollution

Personnel must not take risks which may endanger their own lives or the lives of any other crew members.

The nature of the containment failure may be varied, and for this reason a number of possibilities are addressed below.

Initial Emergency Action:

- Personnel are mustered and briefed on the situation. This briefing will include aspects of the Data Sheet on board (MSDS). The IBC Code contains the definitive list of pollutant aspects of NLS and the IMDG Code supplement contains emergency schedules for incidents with dangerous cargoes. Where a dangerous reaction of different cargo types is anticipated, see 5.2.9.
- Protective clothing and breathing apparatus donned as required.
- All accommodation access doors will be shut.
- All valves, hatches, storeroom doors on the cargo deck will be shut.
- All ventilation into the accommodation, except closed circuit systems will be closed down.
- Smoking is prohibited throughout the ship.

Further Actions in Mitigation

- Fire hoses and water sprays ready for immediate action.
- Firefighting equipment and breathing apparatus prepared for action.
- The company/charters informed and technical assistance asked for recovery of containment system.
- Consider venting of cargo.
- Consider jettisoning of cargo.

5.2.6 Ship submerged / foundered / wrecked

If the ship is wrecked to the extent that it or parts of it are submerged, take all measures to evacuate all persons onboard. Avoid contact with any spilled cargo or oil. Alert other ships and / or the nearest coastal state for assistance in rescuing lives and the as far as possible.

5.2.7 Collision

The Master shall follow the emergency plan as given in Coastal Shipping Ltd. Emergency procedure "Collision" in file: Emergency Preparedness as follows:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Determine whether there are casualties.
- If there is a possibility of fire or explosion, eliminate all avoidable sources of ignition and ban smoking onboard. Action should be taken to prevent flammable vapors from entering the accommodation and machinery spaces.
- Decide whether separation of vessels may cause or increase spillage of oil or increase the risk of sinking.
- If any oil tanks are penetrated, isolate these tanks or transfer oil to slack or empty tanks with due attention paid to stress and stability of the vessel. Please refer to the approved stability book.
- If there is an oil spill, make a report as per section 4.
- If possible to maneuver, the Master, in conjunction with the appropriate shore authorities should consider moving his ship to a more suitable location in order to facilitate emergency repair work or lightening operations, or to reduce the threat posed to any sensitive shoreline areas.

5.2.8 Dangerous Reaction of Cargo / Contamination Yielding a Hazardous Condition

In case of spillage of NLS cargo on deck, to the sea, or incidental mixture with other cargo through internal tanks leakage, consider dangerous reactions of such mixtures. Promptly consult the Material Sheet Data Sheet (MSDS) available for the cargo onboard about possible hazards and necessary precautions. Take necessary actions to protect the crew from contact with spilled material or its vapors and review first aid procedures in the event of contact.

5.2.9 Other Dangerous Cargo and / or Vapor release

In case of release of dangerous NLS take necessary actions for the protection of the crew against health hazards, especially by contact with materials or its toxic vapors. Avoid material or vapors spreading over the ship. If any dangerous material or vapor is released from any part of the containment system, take arrangements to free the deck area as far as possible by turning the ship to have the accommodation upwind of the point of release.

Evacuate crew members from the endangered area. If persons have to carry out any unavoidable duties within the endangered area, insure personal protection devices are used for those persons to avoid direct contact. All possible sources of ignition should be eliminated and non-essential air intakes shut down to prevent intake of vapor into accommodation and engine spaces.

Take measures to reduce tanks level or pressure to stop any emission of material or vapor. Report such spillage to nearest coastal state in order to arrange precautionary measures for the environment.

5.2.10 Loss of Tank Environmental Control

Consider loss of environmental control as a possible explosion hazard. Consult the MSDS sheets for specific hazards. Avoid air intake to the spaces.

5.3 Procedures to Reduce or Stop Outflow of Oil or NLS

The Master should assess the possibility of damage to the environment and whatever action can be taken to reduce further damage from any release, such as;

- Transfer /cargo internally, provided shipboard piping system is in an operational condition and in careful view of the compatibility of the substance and the tanks/pipes used for transfer, and taking into account the impact on the ship's overall stress and stability.
- Isolate damaged/penetrated tanks hermetically to ensure that hydrostatic pressure in tanks remains intact during tidal changes.
- Evaluate the possibility of pumping water into a damaged tank in order to form a water bottom stopping the outflow of oil.
- Evaluate the necessity of transferring bunkers / cargo to barges or other ships and request such assistance accordingly.
- Evaluate the possibility of additional release of oil or NLS in close co-operation with coastal states.

In case of large differences between the tide levels, the Master should try to isolate the damaged tanks to reduce additional to reduce additional loss of substances.

5.4 Priority Actions

Top priority shall in all cases of emergency be the safety of the persons onboard and to take actions to prevent escalation of the incident. Immediate consideration should be given to the protective measures against fire, explosions, and personal exposure to toxic vapor.

Detailed information about damage sustained to the ship and its containment system has to be obtained. On the basis of the information the Master can decide next actions for the protection of lives, the ship, the cargo and the environment.

The Master should take into account the following when he is determining whether salvage assistance will be needed or not:

- Nearest land or hazard to navigation
- Vessel's set and drift
- Estimated time of casualty repair
- Determination of nearest capable assistance and its response time.

Detailed information about the cargo, especially NLS Cargo has to be available and to be referred to further actions regarding the cargo.

In case of necessary movement of cargo within the ship careful consideration is to be given to hull strength and stability as well as to the compatibility of all material (cargo, tanks, coating, piping) in view of any transfer actions planned.

Plans / tables about location and specification of the current cargo as well as bunkers and ballast should be readily available. Information about current cargo / bunker / ballast distribution and the MSDS for the carried cargo substances are available at:

- Cargo, bunkers, ballast distribution: Cargo Office
- Material Safety Data Sheets (MSDS); Alleyway opposite of the cargo office

5.5 Mitigating Activities

If safety of both the ship and the personnel has been addressed the Master shall care for the following issues:

- Assessment of the situation and monitoring of all activities as documented evident.
- Care for further protection of the personnel, use of protection gear, assessment of further risk for health and safety
- Containment of the spilled material by absorption and proper and safe disposal of all material onboard until proper delivery ashore under close guidance of the safety information given by the Product Data Sheet.
- Decontamination of Personnel after finishing the cleanup process.

5.6 Transfer of Bunker / Cargo - Lightening

If the ship has sustained extensive structural damage, it may be necessary to transfer all or part of the cargo / bunker to another ship. In Ship to Ship transfer operations involving a specialized service ship, the Master of that ship will normally be in overall charge.

In the case of non-specialized ships the Master or other person in overall charge of the operation should be mutually agreed and clearly established by the Masters concerned prior to the start of operations. The actual bunker / cargo transfer should be carried out in accordance with the requirements of the receiving ship.

In all cases each Master remains responsible for the safety to be jeopardized by the action of the other Master, his owner, regulatory officials or others.

The ship to ship transfer operations should be coordinated with the appropriate responsible local Authority. When selecting the area of operation, the Masters should consider the following points:

- The need to notify and obtain the agreements of any responsible authority
- The destinations of the ships concerned
- The shelter provided, particularly from sea and swell
- The sea area and depth of water, which should be sufficient for maneuvering during mooring, unmooring, and transfer operations and allow a safe anchorage if operations have to be undertaken at anchor
- The traffic density
- The weather conditions and weather forecasts

Further, before commencing Ship to Ship Transfer operations each ship should carry out, as far as possible, appropriate preparations like:

- Pre-mooring preparations of the ship
- Positioning of fenders if such equipment is available on board
- Mooring equipment arrangements
- Checking the communication channels between the two ships

In addition to the general principles of Ship to Ship operations as aforementioned the Master should take note of supplemented instructions issued in the Coastal Shipping Ltd bunkering procedures.

5.7 Damage Stability and Hull Stress Calculation

Whenever the tank status changes in the course of the incident the stability and stress of the vessel has to be checked using the class approved cargo computer.

In case of hull damage, stability shall instantly be checked using the appropriate application of the cargo computer. The damage control plan should be referred to. In addition to that the **DNV-GL Emergency Response Service (ERS)** is to be consulted for proper stress and stability calculations.

Whenever possible, contact to the **DNV GL ERS** will be via the Coastal Shipping Ltd. office to reduce the workload onboard. Otherwise the vessel can contact the **DNV GL ERS** directly using the following numbers:

Primary: **+47 91 84 97 15**
Backup: **+49 40 36 149 199** (+code word "**OPA 90**")
Email: **emergency@dnvgl.com**

5.8 Vessel Stress and Stability Information

VOYAGE PARTICULARS

Departure Port

Departure Date

Time (GMT)

VESSEL CONDITION IMMEDIATELY BEFORE CASUALTY

Mean Draft Forward

Mean Draft Aft

KG(solid)

KG(fluid)

LCG of Vessel

Condition of Tanks and Compartments

#	COMPARTMENT	S.G.	TONNES

5.9 General Responsibilities of the Master and Designated Officers / Crew Members

The responsibilities of the Master, Officers and the crew onboard in the event of a spill, actual or probable, is to bring the accident under control on board, limit overflows or cleanup procedures, and to secure the ship immediately if an incident occurs.

The following is an example which can be used by the Master to aid in designating officers. Should changes to the team be made, please make a record in this section:

Master
Chief Mate
Chief Engineer

In the event of an emergency, the team should be called out as soon as it is safe to do so.

The team should be given necessary training in the use of such equipment as oil absorbents that the vessel may carry. All members crew should be aware of their duties should an oil spill occur.

Master

- In overall charge.
- Informs terminal authorities or coastal authorities of incident.
- Informs the local agent and requests agent to inform the local underwriter's representative.
- Advises the company's head office of the situation. Keeps everyone updated at regular intervals. and advises of any changes in status of the emergency.
- Keeps log of all events and progress of actions.

Chief Mate

- In charge of deck / cargo operations.
- In charge of lifeboats if required.
- Keeps the Master informed and updated on the situation and of the results of steps taken to contain any spills and limit outflow.
- Insures all openings in the deck and superstructure are closed to limit vapor entry.
- Position sorbent / clean up material to prevent any fluid escape.

Chief Engineer

- In charge of bunkering operations.
- Organizes distribution of oil spill detergents if required.
- Stops bunkering operations if applicable.
- Stops pumps and any unnecessary pieces of machinery.

Other Personnel

Deck Officer on duty

- Alerts and informs Chief Officer / Chief Engineer on the situation.
- Mobilize off duty crew as necessary.

Engineer on duty

- Assist the Chief Engineer.
- Prepare for firefighting.
- Ensure sufficient power and water to deck.
- Organizes onboard clean up equipment.

Deck Officer off duty

- Under the direction of the Master, responsible for the reporting and record keeping of all events.

On duty Ratings

- Alerts the Officer on duty of any leakage.
- Position sorbent / clean up material to prevent any fluid escape.

Off duty personnel

- Assist as required

6.0 National and Local Co-Ordination Steps to Control Discharge

Quick efficient co-ordination between the ship and Coastal States or other parties involved becomes vital in mitigating the effects of an oil pollution incident. As the identities and roles of various national and local Authorities involves vary widely from state to state and even from port to port, the Master should take note of these particularities, as far as possible. In this context the Master should call upon the owners representatives in the state/port of question to receive the relevant information.

While operating in Canadian waters, in accordance with the Canadian Pollutant Discharge Reporting Regulations, the Master or Owner of a ship must report, without delay, any discharge or anticipated discharge of a pollutant in Canadian waters or fishing zones, to a Pollution Prevention Officer (PPO). Reports must be made in the manner described in Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, TP 9834, or "General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants" adopted by the IMO by Resolution A.851(20) as amended with MEPC.138(53). These initial reports can be made to Marine Communication and Traffic Service (MCTS) or any other Canadian Coast Guard Radio Station (CGRS), on the frequencies listed in the publication, Radio Aids to Marine Navigation (RAMN) – DFO 5470 (Great Lakes and Atlantic) and DFO 5471 (Pacific). Alternatively, spill reports can be directed to the nearest CCG 24/7 Regional 1-800 marine spill reporting phone line:

CCG Newfoundland Region	+1 800 563 9089
CCG Maritimes Region	+1 800 656 1633
CCG Quebec Region	+1 800 363 4735
CCG Central and Artic Region	+1 800 265 0237

Inquiries relating to pollution response or requests for response assistance should be directed to:

Director, Safety and Environmental Response Systems
Canadian Coast Guard
Marine Programs
Department of Fisheries and Oceans
200 Kent Street
5th floor
Ottawa, Ontario
K1A 0E6
Tel: +1 613 990 3115 (office hrs)
Fax: +1 613 996 8902 (office hrs)
Email: troys@dfo-mpo.gc.ca

ECRC East Coast Response Corporation
1201-275 Slater Street
Ottawa, Ontario
K1P 5H9
Tel: (613)230-7369
Fax: (613)230-7344

Alternatively, spills may be reported to the appropriate regional center or nearest Vessel Traffic Service Center. See Appendix C: Port Contacts for contact information.

If operating outside of Canadian waters, prior to undertaking mitigating actions – especially in cases of an actual discharge of oil due to casualties in the territorial waters of a Coastal State – the Master should contact the Coastal State for authorization of his action. The Master should co-ordinate all his activities with the Coastal State. The Master should call the Coastal State for allowance to use chemical agents for response to oil pollution on the sea. Without authorization of the Authorities of the appropriate Coastal State no chemical agent should be used.

Where no responsibility for discharge response by a Coastal State is noticed the Master should take all the necessary steps as deemed appropriate to minimize the escape of oil.

With respect of the accident happened the Master should take measures as stated in Section 4 and 5 of this Plan.

Appendix A:

Initial Notification Sample Format

SHIPBOARD MARINE POLLUTION EMERGENCY PLAN

SAMPLE FORMAT FOR INITIAL NOTIFICATION

A (SHIPS NAME; CALL SIGN; FLAG)

B (DATE AND TIME OF EVENT; UTC)

D	D	H	H	M	M

C (POSITION; LAT; LONG)

				N	S
d	d	m	m		

					E	W
d	d	d	m	m		

OR

D (BEARING; DISTANCE FROM LANDMARK)

d	d	d	N miles

E (COURSE)

d	d	d

kn	kn	1/ 10

L (INTENDED TRACK)

M (RADIO STATION(S) GUARDED)

N (DATE AND TIME OF NEXT REPORT; UTC)

D	D	H	H	M	M

P (TYPE AND QUANTITY OF CARGO/ BUNKERS ON BOARD)

Q (BRIEF DETAILS OF DEFECTS/ DEFICIENCIES/ DAMAGE)

R (BRIEF DETAILS OF POLLUTION; INCLUDING ESTIMATE OF QUANTITY LOST)

S (CONTACT DETAILS OF WEATHER AND SEA CONDITIONS)

Wind — Direction [ ][ ][ ]
Speed (Beaufort)

SWELL — Direction [ ][ ][ ] (m)
Height

T (CONTACT DETAILS OF SHIP´S OWNER/ OPERATOR/ AGENT)

U (SHIP SIZE AND TYPE)

X (ADDITIONAL INFORMATION)

Appendix B:

Coastal State Contacts

Additional Contact Information

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Appendix C:

Port Contacts

Vessel Traffic Service Centers

Note:

The following contacts have been included as they are within the expected range of operation of the Vessel. Due to the nature of the Vessel's voyages and varied ports of call this list should not be considered exhaustive. For this reason, space has been included at the end of this section for addenda.

Newfoundland

St. John's	Tel:	1-709-772-2083
		1-800-563-2444 (24 hr.)
	Fax:	1-709-772-5369
Placentia Bay	Tel:	1-709-227-2182
	Fax:	1-709-227-5637
Port Aux Basques	Tel:	1-709-695-2167
	Fax:	1-709-695-7784
Goose Bay	Tel:	1-709-896-2252
	Fax:	1-709-896-8455
St. Anthony	Tel:	1-709-454-3852
	Fax:	1-709-454-3716

Nunavut

Nordreg Canada	Tel:	1-867-979-5724
P.O Box 189	Fax:	1-867-979-2464
Iqaluit, NU		
X0A 0H0		

Nova Scotia

Halifax	Tel:	1-902-426-9750 (MCTS Operations)
		1-902-426-9738 (Officer in Charge)
	Fax:	1-702-426-4483
Sydney	Tel:	1-902-564-7751 (MCTS Operations)
		1-902-564-7752 (Officer in Charge)
	Fax:	1-702-564-7662

New Brunswick

Saint John	Tel:	1-506-636-4696 (MCTS Operations)
		1-506-636-4269 (Officer in Charge)
	Fax:	1-506-636-5000

Quebec

Quebec City	Tel:	1-418-648-4427 (MCTS Operations)
		1-418-648-7459 (Officer in Charge)
	Fax:	1-418-648-7244

Montreal	Tel:	1-450-928-4544 (MCTS Operations)
		1-450-928-4547 (Officer in Charge)
	Fax:	1-450-928-4547
Riviere-Au-Renard	Tel:	1-418-269-5686 (MCTS Operations)
		1-418-269-7718 (Officer in Charge)
	Fax:	1-418-269-5514

Greenland

Spill Notification Point	Tel:	+299-101111
Groenlands Kommando	Fax:	+299-10112
Maritime Rescue Coordination Center Gronnedal		
KK-3930 Gronnndell		

Competant National Authority	Tel:	+45-31 578310
National Agency of Environmental Protection		+45-86 123099 (24hr)
Strandgade 29	Fax:	+45-31 572449/+45-86 181140
DK- 1401 Copenhagen		

Additional Contact Information

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Appendix D:

Ship Interest Contacts

Ship Interest Contacts

Vessel Management

Coastal Shipping Limited (Owners)
P. O. Box 910
114 Main Street
Lewisporte, NL
A0G 3A0
Canada
Ph: (709) 535-6944
Fax: (709) 535-3354

24 Hour Emergency Contacts

Vice President, Operations	Dennis White	(709) 896-2421 work (709) 896-1404 cell (709) 896-2870 home dwhite@woodwards.nf.ca
General Manager	Paul Gersok	(709) 535-6944 work (709) 541-1807 cell pgersok@woodwards.nf.ca
Marine Superintendent/DPA	Craig Farrell	(709) 535-6944 work (709) 541-0789 cell cfarrell@woodwards.nf.ca
Engineering Superintendent	Jim Babij	(709) 579-6127 work (709) 727-5065 cell (709) 576-0160 home jbabij@woodwards.nf.ca
	Kevin Brewer	(709) 579-6127 work (709) 682-0826 cell (709) 227-2600 home

Appendix E:

Spill Equipment Inventory

M/T Qikiqtaaluk W.

List of Oil Spill Equipment

- 8 bags sawdust
- 26 absorbent socks
- 25 boxes rags
- 50 bags absorb-all
- 11 boom anchors
- 1 windy pump
- 1 pollution boom

Also to be kept onboard a sufficient quantity of squeegees, straw brooms, shovels, brushes, mops, degreaser, disposal bags, and personal protective equipment.

Appendix F:

Vessel Drawings

The following drawings are relevant to this manual. Up to date copies can be referenced from the ship library.

- General Arrangement
- Fuel Oil Transfer and Drain System
- Fuel Oil Supply System
- Tank Plan
- Lube Oil Transfer and Drain System
- Lube Oil Supply System
- Separate Stripping System
- Bilge & Sludge System

The WOODWARD GROUP OF COMPANIES

Coastal Shipping Limited
A Division of Woodward Group of Companies

Coastal Shipping Ltd.
The Woodward Group of Companies
114 Main Street, P.O. Box 910
Lewisporte, NL A0G 3A0 CANADA

Shipboard Marine Pollution Emergency Plan (SMPEP)

M/T "TUVAQ W."

APPROVED
MARPOL, Annex I, Reg.37, Annex II, Reg. 17
SEE LETTER Date: 2019-02-07

Prepared By: Poseidon Marine Consultants Ltd.
Document No.:18-006-002
Revision: 2
Revision Date: 6 February 2019

CONFIRMATION OF ACKNOWLEDGE

Shipboard Marine Pollution Emergency Plan

Date Entered	Rank	Name	Signature

Document History

Revision	Date	Description	By
0	23 April 2018	Issued for delivery voyage only	MDP
1	5 September 2018	Revised per DNVGL comments	MDP
2	6 February 2019	Revised per DNVGL comments	MDP

Record of Changes

Amendment Number	Section and Page Affected	Date Entered	Remarks	By
Revision 1, Amendment 1	Section 1.0, Page 1	5 September 2018	Updated Ship's Particulars: DNV GL Register Number, Call Sign, Port of Registry, Flag and Official number.	MDP
Revision 1, Amendment 2	Section 2.0, Point 3, Page 2	5 September 2018	Rephrased "The Plan contains all the information and operational instructions required by the 'Guidelines for the development of the Shipboard Marine Pollution Emergency Plans for Oil and/or Noxious Liquid Substances' published under Res,MEPC.54(32) an in compliance with IMO Res.MEPC.85(44) as amended by IMO Res.MEPC.137(53)"	MDP
Revision 1, Amendment 3	Section 2.0, Page 2 Section 3, Page 3 Section Section 4.0, Page 6	5 September 2018	Reference to Reg.26 of Annex I and Reg.16 of Annex II of MARPOL 73/78 updated to Reg. 37 of Annex I and Reg.17 of Annex II of MARPOL 73/78	MDP
Revision 1, Amendment 4	Section 5.2, Pages 15-22	5 September 2018	Section 5.2 Spills resulting from accidents amended to included 'Cargo Containment System Failure'.	MDP
Revision 2, Amendment 1	Section 2.0, Point 3. Page 2	6 February 2019	Rephrased "The Plan contains all the information and operational instructions required by the "Guidelines for the development of the Shipboard Marine Pollution Emergency Plans for Oil and/or Noxious Liquid Substances" published under Res,MEPC.54(32) an in compliance with IMO Res.MEPC.85(44) as amended by IMO Res.MEPC.137(53)"	MDP
Revision 2, Amendment 2	Section 3.1, Summary Flow Chart Page 5	6 February 2019	Initial report reference changed to "A.851(20) as amended by MEPC.138(53)"	MDP

Table of Contents

Appendices

A Contact Information
B Spill Equipment Inventory
C Vessel Drawings
- General Arrangement
- Tank Capacity Plan

1.0 Ship Particulars

SHIP'S IDENTIFICATION

DNV GL REGISTER NUMBER	33515
NAME OF SHIP	TUVAQ W.
CALL SIGN / SIGNAL LETTERS	CJD7842
IMO NUMBER	9610341
TYPE OF SHIP	CHEMICAL / OIL TANKER
PORT OF REGISTRY	ST. JOHN'S
GROSS TONNAGE	5422
FLAG	CANADA
OFFICIAL NUMBER	841683

SHIP'S DIMENSIONS

LOA	112.70 M
LBP	106.00 M
BREADTH MOULDED	17.60 M
DEPTH	9.40 M
DESIGN DRAFT	7.00 M

2.0 Introduction

1. This Shipboard Marine Pollution Emergency Plan (hereafter referred to as the "Plan") is written in accordance with the requirements of regulation 37 of Annex I and regulation 17 of Annex II of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 there to and amended by Res. MEPC. 78 (43). As recommended by IMO this plan is a **combination of a Shipboard Oil Pollution Prevention Plan (SOPEP) and a Shipboard Marine Pollution Emergency Plan (SMPEP) for noxious liquid substances (NLS).**

2. The purpose of the Plan is to provide guidance to the Master, officers and operating personnel onboard the Ship, with respect to the steps to be taken when an oil or marine pollution incident has or is likely to occur. The appendices contain communication data of all contacts referenced in the Plan, as well as other reference material.

3. The Plan contains all information and operational instructions required by the "Guidelines for the development of the Shipboard Marine Pollution Emergency Plan for Oil and/or Noxious Liquid Substances" published under Res.MEPC.54(32) and in compliance with IMO Res.MEPC.85(44) as amended by IMO Res.MEPC.137(53).

4. This Plan has not been examined on behalf of Transport Canada - Marine Safety, (herein after referred to as "the Board") and, except as provided below, no alteration or revision shall be made to any part of it without prior approval of the Board.

5. Changes to the appendices will not be required to be approved by the Board. The appendices should be maintained up to date by the Owners, Operators, and Managers.

6. For the purposes of this Plan, the Master is taken to be that person who is a member of the vessel's operational personnel and to which is given senior responsibility for the vessel and any circumstances pertaining thereto.

7. Before entering a port of call, the Master should be aware of local emergency response procedures and organizations and have up to date contact information readily available.

3.0 Reason for Shipboard Marine Pollution Emergency Plan

1. This Plan is intended to assist the ship's personnel in dealing with an unexpected discharge of oil or noxious liquid substances. Its primary purpose is to set in motion the necessary actions to stop or minimize the discharge of those substances and to mitigate its effects. Effective planning ensures that the necessary actions are taken in a structured, logical and timely manner.

2. The primary objectives of this Plan are to:
   - prevent pollution
   - stop or minimize outflow when a damage to the ship or its requirement occurs
   - stop or minimize outflow when an operational spill occurs in excess of the quantity or instantaneous rate permitted under the present Convention.

3. Further, the purpose of the Plan is to provide the Master, officers and certain crew members with a practical guide to the prevention of marine spills and in carrying out the responsibilities associated with regulation 37 of Annex I and Reg. 17 of Annex II of MARPOL 73 / 78.
   - procedures to report an oil / marine incident.
   - Coastal States (Focal Points) and Port Contact Lists to be contacted in the event of any pollution incident.
   - co-ordination with national and local Authorities in combating a pollution.

4. In summary, the Plan will serve to promote a practiced response when the ship's personnel are faced with a spill.

5. Although the Plan is designed as a ship-specific tool it must be also be considered as an additional instrument and is a link to shore-based plans. With this, the Plans allow an efficient co-ordination between the ship and shore-based Authorities / Organizations in mitigating the effects of any pollution incident.

6. The Plan includes a summary flowchart (See page 4-5) to guide the Master through reporting and acting procedures required during an oil pollution incident response.

7. The Plan is likely to be a document used on board by the Master and the officers of the ship and must therefore be available in the working language used by them.

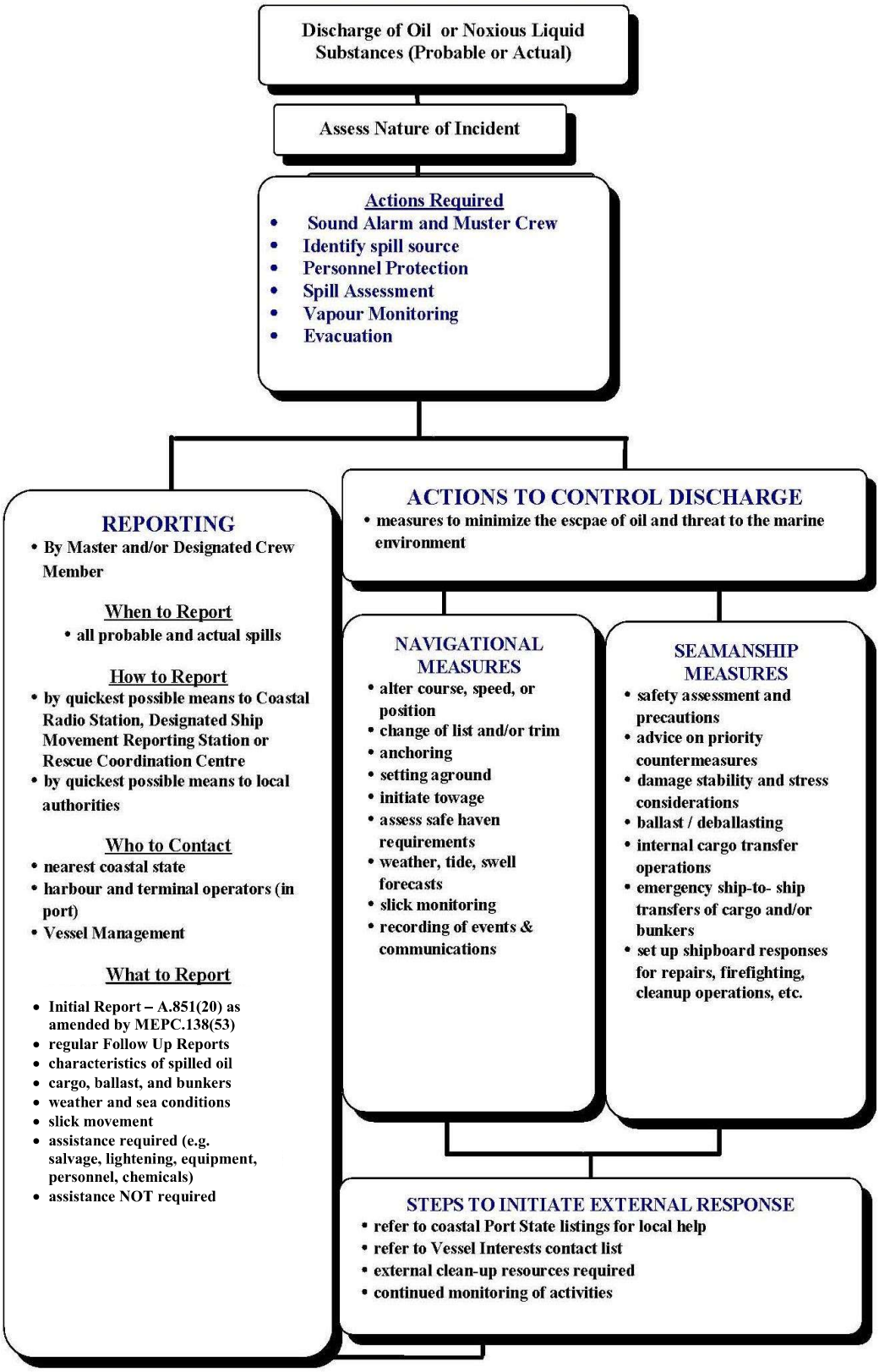
8. The Plan is not applicable if the vessel operates in U.S waters within the EEZ (exclusive economic zone). The Vessel Response Plan (VRP) has to be activated.

9. All Procedures in this Plan are in line with Coastal emergency procedures which can be found in the file Emergency Preparedness as part of the Safety Management System (SMS). They should be referred to in any case for obtaining additional information.

3.1 Shipboard Marine Pollution Emergency Plan – Summary Flow Chart

This flow diagram is an outline of the course of action that shipboard personnel should follow in responding to a pollution emergency based on the guidelines published by the Organization. This diagram is not exhaustive and should not be used as a sole reference in response. Consideration should be given inclusion of specific reference to the Plan. The steps are designed to assist ship personnel in action to stop or minimize the discharge of oil or NLS and mitigate its effects. These steps fall into two main categories - reporting and actions.

SUMMARY FLOWCHART



4.0 Reporting Requirements

4.1 General

The reporting requirements of this section comply with those of regulation 37 Annex I and 17 Annex II of MARPOL 73 / 78. When the ship is involved in an incident which results in the discharge of oil or NLS, the Master is obliged under the terms of MARPOL 73 / 78 to report details of the incident, without delay, to the nearest Coastal state by means of the fastest telecommunication channels available.

The intent of these requirements is to ensure that Coastal States are informed, without delay, of any incident giving rise to pollution, or threat of pollution of the marine environment, as well as of the assistance and salvage measures, so that appropriate action may be taken.

Without interfering with ship owner's liability, some coastal states consider that it is their responsibility to define techniques and means to be taken against a marine pollution incident and approve such operations which might cause further pollution i.e. lightening. States are in general entitled to do so under the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 and the Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil, 1973.

4.2 Reporting Procedures

For easy reference the reporting requirements in the context of this plan are divided in to the following information blocks:

4.2.1 When to Report

Taking the summary flowchart as shown on page 5 as a basic guide into consideration reports are necessary in the following cases:

1. Actual Discharge

   The Master is obliged to report to the nearest Coastal state whenever there is a discharge of oil:
   - resulting from damage to the ship
   - resulting from damage to the ship's equipment
   - for the purpose of securing the safety of a ship or saving life at sea
   - during the operation of the Ship in excess of the quantity or instantaneous rate permitted under the present Convention.

2. Probable Discharge

   The Master is obliged to report even when no actual discharge of oil or NLS has occurred but there is a probability that one could occur.

However, as it is not practicable to lay down precise definitions of all types of situations involving probable discharge of oil / NLS which would warrant an obligation to report, the Master is obliged to judge by himself whether there is such a probability and whether a report should be made.

Therefore, it is recommended that, at least, the following events are carefully considered by the Master; taking into account the nature of the damage failure or breakdown of the ship, machinery or equipment as well as the ship's location, proximity to land, weather, state of the sea and traffic density - as cases in which a probable discharge is more likely:

- damage, failure or breakdown which affects the safety of the ship (e.g. collision, fire, grounding, explosion, structural failure, flooding, cargo, cargo shifting, list, etc.); or

- failure or breakdown of machinery or equipment which results in impairment of the safety of navigation (e.g. failure or breakdown of steering gear, propulsion, electrical generating system, essential shipborne navigation aids etc.)

If in doubt, the Master should always make a report in cases aforementioned.

In all cases the Authorities should be kept informed by the Master as how the situation progress and be advised when all threats of pollution have passed.

4.2.2 Information Required

As required in article 8 and Protocol I of MARPOL 73 / 78 Convention the Master or other persons having charge of the ship should report the particulars of any pollution incident. In this context the International Marine Organization (IMO), in 1997, adopted Resolution A.851(20) "General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents involving Dangerous Goods, Harmful Substances and / or Marine Pollutants" as amended with MEPC.138(53).

The intent of the Resolutions aforementioned is to enable Coastal States and other interested parties to be informed, without delay, of any incident giving rise to pollution, or threat of pollution of the marine environment, as well as of assistance and salvageable measures, so that appropriate action may be taken.

Nothing in this chapter relieves the Master in using sound judgment to make sure that any incident or probable discharge is reported as quickly as possible in the prevailing situation. When Transmitting initial reports to the authorities of the nearest Coastal State, the Master or other persons dealing with such a transmission should take note of IMO Resolution A.851(20) as amended with MEPC.138(53).

Especially the format of the initial report as well as supplementary follow up reports should conform to the guidance contained in Resolution A.851(20) as amended with MEPC.138(53). All reporting whether initial or follow up, should follow IMO's reporting format as outlined below and should contain the following information:

4.2.3 Format and Information Required for Official Report

AA VESSEL NAME, CALL SIGN, FLAG

BB DATE AND TIME (GMT) OF INCIDENT: 11/1935 meaning 11th of month at 7:35 pm.

CC SHIPS POSITION: 2230N 0600E meaning 22 deg. 30 min. N, 6 deg. E

DD SHIPS POSITION: By true bearing (3 digits) and distance from clearly identified landmark.

EE TRUE COURSE (3 digits)

FF SPEED IN KNOTS AND TENTHS OF A KNOT (3 DIGITS)

LL ROUTE INFORMATION – Intended Track

MM RADIO STATIONS AND FREQUENCIES GUARDED

NN TIME OF NEXT REPORT (same as in BB)

OO DRAFT (4 DIGITS - meters and centimeters)

PP TYPES AND QUANTITIES OF CARGO AND BUNKERS ON BOARD

QQ BRIEF DETAILS OF DAMAGE, LIMITATIONS ETC. (must include condition of vessel and ability to transfer cargo, ballast, or fuel)

RR BRIEF DETAILS OF ACTUAL POLLUTION (oil type, estimate of quantity discharged, whether discharge continues, cause, estimate of slick movement)

SS WEATHER AND SEA CONDITIONS (wind force/direction, relevant tidal and/or current information)

TT NAME, ADDRESS, FAX, TELEPHONE NUMBERS OF VESSEL OWNER OR REPRESENTATIVE.

UU DETAILS OF LENGTH, BREADTH, TONNAGE, AND TYPE OF VESSEL

WW TOTAL NUMBER OF PERSONS ON BOARD

XX MISC. DETAILS (This includes brief details of incident, actions taken, injuries sustained and assistance required. If no outside assistance is required, then this should be clearly stated.)

All follow up reports by the Master should include information relevant to the Coastal State Authorities to keep them informed as the incident develops.

Follow up reports should include information on any significant changes in the ship's condition, the rate of release and spread of the substances, weather and sea conditions and clean-up activities underway.

In this context details of bunker and cargo disposition, condition of any empty tanks and nature of any ballast carried are information needed by those involved in order to assess the threat posed by an actual or probable discharge from the damaged ship.

4.2.4 Whom to Contact

The Master is responsible for reporting any incident involving an actual or probable discharge of oil or NLS. Prior to commencing a voyage, the Master or his onboard designate is responsible to ensure that the necessary declarations for the intended voyage are onboard and necessary contact information has been inserted in the manual in Appendix A: Contact Information.

Within Canada, administrative inquiries related to pollution prevention, compliance and enforcement, vessel regulations, design and construction should be directed to:

Director General, Marine Safety
Transport Canada
Mailstop: AMS
330 Sparks Street
Ottawa, Ontario
K1A 0N5
Tel: (613) 998-0610 Fax: (613) 954-1032

Inquiries relating to pollution response should be directed to:

Director General, Rescue and Environmental Response
Canadian Coast Guard
344 Slater Street
Ottawa, Ontario
K1A 0N7
Tel: (613) 990-3110 Fax: (613) 996-8902

ECRC East Coast Response Corporation
1201-275 Slater Street
Ottawa, Ontario
K1P 5H9
Tel: (613) 230-7369 Fax: (613)-230-7344

4.2.4.1 Coastal State Contacts

The vessel, in accordance with the regulations, has onboard a **declaration** that the vessel's management has, in accordance with 167 of the Canada Shipping Act 2001, entered into an arrangement with a response organization to which a certificate of designation has been issued pursuant to section 169 in respect of the quantity of oil that is carried both as fuel and cargo on board the vessel.

Three response organizations (RO) have been established in Eastern Canada. Although each of the ROs is independent Corporations they are linked together through various support and mutual aid agreements. Each of the ROs has a specific Geographic Area of Response (GAR) and a certified response capability of 10,000 tonnes. The following table provides a list of the ROs and a general description of their GARs.

Response Organization	Geographic Area of Response (GAR)
• Eastern Canada Response Corporation Ltd. (ECRC)	• In general the waters of the Canadian Great Lakes, Quebec and the Atlantic Coast excluding areas covered by Alert and PTMS
• Atlantic Emergency Response Team ("ALERT") Inc.	• In general the Port of Saint John, New Brunswick and surrounding waters.
• Point Tupper Marine Services Limited (PTMS)	• In general the Port of Port Hawkesbury, Nova Scotia and surrounding waters.

If conditions permit (i.e. time and prevailing conditions) the MASTER shall consult with vessel management contact prior to activation of any response organization. The person or persons identified in the **declaration** shall be responsible for contacting and mobilizing the response organization. Once a certificate is obtained for this vessel the relevant contact information is to be added in Appendix A – Contacts - Coastal State Contacts.

4.2.4.2 Port Contacts

For the ship in port, notification of local agencies, combating teams or clean-up companies will speed response. If an oil spill occurs during the ship's stay in a port, whether operational or as a result of an accident, the Master should inform the appropriate agencies (e.g. National Response Center, Terminal/Port Authorities etc.) without undue delay.

If the ship is engaged in a regular service between port/terminals the Master or any other person aboard delegated by the Master should provide a list with the relevant port contact addresses for each port served regularly of Authorities/persons/and terminals dealing with oil spill.

This list should be regularly updated.

5.0 Steps to Control Discharge

Ship personnel will most probably be in the best position to take quick action to mitigate or control the discharge of oil or noxious liquid substances from their ship. Therefore, this Plan provides the Master with clear guidance on how to accomplish this mitigation for a variety of situations.

It is the Master's responsibility to initiate a response in the event of a discharge of oil / NLS or substantial threat of discharge - actual or probable - into waters.

In no case action should be taken that in any way could jeopardize the safety of personnel either onboard or ashore.

In cases of a discharge of noxious liquids substances the Master has to refer to the "Material Safety Data Sheet" (MSDS) provide onboard for any NLS cargo. Consideration is to have to be made to any danger resulting from discharge of such substances, i.e. mixing with water, air, other materials / substances.

Special consideration is to be taken in case of the necessity to transfer cargo into another compartment onboard of the compatibility of the material to be transferred and the material of pipes and tanks to be used for such actions.

In cases of small spills on deck, the vessel's crew should take whatever actions are necessary to prevent oil from escaping over the side. Once the spill is contained on deck, the crew will need to take action to clean up the oil. **Spilled oil shall not be washed over the side**. Once oil is in the water, the crew's ability to respond in a practical manner is greatly reduced.

The following list specifies different kinds of possible operational spills with regard to reactions to be taken.

5.1 Operational Spills

5.1.1 Operational Spill Prevention

All crew members shall maintain a close watch for the escape of oil or NLS during bunker or cargo operations.

Prior to bunker or cargo transfer the competent crew members should mobilize the spill equipment, as far as available on board, and place it close to the planned operation, e.g. along the railing on the side at which bunker operation takes place. All deck scuppers and open drains must be effectively plugged. Accumulations of water should be drained periodically and scupper plugs replaced immediately after the water has run off. Any free floating substances should be removed prior to draining.

Bunker or Cargo tanks which have been topped up should be checked frequently during the remaining operations to avoid an overflow.

Unless there are permanent means for retention of any slight leakage at ship / shore connections for bunker or cargo transfer, it is essential that a drip tray is in place to catch any leaking substance. The removed bunker oil and the used clean-up material should be retained on board in proper containment units until it can be discharged to a reception facility.

All crew members of the ship's crew should be familiar with the fundamentals of the ship's vital systems including the ventilation and electrical systems. Crew members should be able to isolate the accommodation and/or machinery spaces using the louvers and fan shutoffs and, from the distribution panels, isolate electrical circuits in areas of risk.

In the event of an operational spill which occurs during bunkering or cargo operations, it is important that the bunkering party terminate any and all bunkering operations and close all manifold valves.

Before closing any manifold valves, the bunkering / cargo party must immediately inform the terminal / loading master so that they may take action to eliminate the possibility of over- pressurization of the shore side transfer components.

After dealing with the cause of the spill, it may be necessary to obtain permission from local authorities and/or the terminal before resuming bunkering or cargo operations.

If the possibility of fire or explosion exists**,** nonessential air intakes to accommodations and machinery spaces should be closed and all sources of ignition should be eliminated. See Section 5.2.1.1 of this Plan.

Care must be taken to consider stability and stress when taking action to mitigate the spillage of oil. Internal transfers should be undertaken only with a full appreciation of the likely impact on the vessel's overall stress and stability. Please refer to the "Approved Stability Book" carried on board.

5.1.2 Operational Spill Checklist

Action Considered	Designated Person	Completed
Sound emergency alarm	Person Discovering Incident	Y / N
Mobilize Oil Pollution Prevention Team	Chief Engineer / Master	Y / N
Cease all bunkering operations	Chief / 2nd Engineer	Y / N
Locate source of leakage	Chief / 2nd Engineer	Y / N
Operate manifold valves	Chief / 2nd Engineer	Y / N
Close all nonessential vent intakes and tank vents as required	Chief / 2nd Engineer	Y / N
Stop or reduce outflow	Chief Engineer / Deckhand	Y / N
Assess fire risk	Chief Officer	Y / N
Commence clean up	Chief Officer	Y / N
Assess Stress / Stability	Master / Chief Officer	Y / N
Transfer fuel from damaged area to slack tanks or other containment space	Chief / 2nd Engineer	Y / N
Request outside assistance if required	Master	Y / N
Counter excessive list if required / possible	Chief Officer	Y / N

5.1.3 Pipeline Leakage

In the event of leakage from an oil / NLS pipeline, valve, hose or metal arm, the Chief Engineer must ensure that the following actions are taken:

- Stop oil flow, close manifold and other valves.
- Sound emergency alarm and mobilize Oil Pollution Prevention Team
- Locate source and drain affected section into an available empty or slack tank. Repair if possible
- If there is any possibility of vapours entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Absorb spill with any absorbent materials on hand and dispose of oil-soaked materials in an appropriate container on board until it can be discharged to a reception facility.
- If oil is overboard, report to proper authorities immediately (as per Section 4 of this plan).

5.1.4 Tank Overflow

In the event of an oil tank overflow, the Chief Engineer must ensure that the following actions are taken:

- Stop oil flow, close manifold and other valves.
- Sound emergency alarm and mobilize Oil Pollution Prevention Team
- Place drain buckets under overflow pipes to contain possible spills.

- If there is any possibility of vapours entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Drain or transfer oil to slack or empty tanks if possible with due consideration paid to vessel stability. If no slack or empty tanks are available, oil may be pumped back ashore through delivery lines, having first gained permission to do so.
- Absorb spill with any absorbent materials on hand and dispose of oil-soaked materials in an appropriate container on board until it can be discharged to a reception facility.
- If oil is overboard, report to proper authorities immediately (as per Section 4 of this plan).

5.1.5 Hull Leakage

If oil is noticed on the water near the vessel during normal operations and cannot be accounted for, the possibility of hull leakage should be suspected.

In the event of a hull leakage, the Master must ensure that the following actions are taken:

- Sound emergency alarm and mobilize Oil Pollution Prevention Team.
- Stop any transfer or bunkering operations.
- Identify damage and report to proper authorities immediately (as per section 4 of this plan). Consider a diver if necessary and possible.
- If possible, contain spill using materials on hand and dispose of oil-soaked materials in an appropriate container.
- If there is any possibility of vapours entering the engine room or accommodation intakes, appropriate preventative steps must be quickly taken.
- Transfer fuel away from suspected leaks to empty or slack tanks if possible, or to a ballast tank if necessary. If in port, arrangements can be made to pump oil ashore to tanks or trucks. Due consideration is to be paid to vessel stress and stability.
- If it is not possible to identify the leaking tank, reduce level in all tanks in the vicinity, giving due consideration to vessel stress and stability.

5.1.6 Spills caused by Equipment in Machinery Spaces

If operational spills are caused by failure of equipment in machinery spaces, any further operation of this equipment should be stopped immediately and measures are to be taken to avoid a spill. Such equipment may be:

- Oily - water separating equipment or oil filtering equipment or oil filtering equipment to de-oil bilge water from the engine room bilges.
- Valves in pipes connecting ballast / cargo systems
- Cooling pipes in cooler systems
- Gearing of bow thruster
- Stern tubes
- Sound emergency alarm and mobilize Oil Pollution Prevention Team.
- Absorb spill with any absorbent material in hand and dispose of oil-soaked materials in an appropriate container.
- Do not restart equipment until problem has been rectified.

5.2 Spills Resulting from Accidents

In the event of a casualty the Master's first priority will be to ensure the safety of personnel and the vessel and initiate action to prevent escalation of the incident and marine pollution.

5.2.1 Ship Grounded / Stranded

In order to determine remedial action to be taken for ensuring the safety of the ship and its crew, the Master's priority should be to ensure that he receives detailed information about the damage the ship has sustained as soon as possible.

If the vessel grounds, the Master must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Eliminate all avoidable sources of ignition and ban smoking onboard. Action bust be taken to prevent hazardous vapours from entering accommodation and machinery spaces. See section 5.1.1.
- Identify damage by means of a visual inspection.
- Take soundings around vessel to determine the nature and gradient of seabed.
- Check differences in tidal range at grounding site.
- Evaluate tidal current in grounding area.
- Take soundings of all tanks on shell and compare with departure soundings.
- Determine probability and/or quantity of oil released
- If oil release is determined or is probably, this is to be included in the casualty report.
- Determine other possible hazards to the vessel such as sliding off the grounding site or further damage from seas / swell, and torsion forces.

At this point, the Master should evaluate the question of refloating the vessel by own means. Before such an attempt is made, it must be determined:

- whether the ship is damaged in such a way that it may sink, break up or capsize after getting off
- whether the ship, after getting off, may have maneuvering problems upon leaving the dangerous area on its own.
- whether machinery, rudder or propeller are damaged due to grounding or may be damaged by trying to get off ground by own means.
- whether the ship may be trimmed or lightened sufficiently to avoid damage to other tanks in order to reduce additional pollution.
- weather evaluation; whether there is time/reason to await improvements in weather or tide.
- whether ship's structure permits refloating/consultation of DNV-GL Emergency Response Service (ERS)
- whether all steps of Coastal Shipping Ltd. procedure "Grounding" have been complied with.

If remaining aground is determined to be less of a risk then:

- Use anchors to prevent vessel movement.
- Take on ballast in empty tanks with due consideration paid to stress and stability. Please refer to the approved stability book.
- Consider transfer of fuel from damaged tanks with due consideration paid to stress and stability. Please refer to the approved stability book.
- Reduce longitudinal stress on the hull by transfer of fluids internally. Please refer to the approved stability book.
- If the change in stability and stress cannot be calculated onboard, contact the vessel's management to arrange for the necessary calculations. Refer to 5.7 Vessel Stress and Stability Information for information which should be provided.

5.2.2 Fire/Explosion

If the ship is aground and therefore cannot manoeuvre, all possible sources of ignition should be eliminated and action taken to prevent flammable vapors from entering the machinery spaces or the accommodation spaces.

If a fire or explosion occurs on board, the vessel's fire control party must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Determine extent of damage and what damage control measures can be taken.
- Determine whether there are casualties.
- Request assistance as deemed necessary.
- Take necessary actions to prevent smoke and other hazardous vapours from entering the accommodation and machinery spaces.
- Assess possibility of oil leakage.
- Determine possible actions to control the discharge of oil. This will depend largely on the damage to the ship and cargo.
- If there is a discharge or possible discharge of oil, this to be included in the casualty report.
- Should abandonment be necessary, the Master must ensure that every effort is made to maneuver survival craft upwind of any oil spill.

The Coastal Shipping Emergency Procedure **"Fire and Explosion"** in the file Emergency Preparedness should be complied with.

Steps to control the discharge of oil will depend largely on the damage to the ship and cargo. Special information thereto is contained in subparagraphs 5.2.3, 5.2.4, and 5.2.6. Inform in line with Section 4 all parties interested about the Fire /Explosion and the actions taken so far.

5.2.3 Hull Failure

If the vessel suffers structural hull failure, the Master must ensure that the following actions are taken:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Reduce speed or stop to minimize stress on hull.
- Assess immediate danger of sinking or capsizing.
- Initiate damage control measures if possible.
- If lightening is required, all efforts should be made to wait for a barge or other ship to receive the cargo.
- If oil has spilled, or if it is necessary to jettison oil to maintain stability, make a report as per section 4.2.3
- If the change in stability and stress cannot be calculated onboard, contact the vessel's management to arrange for the necessary calculations.
- Consider forecasted weather conditions and their effect on the situation.
- Should abandonment be necessary, the Master must ensure that every effort is made to maneuver survival craft upwind of any oil spill.

5.2.4 Excessive List

Should the ship for some reasons suddenly start to list excessively during discharging/loading operations, or bunkering, all ongoing operations should be stopped immediately until the cause has been determined.

The Officer on duty should inform the Master and/or Chief Officer without delay.
The Master should try to determine the reason for excessive list, and take steps to rectify the situation and to stabilize the ship's condition:

- Check reasons for list
- Soundings / Ullage to be taken in all tanks
- Bunker / Ballast / Cargo pumps to be made ready
- Consider measures to minimize list in transferring liquid from one compartment to another
- Ensure water tightness of empty spaces
- Close all opening
- Secure vent pipes to avoid ingress of water
- If bunkering: change to corrective tanks for rectifying the situation
- If ballasting / de-ballasting: change to corrective tanks to rectify the situation
- If there is reason to believe that the list may cause any spill, notify as per Section 4
- If the ship's crew is in jeopardy, prepare lifeboats for launching, and notify as per Section 4

If the situation is brought under control, inform all parties interested.

5.2.5 Cargo Containment System Failure

In the event of cargo containment system failure, the following priorities must be observed:

- Safety of life
- Control of damage to the vessel and cargo
- Prevention of environmental pollution

Personnel must not take risks which may endanger their own lives or the lives of any other crew members.

The nature of the containment failure may be varied, and for this reason a number of possibilities are addressed below.

Initial Emergency Action:

- Personnel are mustered and briefed on the situation. This briefing will include aspects of the Data Sheet on board (MSDS). The IBC Code contains the definitive list of pollutant aspects of NLS and the IMDG Code supplement contains emergency schedules for incidents with dangerous cargoes. Where a dangerous reaction of different cargo types is anticipated, see 5.2.9.
- Protective clothing and breathing apparatus donned as required.
- All accommodation access doors will be shut.
- All valves, hatches, storeroom doors on the cargo deck will be shut.
- All ventilation into the accommodation, except closed circuit systems will be closed down.
- Smoking is prohibited throughout the ship.

Further Actions in Mitigation

- Fire hoses and water sprays ready for immediate action.
- Firefighting equipment and Breathing apparatus prepared for action.
- The company/charters informed and technical assistance asked for recovery of containment system
- Consider venting of cargo.
- Consider jettisoning of cargo.

5.2.6 Ship submerged / foundered / wrecked

If the ship is wrecked to the extent that it or parts of it are submerged, take all measures to evacuate all persons onboard. Avoid contact with any spilled cargo or oil. Alert other shops and/or the nearest coastal state for assistance in rescuing lives and the as far as possible.

5.2.7 Collision

The Master shall follow the emergency plan as given in Coastal Shipping Ltd Emergency procedure "Collision" in file: Emergency Preparedness as follows:

- Sound emergency alarm, muster crew, and mobilize Oil Pollution Prevention Team once safe to do so.
- Determine whether there are casualties.
- If there is a possibility of fire or explosion, eliminate all avoidable sources of ignition and ban smoking onboard. Action should be taken to prevent flammable vapours from entering the accommodation and machinery spaces.
- Decide whether separation of vessels may cause or increase spillage of oil or increase the risk of sinking.
- If any oil tanks are penetrated, isolate these tanks or transfer oil to slack or empty tanks with due attention paid to stress and stability of the vessel. Please refer to the approved stability book.
- If there is an oil spill, make a report as per section 4.
- If possible to maneuver, the Master, in conjunction with the appropriate shore authorities should consider moving his ship to a more suitable location in order to facilitate emergency repair work or lightening operations, or to reduce the threat posed to any sensitive shoreline areas.

5.2.8 Procedures to reduce or Stop Outflow of Oil or NLS

The Master should assess the possibility of damage to the environment and whatever action can be taken to reduce further damage from any release, such as;

- Transfer /cargo internally, provided shipboard piping system is in an operational condition and in careful view of the compatibility of the substance and the tanks/pipes used for transfer, and taking into account the impact on the ship's overall stress and stability.
- Isolate damaged/penetrated tanks hermetically to ensure that hydrostatic pressure in tanks remains intact during tidal changes.
- Evaluate the possibility of pumping water into a damaged tank in order to form a water bottom stopping the outflow of oil.
- Evaluate the necessity of transferring bunkers / cargo to barges or other ships and request such assistance accordingly.
- Evaluate the possibility of additional release of oil or NLS in close co-operation with coastal states.

In case of large differences between the tide levels, the Master should try to isolate the damaged tanks to reduce additional to reduce additional loss of substances.

5.2.9 Dangerous reaction of cargo / contamination yielding a hazardous condition

In case of spillage of NLS cargo on deck, to the sea, or incidental mixture with other cargo through internal tanks leakage, consider dangerous reactions of such mixtures. Promptly consult the Material Sheet Data Sheet (MSDS) available for the cargo onboard about possible hazards and necessary precautions. Take necessary actions to protect the crew from contact with spilled material or its vapours and review first aid procedures in the event of contact.

5.2.10 Other dangerous cargo and / or vapour release

In case of release of dangerous NLS take necessary actions for the protection of the crew against health hazards, especially by contact with materials or its toxic vapours. Avoid material or vapours spreading over the ship. If any dangerous material or vapour is released from any part of the containment system, take arrangements to free the deck area as far as possible by turning the ship to have the accommodation upwind of the point of release.

Evacuate crew members from the endangered area. If persons have to carry out any unavoidable duties within the endangered area, insure personal protection devices are used for those persons to avoid direct contact. All possible sources of ignition should be eliminated and non-essential air intakes shut down to prevent intake of vapour into accommodation and engine spaces.

Take measures to reduce tanks level or pressure to stop any emission of material or vapour. Report such spillage to nearest coastal state in order to arrange precautionary measures for the environment.

5.2.11 Loss of tank environmental control

Consider loss of environmental control as a possible explosion hazard. Consult the MSDS sheets for specific hazards. Avoid air intake to the spaces.

5.3 Priority Actions

Top priority shall in all cases of emergency be the safety of the persons onboard and to take actions to prevent escalation of the incident. Immediate consideration should be given to the protective measures against fire, explosions, and personal exposure to toxic vapour.

Detailed information about damage sustained to the ship and its containment system has to be obtained. On the basis of the information the Master can decide next actions for the protection of lives, the ship, the cargo and the environment.

The Master should take into account the following when he is determining whether salvage assistance will be needed or not:

- Nearest land or hazard to navigation
- Vessel's set and drift
- Estimated time of casualty repair

- Determination of nearest capable assistance and its response time.

Detailed information about the cargo, especially NLS Cargo has to be available and to be referred to further actions regarding the cargo.

In case of necessary movement of cargo within the ship careful consideration is to be given to hull strength and stability as well as to the compatibility of all material (cargo, tanks, coating, piping) in view of any transfer actions planned.

Plans / tables about location and specification of the current cargo as well as bunkers and ballast have to be readily available. Information about current cargo / bunker / ballast distribution and the MSDS for the carried cargo substances are available at:

- Cargo, bunkers, ballast distribution: Cargo Office
- Material Safety Data Sheets (MSDS); Alleyway opposite of the cargo office

5.4 Mitigating Activities

If safety of both the ship and the personnel has been addressed the Master shall care for the following issues:

- Assessment of the situation and monitoring of all activities as documented evidence
- Care for further protection of the personnel, use of protection gear, assessment of further risk for health and safety
- Containment of the spilled material by absorption and proper and safe disposal of all material onboard until proper delivery ashore under close guidance of the safety information given by the Product Data Sheet
- Decontamination of Personnel after finishing the cleanup process.

5.5 Transfer of Bunker / Cargo - Lightening

If the ship has sustained extensive structural damage, it may be necessary to transfer all or part of the cargo/bunker to another ship. In Ship to Ship transfer operations involving a specialized service ship, the Master of that ship will normally be in overall charge.

In the case of non-specialized ships the Master or other person in overall charge of the operation should be mutually agreed and clearly established by the Masters concerned prior to the start of operations. The actual bunker/cargo transfer should be carried out in accordance with the requirements of the receiving ship.

In all cases each Master remains responsible for the safety to be jeopardized by the action of the other Master, his owner, regulatory officials or others.

The ship to ship transfer operations should be coordinated with the appropriate responsible local Authority. When selecting the area of operation the Masters should consider the following points:

- The need to notify and obtain the agreements of any responsible authority
- The destinations of the ships concerned
- The shelter provided, particularly from sea and swell
- The sea area and depth of water, which should be sufficient for maneuvering during mooring, unmooring, and transfer operations and allow a safe anchorage if operations have to be undertaken at anchor
- The traffic density
- The weather conditions and weather forecasts.

Further, before commencing Ship to Ship Transfer operations each ship should carry out, as far as possible, appropriate preparations like:

- Pre-mooring preparations of the ship
- Positioning of fenders if such equipment is available on board
- Mooring equipment arrangements
- Checking the communication channels between the two ships.

In addition to the general principles of Ship to Ship operations as aforementioned the Master should take note of supplemented instructions issued in the Coastal Shipping Ltd bunkering procedures.

5.6 Damage Stability and Hull Stress Calculation

Whenever the tank status changes in the course of the incident the stability and stress of the vessel has to be checked using the class approved cargo computer.

In case of hull damage stability shall instantly be checked using the appropriate application of the cargo computer. The damage control plan should be referred to. In addition to that the **DNV-GL Emergency Response Service (ERS)** is to be consulted for proper stress and stability calculations.

Whenever possible, contact to the **DNV GL ERS** will be via the Coastal Shipping Ltd. office to reduce the workload onboard. Otherwise the vessel can contact the **DNV GL ERS** directly using the following numbers:

Primary: **+47 91 84 97 15**
Backup: **+49 40 36149 199** (+code word "**OPA 90**")
Email: **emergency@dnvgl.com**

5.7 Vessel Stress and Stability Information

VOYAGE PARTICULARS

Departure Port

Departure Date

Time (GMT)

VESSEL CONDITION IMMEDIATELY BEFORE CASUALTY

Mean Draft Forward

Mean Draft Aft

KG(solid)

KG(fluid)

LCG of Vessel

Condition of Tanks and Compartments

#	COMPARTMENT	S.G.	TONNES

5.7.1 General Responsibilities of the Master and designated Officers / crew members

The responsibilities of the Master Officers and the crew onboard in the event of a spill actual or probable to bring the accident under control on board, limit overflows or cleanup procedures, and to secure the ship immediately if an incident occurs.

The following is an example which can be used by the Master to aid in designating officers. Should changes to the team be made, please make a record in this section:

Master
Chief Mate
Chief Engineer

In the event of an emergency, the team should be called out as soon as it is safe to do so.

The team should be given necessary training in the use of such equipment as oil absorbents that the vessel may carry. All members crew should be aware of their duties should an oil spill occur.

Master

- Overall in charge.
- Informs terminal authorities or coastal authorities of incident.
- Informs the local agent and requests agent to inform the local underwriter's representative.
- Advises the company's head office of the situation. Keeps everyone updated at regular intervals. and advises of any changes in status of the emergency.
- Keeps log of all events and progress of actions.

Chief Mate

- In charge of deck / cargo operations.
- In charge of lifeboats if required.
- Keeps the Master informed and updated on the situation and of the results of steps taken to contain any spills and limit outflow.
- Insures all openings in the deck and superstructure are closed to limit vapour entry.
- Position sorbent / clean up material to prevent any fluid escape.

Chief Engineer

- In charge of bunkering operations.
- Organizes distribution of oil spill detergents if required.
- Stops bunkering operations if applicable.
- Stops pumps and any unnecessary pieces of machinery.

Other Personnel

Deck Officer on duty

- Alerts and informs Chief Officer / Chief Engineer on the situation.
- Mobilize off duty crew as necessary.

Engineer on duty

- Assist the Chief Engineer.
- Prepare for fire fighting.
- Ensure sufficient power and water to deck.
- Organizes onboard clean up equipment.

Deck Officer off duty

- Under the direction of the Master, responsible for the reporting and record keeping of all events.

On duty Ratings

- Alerts the Officer on duty of any leakage.
- Position sorbent / clean up material to prevent any fluid escape.

Off duty personnel

- Assist as required

6.0 National and Local Co-Ordination Steps to Control Discharge

In accordance with the Canadian Pollutant Discharge Reporting Regulations, the Master or Owner of a ship must report, without delay, any discharge or anticipated discharge of a pollutant in Canadian waters or fishing zones, to a Pollution Prevention Officer (PPO). Reports must be made in the manner described in Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, TP 9834, or "General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants" adopted by the IMO by Resolution A.851(20) as amended with MEPC.138(53). These initial reports can be made to Marine Communication and Traffic Service (MCTS) or any other Canadian Coast Guard Radio Station (CGRS), on the frequencies listed in the publication, Radio Aids to Marine Navigation (RAMN).

In addition to the above process for reporting a spill from a vessel to a PPO through a CGRS or MCTS, the Canadian Coast Guard maintains a 24 hour Operations Center which can be contacted at:

Canadian Coast Guard Operations Center
344 Slater Street
Ottawa, Ontario
K1A 0N7

Tel: (613) 990-5600 Fax: (613) 995-4700

Alternatively, spills may be reported to the appropriate regional center or nearest Vessel Traffic Service Center. See Appendix A, page 30-31, for contact information.

Appendix A:

Contact Information

Ship Interest Contacts

Vessel Management

Coastal Shipping Limited (Owners)
P. O. Box 910
Lewisporte, NL
A0G 3A0
Canada
Ph: (709) 535-6944
Fax: (709) 535-3354

24 Hour Emergency Contacts

Vice President, Operations	Dennis White	(709) 896-2421 work (709) 896-1404 cell (709) 896-2870 home
General Manager	Paul Gersok	(709) 535-6944 work (709) 541-1807 cell pgersok@woodwards.nf.ca
Marine Superintendent/DPA	Craig Farrell	(709) 535-6944 work (709) 541-0789 cell cfarrell@woodwards.nf.ca
Engineering Superintendents	Jim Babij	(709) 579-6127 work (709) 727-5065 cell (709) 576-0160 home
	Kevin Brewer	(709) 579-6127 work (709) 682-0826 cell (709) 227 2600 home

Coastal State Contacts

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Vessel Traffic Service Centers

Note:

The following contacts have been included as they are within the expected range of operation of the Vessel. Due to the nature of the Vessel's voyages and varied ports of call this list should not be considered exhaustive. For this reason, space has been included at the end of this section for addenda.

Newfoundland

St. John's	Tel:	1-709-772-2083
		1-800-563-2444 (24 hr.)
	Fax:	1-709-772-5369
Placentia Bay	Tel:	1-709-227-2182
	Fax:	1-709-227-5637
Port Aux Basques	Tel:	1-709-695-2167
	Fax:	1-709-695-7784
Goose Bay	Tel:	1-709-896-2252
	Fax:	1-709-896-8455
St. Anthony	Tel:	1-709-454-3852
	Fax:	1-709-454-3716

Nunavut

Nordreg Canada	Tel:	1-867-979-5724
P.O Box 189	Fax:	1-867-979-2464
Iqaluit, NU		
X0A 0H0		

Nova Scotia

Halifax	Tel:	1-902-426-9750 (MCTS Operations)
		1-902-426-9738 (Officer in Charge)
	Fax:	1-702-426-4483
Sydney	Tel:	1-902-564-7751 (MCTS Operations)
		1-902-564-7752 (Officer in Charge)
	Fax:	1-702-564-7662

New Brunswick

Saint John	Tel:	1-506-636-4696 (MCTS Operations)
		1-506-636-4269 (Officer in Charge)
	Fax:	1-506-636-5000

Quebec

Quebec City	Tel:	1-418-648-4427 (MCTS Operations)
		1-418-648-7459 (Officer in Charge)
	Fax:	1-418-648-7244

Montreal	Tel:	1-450-928-4544 (MCTS Operations)
		1-450-928-4547 (Officer in Charge)
	Fax:	1-450-928-4547
Riviere-Au-Renard	Tel:	1-418-269-5686 (MCTS Operations)
		1-418-269-7718 (Officer in Charge)
	Fax:	1-418-269-5514

Greenland

Spill Notification Point	Tel:	+299-101111
Groenlands Kommando	Fax:	+299-10112
Maritime Rescue Coordination Center Gronnedal		
KK-3930 Gronnndell		

Competant National Authority	Tel:	+45-31 578310
National Agency of Environmental Protection		+45-86 123099 (24hr)
Strandgade 29	Fax:	+45-31 572449/+45-86 181140
DK- 1401 Copenhagen		

Additional Contact Information

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Region	
Spill Notification Point	Contact Numbers

Appendix B:

Spill Equipment Inventory

M/T Tuvaq W.

List of Oil Spill Equipment

- 8 bags sawdust
- 26 booms
- 25 boxes rags
- 50 bags absorb-all
- 11 boom anchors
- 1 windy pump
- 1 pollution boom

Also to be kept onboard a sufficient quantity of squeegees, straw brooms, shovels, brushes, mops, degreaser, disposal bags, and personal protective equipment.

Appendix C:

Vessel Drawings

SNIS.OT530.100.002

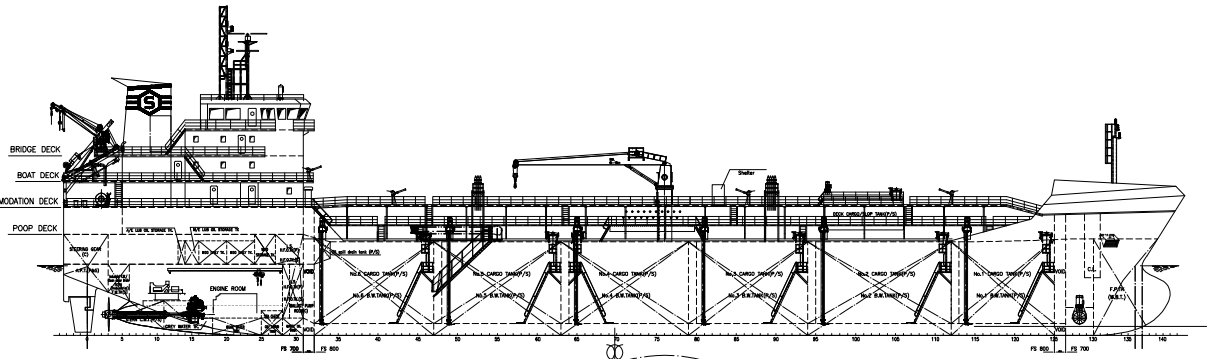
COMPASS DECK

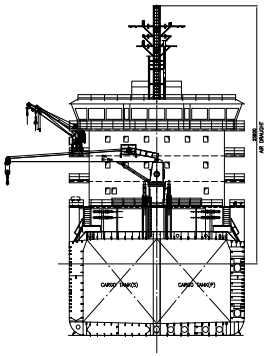
BRIDGE DECK

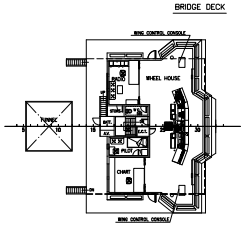
BOAT DECK

ACCOMMODATION DECK

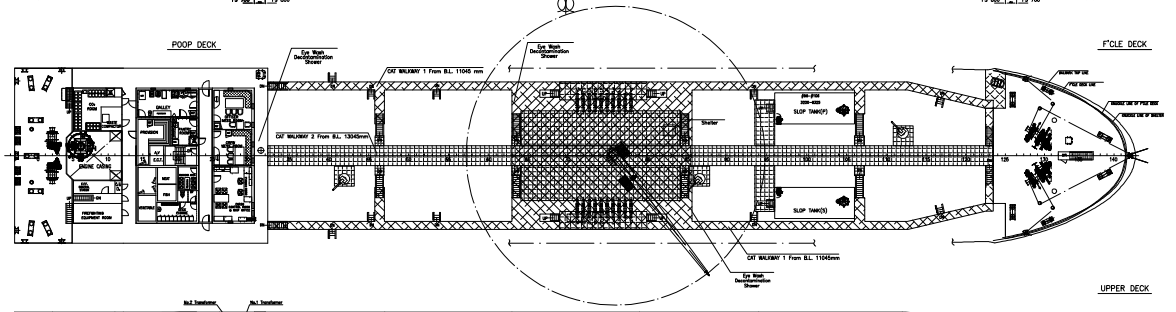
POOP DECK





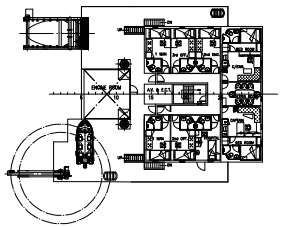


BRIDGE DECK

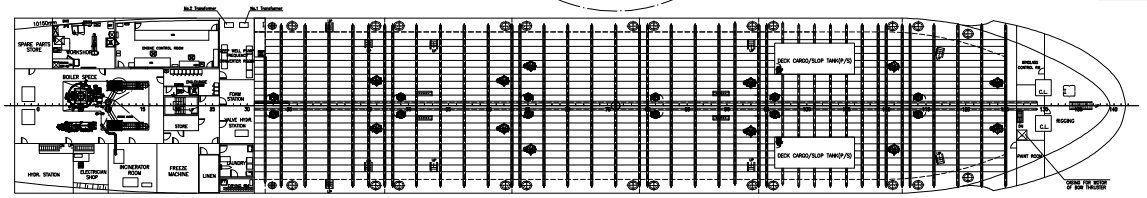


POOP DECK

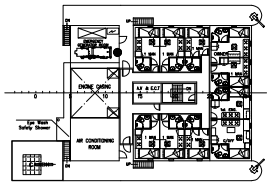
F'CLE DECK



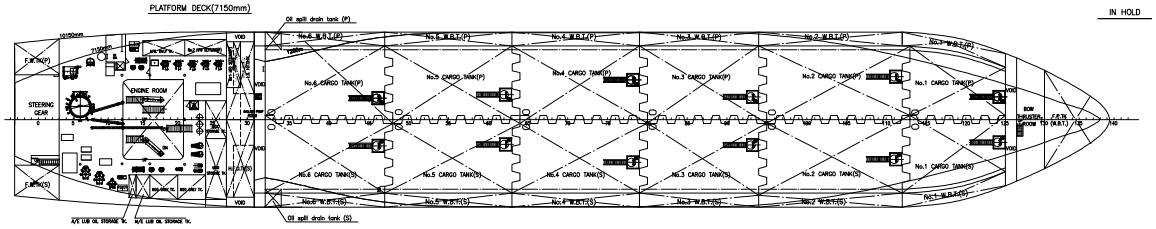
BOAT DECK



UPPER DECK

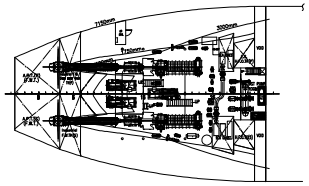


ACCOMMODATION DECK

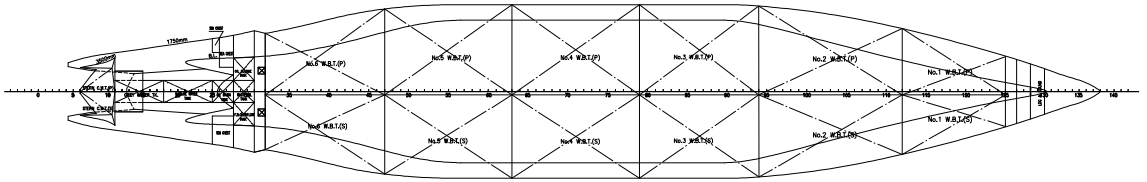


PLATFORM DECK(7150mm)

IN HOLD



E/R BOTTOM (1750mm)



DOUBLE BOTTOM

MAIN DIMENSIONS

Length over all	abt.112.70 m
Length between p.p.	106.00 m
Breadth moulded	17.60 m
Depth moulded	9.40 m
Design draught	7.00 m
Scantling draught	7.20 m
Deadweight at design draught	7500 t
Deadweight at scantling draught	abt. 7800 t
COMPLEMENTS	16 P
Speed	13.8 Kn
GRT	5200
Cargo tanks capacity incl. slop tanks (100%)	8981.4 m^3
H.F.O. tanks capacity (100%)	270.2 m^3
M.D.O. tanks capacity (100%)	92.4 m^3
F.W. tanks capacity (100%)	101.8 m^3
W.B. tanks capacity (100%)	3463.0 m^3

Class Notation:

BV I ✠ HULL

OIL TANKER/CHEMICAL TANKER TYPE IMO II ESP.

NO FLASH POINT LIMITATION,

✠ MACH

UNRESTRICTED NAVIGATION

AUT_UMS

MON_SHAFT

AVM DPS

ICE CLASS IA

SHAFT GENERATION-PTO

CLEAN SHIP

IG

REVISION	DESCRIPTION	DATE	NAME

	NAME	DATE
DRAWN	C.Y.F.	
CHECKED	XLF	
APPROVED	YZT	
SCALE	SCALE	
PAGE:	PAGE	
TOTAL:	TOTAL	

7500 DWT OIL PRODUCT/CHEMICAL TANKER

SHANGHAI NEW INNOVATION SHIP SCIENCE & TECHNOLOGY DEVELOPMENT CO., LTD.

TITLE

GENERAL ARRANGEMENT PLAN

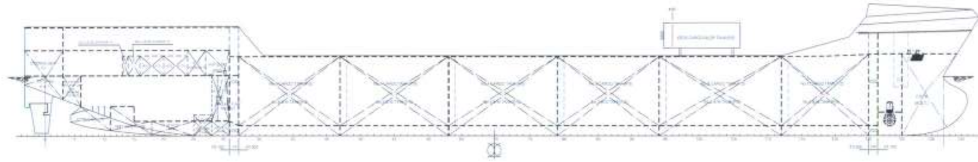
DESIGN STAGE: FINAL DRAWING

YARD AND HULL No. QHCY-7500-07

REVISION F

DRAWING No. SNIS.OT530.100.002

AREA: 0.5m²

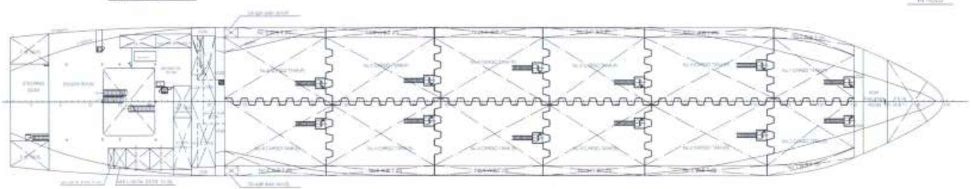


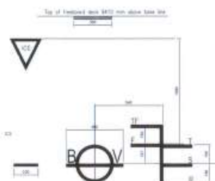
MAIN DIMENSIONS

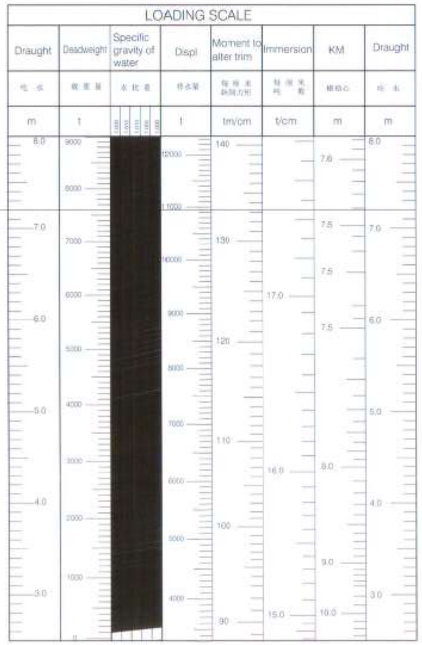
LENGTH OVER ALL	abt 112.70 m
LENGTH BETWEEN P.P.	106.00 m
BREADTH MOULDED	17.60 m
DEPTH MOULDED	9.40 m
DESIGN DRAUGHT	7.00 m
SCANTLING DRAUGHT	7.20 m

IN HOLD

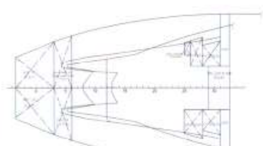
PLATFORM DECK

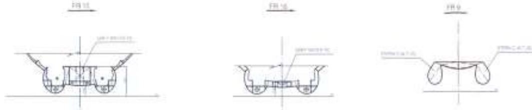




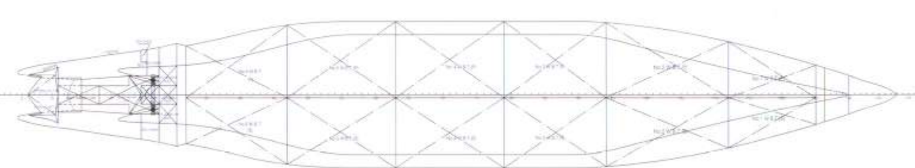


E/R BOTTOM





DOUBLE BOTTOM



COMP. NAME	FRAM #	FRAM #	WGT t	VOLM m3	LCG m	TCG m	VCG m	FSM tm
CAPACITY OF Liquid cargo								
No.1 CARGO TANK(P)	112	125	411.2	419.6	91.79	2.60	5.91	208.0
No.1 CARGO TANK(S)	112	125	417.9	426.4	91.77	-2.64	5.91	220.9
No.2 CARGO TANK(P)	94	113	832.1	849.1	79.82	3.49	5.63	493.4
No.2 CARGO TANK(S)	94	113	826.8	843.7	79.87	-3.48	5.63	482.1
No.3 CARGO TANK(P)	79	95	735.6	750.6	66.78	3.64	5.47	410.5
No.3 CARGO TANK(S)	79	95	727.5	742.4	66.82	-3.66	5.47	397.6
No.4 CARGO TANK(P)	63	80	780.6	796.6	54.41	3.66	5.47	431.1
No.4 CARGO TANK(S)	63	80	780.6	796.5	54.39	-3.66	5.47	431.0
No.5 CARGO TANK(P)	47	64	777.7	793.5	41.57	3.65	5.48	431.0
No.5 CARGO TANK(S)	47	64	777.9	793.7	41.67	-3.65	5.48	431.1
No.6 CARGO TANK(P)	32	48	701.9	716.3	29.17	3.42	5.69	416.2
No.6 CARGO TANK(S)	32	48	704.4	718.8	29.12	-3.43	5.69	419.2
DECK CARGO/SLOP TANK(P)	96	106	73.5	75.0	78.00	4.76	11.90	19.9
DECK CARGO/SLOP TANK(S)	96	106	73.5	75.0	78.00	-4.76	11.90	19.9
SUBTOTAL			8621.1	8797.1				4811.8

COMP. NAME	FRAM #	FRAM #	WGT t	VOLM m3	LCG m	TCG m	VCG m	FSM tm
CAPACITY OF Water Ballast (Density=[illegible])								
No.1 W.B.T.(P)	112	125	205.8	210.0	81.85	4.80	3.94	150.6
No.1 W.B.T.(S)	112	125	197.3	201.3	81.85	-5.00	4.09	102.5
No.2 W.B.T.(P)	94	112	312.1	318.5	79.57	5.00	3.22	640.5
No.2 W.B.T.(S)	94	112	300.2	306.4	79.57	-6.15	3.33	690.2
No.3 W.B.T.(P)	79	94	263.0	268.4	66.40	6.12	3.04	752.6
No.3 W.B.T.(S)	79	94	253.1	258.3	66.40	-6.36	3.13	591.6
No.4 W.B.T.(P)	63	79	280.8	286.6	54.00	6.12	3.03	807.0
No.4 W.B.T.(S)	63	79	270.3	275.8	54.00	-6.36	3.13	634.7
No.5 W.B.T.(P)	47	63	280.8	286.5	41.20	6.11	3.05	783.9
No.5 W.B.T.(S)	47	63	270.2	275.7	41.20	-6.35	3.14	615.1
No.6 W.B.T.(P)	32	47	257.1	262.4	28.94	5.85	3.22	444.6
No.6 W.B.T.(S)	32	47	247.2	252.3	28.94	-6.08	3.32	335.3
F.P.TK (W.B.T.)	130	141	230.0	234.7	103.62	0.00	5.32	200.8
SUBTOTAL			3368.1	3436.8				6549.7

COMP. NAME	FRAM #	FRAM #	WGT t	VOLM m3	LCG m	TCG m	VCG m	FSM tm
CAPACITY OF Diesel Oil (Density=0.85 t/m3)								
No.1 MDO DAILY (S)	20	24	15.3	15.6	15.42	-5.73	8.36	3.2
No.2 MDO DAILY (S)	18	20	13.9	14.1	12.63	-5.62	8.38	2.9
No.1 MDO STOR.TK (P)	24	27	23.5	23.9	17.65	0.00	8.65	9.5
No.2 MDO STOR.TK (S)	24	27	37.7	38.5	17.65	-4.96	6.66	35.7
SUBTOTAL			90.3	92.1				50.4
CAPACITY OF Heavy Fuel Oil (Density=0.98 t/m3)								
HFO DAILY TK	15	21	12.4	12.7	12.71	7.06	6.42	1.2
No.1 HFO SETTLING	27	29	14.5	14.8	19.60	5.60	6.26	12.1
No.2 HFO SETTLING (P)	21	27	15.1	15.5	16.83	7.19	6.38	1.4
H.F.O.TK (S)	27	31	116.5	118.2	20.48	-4.38	6.97	106.9
L.B.H.F.O.TK (P)	27	31	96.7	103.4	20.58	4.18	6.71	106.9
SUBTOTAL			249.2	264.5				228.7

COMP. NAME	FRAM #	FRAM #	WGT t	VOLM m3	LCG m	TCG m	VCG m	FSM tm
CAPACITY OF Fresh Water (Density=1 t/m3)								
Industrial F.W./Clean water Drain (P)	3	6	24.1	24.6	3.22	2.13	5.91	36.3
Industrial F.W.TK. (S)	3	6	24.1	24.6	3.22	-2.13	5.91	36.3
F.W.TK(P)	-3	3	49.8	52.3	0.18	3.84	7.77	37.8
F.W.TK(S)	-3	3	49.8	52.3	0.18	-3.84	7.77	37.8
STERN C.W.T.(P)	4	11	15.4	15.7	6.03	2.41	2.34	6.4
STERN C.W.T.(S)	4	11	15.4	15.7	6.03	-2.41	2.34	6.4
SUBTOTAL			180.2	178.6				159.5
CAPACITY OF Lubricating Oil (Density=0.9 t/m3)								
A/E LUB OIL STOR. TK (S)	13	14	2.9	2.9	9.45	-6.46	8.43	0.6
M/E LUB OIL STOR. TK (S)	14	16	6.2	6.3	10.51	-6.52	8.41	1.3
SUBTOTAL			9.1	9.2				1.9

COMP. NAME	FRAM #	FRAM #	WGT t	VOLM m3	LCG m	TCG m	VCG m	FSM tm
CAPACITY OF Gray Water (Density=1 t/m3)								
BILGE WATER TANK	18	28	28.2	28.7	16.51	0.00	0.98	27.8
F.O.OVERFLOW TANK	28	31	7.6	7.7	20.65	-2.15	0.87	1.6
OIL DRAIN TANK	25	28	7.9	8.0	18.56	0.00	0.88	1.6
GREY WATER TANK	11	18	15.4	15.7	9.76	0.00	2.34	3.7
OIL SLUDGE TANK	28	31	7.6	7.7	20.65	2.15	0.87	1.6
WASTE OIL TANK	28	31	7.9	7.9	20.65	0.00	0.87	1.6
SPILL P OIL TANK	32	34	5.1	5.2	23.53	8.04	8.59	0.7
SPILL S OIL TANK	32	34	5.1	5.2	23.53	-8.04	8.59	0.7
SUBTOTAL			84.7	86.4				39.7

BUREAU VERITAS Register : 16341P
FOR REFERENCE
See report n° CPO/12466/STA
Shanghai, 10-Sep-2012
[Electronic document]

BUREAU VERITAS PARIS 1828 INTERNATIONAL REGISTER

"BERING"
CAPACITY PLAN
RCJ1202-020-014-1
POJ MARINE ENGINEERING CORP.

APPENDIX B - The Central and Arctic Regional Response Plan (2008)

Canadian Coast Guard
Central & Arctic Region

Regional Response Plan

December 2008

LETTER OF PROMULGATION

The *Central & Arctic Regional Response Plan (2008)* replaces the *Central & Arctic Region Contingency Chapter (2006)* and the *Arctic Response Strategy (1999)*. 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.

The saving of life is of paramount consideration and the Plan is subordinate to the operational requirements of marine search and rescue.

The Plan has been reviewed by the internal partners identified in Section 3.3 in context to the services they may provide and by the external partners identified in Sections 3.4 and 3.5 to confirm their mandated response authorities.

Responsibility for the *Regional Response Plan* lies with the Assistant Commissioner Coast Guard Central & Arctic Region. The Central & Arctic Region Environmental Response branch is the custodian of the plan. The responsibility for specific sections is identified in Section 7 - Plan Maintenance and Custodians. Comments, recommendations and communications relating to the various sections are clearly identified in this section.

REVISION RECORD

CENTRAL & ARCTIC REGIONAL RESPONSE PLAN			
Section	Replace	Transmittal No.	Description of Changes
Entire Plan	All	December 1, 2005	Complete revision of Central & Arctic Regional Response Plan
Entire plan	All	April 1, 2006	Complete revision of Central & Arctic Regional Response Plan
7.1 Maintenance Process	Page 7-1	May 8, 2007	Update address to 520 Exmouth Street
8.3 CCG ER Phone List	Page 8-1	June 4, 2007	Update address to 520 Exmouth Street
Entire Plan	All	December 2008	Complete revision of Central & Arctic Regional Response Plan

Section 1 - INTRODUCTION

1.1. Authority

This plan is based upon the policy and guiding principles set forth in the *National Response Plan* of the *Canadian Coast Guard National Response Strategy*.

1.2. Purpose

The *Central and Arctic Regional Response Plan* is designed as a guide to Canadian Coast Guard staff and relevant stakeholders involved in marine spill responses. It outlines the Regional application of the various roles of On-Scene Commander (OSC) (active response), Federal Monitoring Officer (FMO) (ensuring the Responsible Party fulfills their obligations), and as a Resource Agency (in assistance to other Lead Agencies).

It contains the specific information and activities that are pertinent to all spill response activities within Central & Arctic Region (C&A Region).

1.3. Area of Responsibility

For the purposes of marine pollution response Central & Arctic Region is defined geographically as:

- The contiguous waters of the Canadian Arctic (North of 60^{o} Latitude) to the limits of the International Boundary, including the North Slope Area of the Yukon Territories, and internal waters of the Northwest Territories and the Territory of Nunavut; and

- The waterways contained within the provinces of Alberta, Saskatchewan, Manitoba, Ontario, and a western portion of Quebec commencing at the east wall of the Beauharnois Lock in the St. Lawrence River.

(see Figure 1-1 Fisheries and Oceans Central & Arctic Region)

Significant waterways include the Canadian Great Lakes and interconnecting waterways to the international Boundary with the United States, Hudson and James Bays, Lake Winnipeg, Lake Athabasca and interconnecting waterways, Great Slave Lake, Mackenzie River and the Northwest Passage in the Canadian Arctic.

There are also a number of specific geographic locations which, although not excluded from Canadian Coast Guard's mandate, require coordination between the managing authorities and this plan. These areas include the waters associated with

the various Port Authorities (Hamilton, Thunder Bay, Toronto and Windsor) and the St. Lawrence Seaway Authority (Welland Canal, St. Lawrence Locks) as defined by the *Canada Marine Act, 1998*.

Figure 1-1: Fisheries and Oceans Central & Arctic Region

1.4. Safety Policy

Safety is the first and foremost consideration in any pollution response in Central & Arctic Region. This commitment is expressed throughout this and other documents as well as in the programs relied on by the Environmental Response (ER) branch to prepare for such spills (i.e. training and exercising programs). General safety procedures and considerations to be followed by all members of the Regional Response Team are identified in Section 5.7 of this plan.

1.5. Links to the National Response Plan

The Guiding Principles and Mandate (including legislative, interdepartmental, intergovernmental and international agreements) as well as designation of Lead and Resource Agency roles are contained in the *National Response Plan Section 1 – Introduction.* The mechanism for activating the Environmental Response National Response Team is also defined in the *National Response Plan*.

1.6. Regional Response Plan Structure

The Regional Response Plan is structured to reflect the three fundamental phases of Environmental Response activities. These are:

1) Preparedness - through the regional application of Contingency Planning (resulting in specific response strategies), Training (state of personnel readiness), Exercising (state of system readiness) and Inventory Maintenance and Management (state of mechanical/equipment readiness).

2) Response Operations - identifying the mechanisms for:
   - *Initiating* (through a dedicated Duty Officer and Assessment process),
   - *Sustaining* (Operational functions as Lead or Resource Agency),
   - *Controlling* (using the Response Management System), and
   - *Finalizing* the response activity (decommissioning and reporting).

3) Claims, Recovery and After-action activities - for the documentation and recovery of spent resources from the polluter, their agents, national or international funding conventions.

Surrounding these fundamentals are the specifics of the Environmental Response Program in Central and Arctic Region that are too cumbersome to be included in the main text of this Response Plan. They include: Regional Agreements and Memoranda of Understanding, Regional Organization and the specific Annexes which support the program. Finally, the Response Plan includes the preliminary and supplementary matter such as Letter of Promulgation, Record of Revision and the Identification of Custodians and the Plan Maintenance process.

1.7. Linkages to other Response Plans in the Region

When a pollutant is spilled into the water, the Canada Shipping Act is not the only legislation that applies. Recognizing that being designated Lead Agency for pollution response to mystery spills and spills from vessels does not preclude other agencies from completing their mandate CCG acknowledges that the Internal and External Partners listed in Sections 3.4 and 3.5 have plans that are active within Central & Arctic Region.

1.8. Linkages to International Joint Plans

International Joint Plans and agreements affecting Central & Arctic Region include:

- Canada-United States Joint Marine Pollution Contingency Plan
- Canada-Denmark Agreement for Co-operation Relating to the Marine Environment, Annex B (Joint Marine Contingency Plan concerning Incidents resulting from Shipping Activities)
- Great Lakes Water Quality Agreement, Annex 9
- International Boundary Waters Treaty Act

The Canadian Coast Guard Environmental Response Branch also provides technical support for the Emergency Prevention, Preparedness and Response (EPPR) Working Group of the Arctic Council. The EPPR Working Group exchanges information on best practices for preventing spills, preparing to respond to spills should they occur, and practical response measures for use in the event of a spill.

The Arctic Council is an intergovernmental forum of the eight circumpolar countries (Canada, Denmark, Finland, Iceland, Norway, Sweden, the Russian Federation and the United States of America) that provides a mechanism to address the common concerns and challenges faced by the Arctic governments and the people of the Arctic.

Some work has been initiated with the Russian Federation for the development of a Joint Pollution Response Plan. To date no agreements have been signed.

Section 2 - AGREEMENTS AND MEMORANDA OF UNDERSTANDING

2.1 Overview

The Canadian Coast Guard (CCG), both Central & Arctic and National Headquarters, maintain numerous memoranda and letters of understanding and agreement between other government departments which outline shared responsibilities in pollution response. A brief description of the major agreements is listed below.

- Letter of Agreement between Canadian Coast Guard, Environmental Response Branch and Canadian Coast Guard, Operational Services and Canadian Coast Guard, Technical Services regarding the use of Environmental Response First Response Units (FRUs) by non-environmental response staff. This agreement concerns the use of FRUs at the various CCG facility sites (bases, sub-bases and search and rescue stations).

- Northwest Territories/Nunavut Spills Working Agreement. This agreement formalizes procedures whereby spill investigation and monitoring in the Northwest Territories (NT) and Nunavut (NU) can be coordinated.

- Fisheries & Oceans (DFO) and Environment Canada (EC) Letter of Agreement respecting transfer of responsibility as lead agency for mystery spills from Environment Canada (EC) to the Canadian Coast Guard/Fisheries & Oceans Canada (July 1996)

- Transport Canada (TC) and Fisheries & Oceans (DFO) Memorandum of Understanding respecting Marine Transportation Safety & Environmental Protection (May 1996). This MOU outlines the responsibilities transferred from TC to DFO in accordance with the *Public Service Rearrangement and Transfer of Duties Act*. Those pertinent to this plan include:
    a) The responsibility for ensuring the provision of pollution clean up services
    b) The authority to take actions to mitigate or prevent pollution from ships

- Letter of Understanding between the Canadian Coast Guard and the Hamilton Port Authority to outline the roles that the CCG and the HPA will

play in the event of a pollution incident which falls within the mandate of the Canadian Coast Guard.

- Letter of Understanding between the Canadian Coast Guard and the Thunder Bay Port Authority to outline the roles that the CCG and the TBPA will play in the event of a pollution incident which falls within the mandate of the Canadian Coast Guard.

- Letter of Understanding between the Canadian Coast Guard and the Toronto Port Authority to outline the roles that the CCG and the TPA will play in the event of a pollution incident which falls within the mandate of the Canadian Coast Guard.

- Letter of Understanding between the Canadian Coast Guard and the Windsor Port Authority to outline the roles that the CCG and the WPA will play in the event of a pollution incident which falls within the mandate of the Canadian Coast Guard.

Some memoranda of understanding and letters of agreement have been rendered defunct by virtue of the dissolution or reorganization of the entities that signed the original document. It is the Region's intent to assess the need for an MOU and in those cases where renewal is needed, to draft a new MOU and submit to the partner organization the request for re-entry into that agreement. For further information on these memoranda, please contact the Environmental Response Planning Section.

Section 3 - ORGANIZATION

3.1 General Application

This section describes the primary working relationships between Fisheries and Oceans (DFO), Canadian Coast Guard, Environmental Response branch (CCG/ER) and the various internal and external partners, clients and external resources.

Internal partners include: Other DFO sectors, directorates and branches, and other federal departments which provide direct assistance or have specific mandates which directly affect response activities.

External partners include those entities that share the burden of pollution response for their specific area of responsibility. These agencies include the provincial and territorial government ministries with the generic mandate of pollution response.

Clients include those entities that are specifically identified by the *Canada Shipping Act (CSA)* and have direct involvement in the response regime; they include Oil Handling Facilities (OHF), Legislated Ships and Non-legislated Ships.

External resources are those resources outside of the government that the Canadian Coast Guard may engage while conducting spill response activities. These include the Response Organizations (RO) certified by Transport Canada and other independent contractors which may perform more specific functions.

3.2 Fisheries and Oceans, Canadian Coast Guard - Environmental Response Branch (CCG/ER)

The Assistant Commissioner, Canadian Coast Guard through the Maritime Services Directorate and the Superintendent of Environmental Response (ER) directs the Regional Environmental Response Team. This team represents one facet of the overall crisis management structure within Central and Arctic Region and performs the function of the Lead Response Agency for pollution incidents as defined in the *National Response Plan – Section 1* of the *Canadian Coast Guard National Response Strategy.* The branch consists of approximately seventeen (17) full time employees (FTEs).

Internally, the Environmental Response Branch is made up of five (5) distinct but integrated functions:

1) *Direction and Administration* - providing the overall guidance, management and liaison with Headquarters. The Superintendent holds the responsibility for escalating a response and/or dedicating resources.
2) *Planning* - providing the design and management of plans and procedures to facilitate the preparedness posture of the Region (responsible for developing and maintaining intradepartmental, interdepartmental, client and regime stakeholder relationships).

3) *Operations and Inventory Maintenance & Management* - provide the management and maintenance of equipment to ensure the operational response readiness of the Region.
4) *Training* - provides the coordination and delivery of educational materials, to internal as well as external partners and clients, in support of the overall preparedness posture of the Region.
5) *Exercising* - provides the management and coordination of internal and external partners and clients to validate, practice and reinforce all aspects of the Response readiness of the Region.

In addition to these core functions, each staff member is required to actively participate in the operational aspects of the response regime based upon their skill and ability levels. This includes assuming various roles within the Response Management Structure acting as Duty Officer (DO) and supporting the overall emergency preparedness structure within the Region (not necessarily related exclusively to oil spills or pollution).

In the context of this Plan, the Environmental Response Branch is tasked to:

- Fulfill the Canadian Coast Guard's obligations as Lead Agency in an OSC or FMO posture in responding to marine pollution incidents from ships in waters of Canadian interest as well as from unknown sources.
- Act as a Resource Agency in support of a response led by another agency when requested.
- Staff a Duty Officer position on a 24/7 basis which, together with other agency representatives, will assess or direct the assessment of spill reports.
- Ensure that an appropriate response to pollution incidents is initiated on a timely basis.
- Provide initial response capabilities throughout the region.
- Monitor response and clean-up priorities when polluter has accepted responsibility.
- Ensure international commitments in spill preparedness and response are fulfilled.
- Provide a pollution response capability for lightering, salvage and offshore recovery operations.
- Provide Regional and HQ briefings on status of emergency operations.
- Evaluate, acquire and maintain specialized marine emergency countermeasures equipment and develop deployment techniques.
- Develop, distribute and maintain the *Central and Arctic Regional Response Plan* of the *Canadian Coast Guard National Response Strategy* (including area annexes) on behalf of Fisheries and Oceans.
- Review and comment on other government as well as industry pollution response plans upon request.
- Provide pollution response related training to Canadian Coast Guard and civilian personnel.

- Conduct spill response exercises according to the Canadian Coast Guard National Exercise Program (NEP) standards.
- Provide detailed explanations of response operations and policies to representatives of the media, interest groups, industry, police and Provincial and Municipal governments.
- Provide a centre of expertise for pollution concerns.
- Develop and foster a good working relationship with other authorities, shipping and oil/chemical handling communities.
- Working with Environmental Response Headquarters and the Chemical Industry to develop, implement and maintain a corresponding and complimentary regional capability for spills of hazardous and noxious substances other than oil.

3.3 Internal Partners – Fisheries and Oceans

Other branches and directorates within Fisheries and Oceans which directly and in a continuous active way support preparedness and response activities include:

Marine Traffic and Communications Branch (MTCS) – CCG/Marine Programs Directorate

Marine Traffic and Communications Services operates a marine VHF/MF/HF communications system (depending on location) primarily for the provision of marine safety information, distress coordination and marine traffic regulation. MCTS will support Environmental Response (ER) activities by:

- Establishment of Movement Restriction Areas (MRA's) or exclusion zones as directed by the Federal Monitoring Officer (FMO) or On Scene Commander (OSC).
- Providing communications/radio equipment operators in support of off-site ER operations.
- Dissemination of marine information and issuing marine Notices to Shipping (NOTSHIPS).
- Providing vessel tombstone information including, but not limited to, vessel name, call sign, nationality, tonnage, dangerous cargo type and quantity.

Regional Operations Centre (ROC) and Fleet Resources – CCG/Operational Services Directorate

Regional Operations Centre

The ROC provides notification to the Environmental Response Duty Officer (ERDO) when notified of a spill or an occurrence which may result in a spill. Upon receiving information regarding a spill, the ROC confirms the report using reliable resources and agencies. When the incident has been confirmed the Operation Centre begins the alerting and notification procedure. A schedule of ERDOs, approved by the Superintendent Environmental Response Canadian Coast Guard, will be maintained by the ER Regional Emergency Operations Officer (REOO) and forwarded to ROC for distribution.

The Regional Operations Centre will support the Environmental Response Branch during a marine pollution incident by:

- Maintaining up to update contact lists for Canadian Coast Guard and other government agencies for use as incidents progress.
- Coordinating the allocation of CCG resources as required by the FMO or the OSC to respond to a marine pollution incident.
- Provide communications support (when necessary).

Fleet Resources

Fleet Resources may be called upon to provide a host of support and/or lead services depending upon the type and severity of the situation and limitations or constraints of the vessel. Commanding Officers maintain full responsibility for the operation and safety of their vessel and personnel and therefore, will/may:

- Be called upon to be interim On-scene Commander.
- Be the principal point of contact aboard ship for the Environmental Response Duty Officer or On Scene Commander.
- Investigate spill reports for the purpose of confirmation.
- Provide surveillance and monitoring of third party (or pollutant) as required.
- Initiate early spill response; containment, boom or sorbent material deployment, clean up and recovery procedures.
- Provide site safety, (i.e. fire fighting, first aid and crowd control).

Fleet does maintain their own limited capabilities to respond to their needs as required.

Canadian Coast Guard Bases

In preparation for and during a pollution incident, CCG bases may also provide resources for response. These resources are generally within the scope of normal base activities and include:

- Small vessel use
- Base facilities (boardrooms, workshops)
- Helicopter landing pads
- Boat launch and docking slips
- Staging areas

Safety, Security and Emergency Services Branch – DFO Corporate Services

For large spills of a significant nature the Regional Manager of Safety, Security & Emergency Services may provide the following:

- Advice and recommendations to the On Scene Commander on issues of site and employee safety and the application of departmental security policy measures.
- General occupational health & safety and security advice to the On-Scene Commander/Deputy On-Scene Commander as per the departmental Loss Control Manual.

- A Health & Safety Officer to perform the functions of the Heath & Safety Officer described in the Response Management System User Guide. This person will report directly to the OSC or FMO throughout the duration of the response.

On occasions when the Regional Manager of Safety & Security (or delegate) is not available, or when spills are of a minor nature, the On-Scene Commander shall appoint a member of the response team to fulfill the general duties required.

Communications Branch – DFO Communications
Communications team manages the media (external) handling inquiries from print, radio, television and internet news organizations through the application of *Fisheries & Oceans Crisis Communications Plan*. Communications branch coordinates all aspects of information being released to ensure the public is getting the most relevant, accurate information as soon as practicable.

Legal Services
The DFO Legal Services in CCG Headquarters section will provide legal advice and guidance in the event of a marine pollution incident where CCG may or has been engaged. This especially includes advice on the issuance of Letters of Undertaking (LOUs) and in situations where Canadian Coast Guard may have to take command and control of an incident away from the Polluter.

Other DFO Resources
Indirectly, but just as significant in the event of a spill, is the availability of other DFO resources. This includes any and all appropriate functions including, but not limited to the following:

- Trenton Joint Rescue Coordination Centre – CCG, Maritime Services Directorate, Search and Rescue Branch (SAR)
- Finance and Administration – Human Resources and Corporate Services Directorate
- Human Resources - Human Resources and Corporate Services Directorate
- Facilities – Real Property
- Other Technical Resources – CCG, Integrated Technical Services Directorate
- Fish Habitat Branch – Habitat Fisheries and Oceans Management

3.4 Internal Partners – Other Government Departments

Other federal departments which provide direct assistance or have specific mandates which directly affect response activities include:

Environment Canada (EC)
There are two (3) Environment Canada regions located within Central & Arctic region. They are Ontario, Prairie and Northern and Pacific and Yukon Regions.

The Environmental Emergencies Section provides:

- In Ontario, the Co-chair (with the Ontario Ministry of the Environment (MOE)) of the Regional Environmental Emergencies Team (REET).
- In the Arctic (consisting of the three Territories), the Co-chair (with the relevant Territorial Government, Department of Environment) for the Arctic Regional Environmental Emergencies Team.
- Coordination of the Shoreline Cleanup and Assessment Teams (SCAT).
- Advice concerning environmental impacts associated with vessel source spills, resource sensitivity and prioritization, environmental forecasting, spill and cleanup monitoring and clean up techniques and priorities
- Sampling assistance, identification and characterization of materials

The REET serves as a mechanism for the provision of consolidated, coordinated and comprehensive environmental information and advice concerning the fate and effects of hazardous and noxious substances, spill trajectories, resources and shoreline protection strategies, clean up priorities, physical and chemical counter measures, remedial endpoints, damage assessment, and the management of hazardous wastes generated during a spill and other matters which arise while planning and responding to emergency events which affect or risk environmental quality. In the planning mode REET members meet to improve contingency plans, resolve regional preparedness issues and exchange new scientific and response ideas.

In Ontario Region, Environment Canada has divided the province into eighteen (18) REET areas and plans to hold one (1) REET meeting per area per year, consolidating some areas where possible and maintaining annual meetings in the higher risk areas (Windsor, Sarnia, Sault Ste. Marie).

Two of three primary Arctic REET (AREET) areas are in Prairie and Northern Region: the Northwest Territories and Nunavut Territory. There is no REET established in Alberta, Saskatchewan and Manitoba.

The Meteorological Service of Canada (part of EC and REET) provides:

- Meteorological forecasting

The Canadian Wildlife Service (part of EC and REET) provides

- Advice on wildlife protection, rescue and rehabilitation
- Permits for wildlife hazing and capture

Transport Canada (TC)

The Environmental Response Systems Division in Ottawa is responsible for Canada's Marine Oil Spill Preparedness and Response Regime. It:

- works with other federal agencies and departments, such as Fisheries and Oceans Canada, the Canadian Coast Guard and Environment Canada to establish guidelines and regulatory framework for preparedness and response to oil spills and spills of noxious and hazardous substances into Canada's marine environment.

- Manages the National Aerial Surveillance Program

There are two Transport Canada regions located within Central & Arctic region. They are Ontario and Prairie and Northern regions.

The Aircraft Services Directorate provides:

- Aerial surveillance as part of the Prevention mandate within Transport Canada, and can provide aerial spill tracking, recording, and personnel transport.

The Marine Safety Branch provides:

- Technical advice and recommendations to the On-Scene Commander or the Ship Owner regarding, but not limited to, lightering, damage assessment and salvage.

  Note: The MOU between Transport Canada and Fisheries & Oceans Respecting Marine Transportation Safety & Environmental Protection (May 1996) Annex D – E-5 states that "Transport Canada and Fisheries and Oceans will jointly approve salvage operations, emergency lightering or discharge of cargo." After discussing this clause with two senior surveyors, they both agree – Marine Safety does not approve salvage plans. Marine Safety advises and recommends only.
- Restriction of transit or movement of a vessel following a damage assessment.
- Spill investigation and enforcement of the various aspects of the pollution prevention conventions and legislation in Canada
- Regional planning, in conjunction with EC and CCG, for the selection of Places of Refuge. Note: in the Great Lakes and connecting channels, selection of a place of refuge will be determined in conjunction with the USCG and USEPA.
- Monitoring of the spill preparedness activities of Oil Handling Facilities (OHFs) and certified Response Organizations (ROs) through a review and audit process.

Indian and Northern Affairs Canada (INAC)

Canadian Coast Guard (CCG) works most closely with INAC in Nunavut (NU) and the Northwest Territories (NT). INAC has lead responsibilities in the Arctic for spills on water which do not originate at federal facilities, exploration facilities or from ships and barges. INAC also, by letter of agreement, will investigate ship-source spills on behalf of CCG. INAC is also a member of the Beaufort Sea Emergency Preparedness Working Group, along with CCG/DFO, EC, TC and other appropriate agencies.

National Energy Board (NEB)

Based in Calgary, Alberta, the National Energy Board is an independent Agency that reports to parliament through the Ministry of Natural Resources. The NEB is the

Lead Agency for spills that occur at offshore and nearshore oil and gas exploration and production facilities.

In the event of a marine pollution incident where CCG is requested for assistance as a resource agency, CCG is available to provide pollution response expertise as indicated under Section 7.2 of the *National Response Plan* as it relates to NEB.

Public Safety Canada

Public Safety Canada is the federal coordinating department responsible for engaging relevant federal departments in an integrated Government of Canada response to an emergency.

For emergencies requiring an integrated Government of Canada response, federal support is based on a regional "single- window" concept. This concept is intended to facilitate regional interdepartmental and intergovernmental coordination, while not unduly restricting operations. Coordination includes sharing of pertinent information in order to maintain situational awareness.

The Government Operations Centre (GOC) is a 24/7facility where an integrated Government of Canada response is managed. It is the focal point of information management flow and provides strategic-level activities. It's permanent staff includes watch officers, duty officers specializing in national communications as well as a geomatics team to map incidents.

Indirect support from other federal departments in the form of advice or resources also comes from: Heritage Canada (Parks Service) in the form of support to REET, National Defense regarding assistance and resources, RCMP with respect to investigations and those sections or departments specifically identified in the various Memorandums of Understanding (MOU) as outlined in Section 2 of this chapter.

3.5 External Partners - Provincial and Territorial Ministries and Departments

In general, liaison with provincial and territorial concerns is facilitated through REET (Regional Environmental Emergencies Team), which is chaired by Environment Canada (EC) or, in the case of the Province of Ontario, is co-chaired by Environment Canada and the Ontario Ministry of the Environment (MOE). The following agencies have the primary mandate for marine or freshwater pollution response in their province or territory of jurisdiction:

Territory or Province	Department
Northwest Territories	Environment and Natural Resources
Nunavut	Department of Environment
Alberta	Alberta Environment
Saskatchewan	Saskatchewan Environment

Manitoba	Manitoba Conservation
Ontario	Ontario Ministry of the Environment

In emergency situations conflicts sometimes arise with respect to legal and administrative jurisdiction and application of standards and common practices. To facilitate these issues the various Ministries related to emergency measures are usually contacted to provide coordination and clarify where necessary the concerns. These include:

- Government of Nunavut – Department of Community of Government Services, Emergency Management Division
- Government of the Northwest Territories – Department of Municipal and Community Affairs – Emergency Services Division
- Government of the Yukon Territories – Department of Community Services, Emergency Measures Organization
- Government of Ontario - Ministry of the Community Safety & Correctional Service, Emergency Measures Ontario
- Government of Manitoba –Manitoba Emergency Measures Organization
- Government of Saskatchewan – Resource Management and Corrections & Public Safety, Saskatchewan Emergency Measures Organization
- Government of Alberta – Ministry of Municipal Affairs, Public Safety Division, Emergency Management Alberta

Provincial Governments can provide consolidated access to local, municipal and provincial resources.

Central & Arctic Region recognizes that First Nations have a vested interest in response operations that may occur in their territory and will ensure that they are represented on the REET or have access to the Federal Monitoring Officer or On Scene Commander through the CCG Liaison Officer.

3.6 Clients

With respect to ship-source pollution incidents, there are three major groups the Canadian Coast Guard will be directly engaged with. These are Oil Handling Facilities, Legislated Ships and Ships as defined in *Part XV* of the *Canada Shipping Act.*

Oil Handling Facilities (OHF)

Operators of facilities that transfer oil to or from oil tankers over 150 gross registered tonnes or other vessels over 400 gross registered tonnes are required by the Canada Shipping Act (2001) to:

- Have an Oil Pollution Emergency Plan (OPEP) on site.
- Have a declaration conforming to the regulations on site.
- Take reasonable measures to implement their required oil pollution emergency plan in the event of an oil pollution incident.

- Have on site the resources required to contain a spill of oil equal to the facility's rated capability within one hour.
- Begin recovery/cleanup operations of oil equal to the facility's rated capability within 6 hours.
- Have an arrangement with a certified Response Organization (RO) that permits the handling of spills beyond the rated capabilities of the Oil Handling Facility.[1]

Legislated Ships

In Canadian waters, ships over 400 gross registered tonnes and oil tankers over 150 gross registered tonnes are required to have a Shipboard Oil Pollution Emergency Plan (SOPEP) and an arrangement with a certified Response Organization (RO) to respond to an oil pollution incident of an amount equivalent to the maximum amount of product that the vessel can carry as fuel and/or as cargo up to a maximum of 10,000 tonnes.[1]

Other ships as defined by Part XV of the Canada Shipping Act (CSA)

Any ship that is less than 400 GRT or any tanker less than 150 GRT is still covered by the *Canada Shipping Act (2001)* in that it must report the potential or actual pollution incident to a Pollution Response Officer, or in the case of an incident in Canadian Arctic Waters as defined by the Arctic Waters Pollution Prevention Act to a Pollution Prevention Officer. The ship must take immediate steps to mitigate or remedy the situation. These ships are not required to have a Shipboard Oil Pollution Emergency Plan nor an arrangement with a certified Response Organization.

3.7 External Resources

There are two main categories of external resources that the Canadian Coast Guard (CCG) will engage. These are the Response Organizations certified by Transport Canada under the *Canada Shipping Act (2001)* and other contractors.

Response Organizations (ROs)

Response Organizations are privately established pollution response companies certified by Transport Canada. These companies hold a certificate of designation to handle oil spills of up to 10,000 tonnes (T). Response Organizations can provide the polluter or any lead agency with the resources, trained personnel and operational management structure to deal with a marine oil pollution incident within its identified Geographical Area of Response (GAR).

The Eastern Canada Response Corporation (ECRC) is the only certified response organization in Central & Arctic Region. The company is certified to ten thousand tonnes (10 000T) and two of its three regions cover Central & Arctic Region.

[1] There is no requirement for an Oil Handling Facility nor a Legislated Ship to have an arrangement with a Response Organization certified by Transport Canada in Canadian waters north of 60° North Latitude

1) ECRC Great Lakes Region is managed from the Response Centre in Corunna, Ontario. Its area of coverage includes all waters
   - south of 60 degrees north in the provinces of Alberta, Saskatchewan, Manitoba and Ontario to that portion of the St. Lawrence River in the Province of Ontario
   - to a line drawn between Butternut Bay (Latitude 44 31' 12" north and Longitude 75 46' 54" west) on the Canadian side
   - to Oak Point (Latitude 44 30' 48" north and Longitude 75 45' 20" west) on the US side of the St. Lawrence River.

2) ECRC Quebec Region (also known as Societé d'Intervention Maritime Est du Canada - SIMEC) is managed from the Response Centre in Quebec City, Quebec and has staffed Response Centres in Verchères, Quebec and in Sept-Iles, Quebec. Their coverage includes:
   - James Bay, Ungava Bay and in Hudson Bay south of the sixtieth parallel North and that portion of the St. Lawrence River in the Province of Ontario
   - to a line drawn between Butternut Bay (Latitude 44 31' 12" North and Longitude 75 46' 54" West) on the Canadian side to Oak Point (Latitude 44 30' 48" north and Longitude 75 45' 20" West) on the US side of the St. Lawrence River.

There are no certified response organizations established north of 60° N latitude.

Although resources from the Response Organizations in the south may be made available for use north of 60°, they must obtain the necessary approvals to move equipment from their designated area of response.

Contractors

Private sector contractors may be engaged by the CCG as required. All standard government contracting rules apply.

Section 4 – PREPAREDNESS

4.1 Overview

Oil spill preparedness is defined by the advanced planning used to create systems to effectively and efficiently combat the range of spills likely to be encountered.

In Central and Arctic Region, preparedness involves:

- The development of regional procedures to be followed in the event of an incident, coordinated by the Planning section.
- The implementation, training and maintenance of the Response Management System (RMS) to manage and combat the incident.
- The identification of priorities, development of strategies, logistics and tactics necessary to fulfill those priorities, lead by the Planning section.
- The liaising with internal and external partners, clients and resources that may be involved in pollution response activities, lead by the Planning section.
- The training and continued maintenance and upgrading of skills, coordinated through the Training specialist.
- The exercising and quality assurance activities required to continuously reinforce the training and contingency planning activities, facilitated through the Exercise specialist.
- The asset management including the acquisition, lifecycle maintenance, operational readiness and storage of equipment lead by the Operations section and Inventory specialist.
- The integration of other Canadian Coast Guard Assets and Human Resources, when necessary, through the Training and Exercising processes.

The Memorandum of Understanding (MOU) between the Director General/Maritime Services (MS) and the Director General/Integrated Technical Support (ITS) of the Canadian Coast Guard (March 2004) specifies that the ITS Directorate will be the single CCG focus for the life cycle management of all CCG physical assets and for the development of all technical solutions. It is unknown when ITS will assume the services of design, procurement, in-service support and disposal of all equipment and systems required to satisfy ER's mandate. In the interim, ER will remain the focal point.

4.2 Response Management System (RMS)

The Canadian Coast Guard uses the Response Management System (RMS) as its emergency management system. It is based on, and operates under the same principles as the Incident Command System (ICS) which was developed in the U.S. to coordinate multi-agency responses to large forest fires. The system was adjusted to reflect the current marine oil spill response regime and Canadian law. The Canadian Coast Guard does not implement the ICS principle of unified command, but will participate in any command structure used by the Polluter or Other Lead Agency.

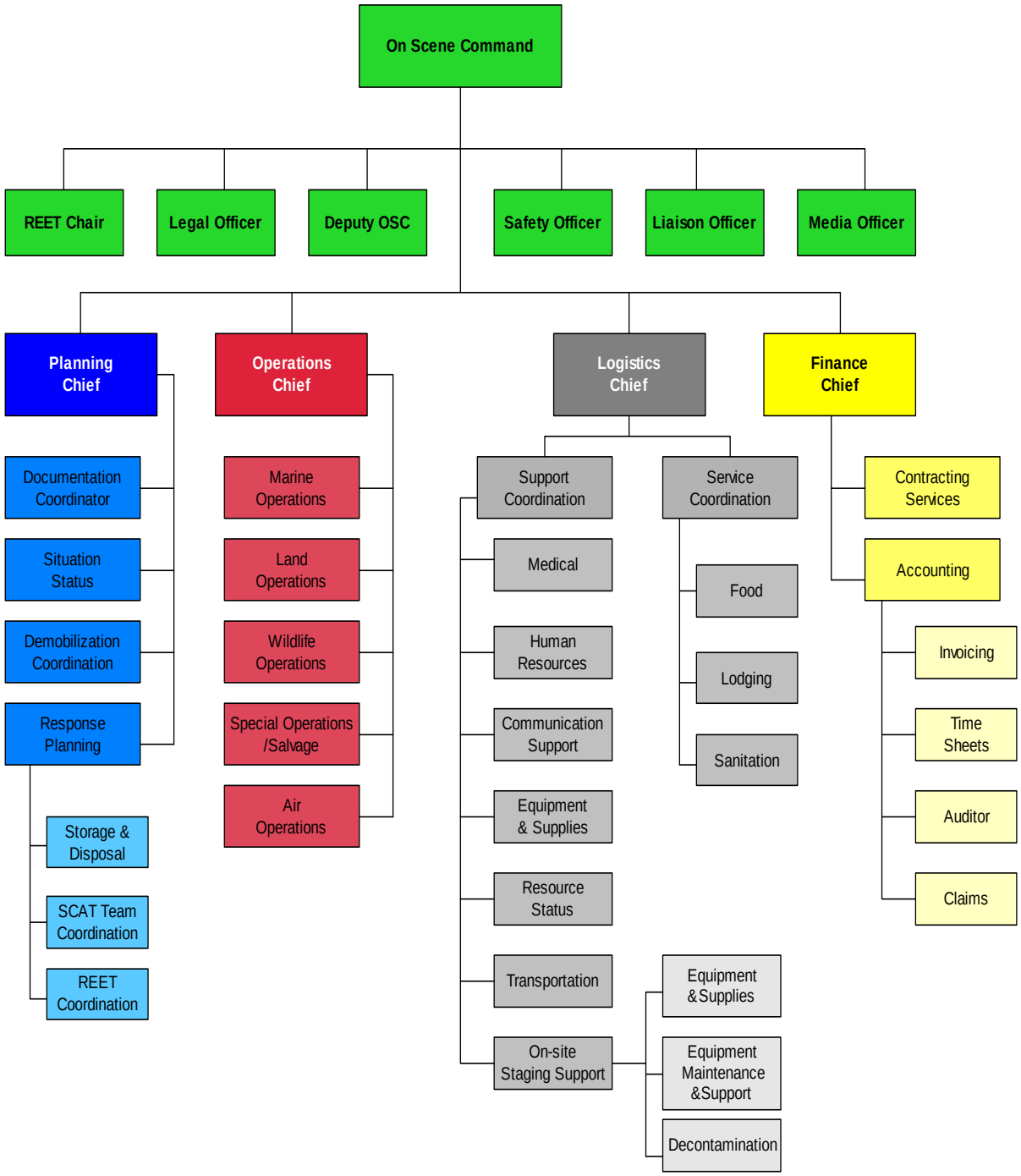
The RMS uses a “management by objectives” approach. It outlines the roles and responsibilities of individual positions, identifies the reporting structure, establishes a common set of terminology and uses standardized forms and paperwork. The central document in the RMS process is the Incident Action Plan, which documents the existing conditions and outlines objectives and strategies for recovery and response.

The system structure is designed to expand or contract to best fit the specific circumstances of the incident. Not all positions within the system will be staffed for every incident; in those cases the supervising position shall be responsible for all subordinate tasks/roles. Regional staff members have been designated as members of the Regional Response Team and may be called upon to fill specified roles in this management system (see Figure 4.1 for a fully expanded system design).

The system also contains management tools that can be used by the On Scene Commander and response personnel to better manage the system and the spill incident. These tools include a field operations guidebook, forms, reports, established meeting schedules and agendas. The RMS will also be used by the Federal Monitoring Officer and their Incident Monitoring Team while monitoring the Polluter’s response to an incident.

The detailed RMS process is contained in a separate document referenced in Section 9.1 of this plan (Response Management Systems User’s Guide, Version 3.0 (May 2006)).

Figure 4.1 - CCG RMS Command Structure



4.3 Planning

Area Plans

To facilitate an effective and efficient response, Canadian Coast Guard administers 16 area plans as an annex to the Central & Arctic Regional Response Plan. They are Keewatin, Baffin, Beaufort Sea & Amundsen Gulf, Great Slave Lake, Hudson & James Bay, Kitikmeot, Mackenzie River & Delta, Inland Waters S of 60, Lake Erie, Lake Huron, Lake of the Woods, Lake Ontario, Lake Superior, St. Lawrence, St. Mary's and St. Clair & Detroit areas. These plans incorporate detailed response information for specific manageable geographic areas or response communities. The normal operating period for an area plan is the first 12-24 hours of a spill response.

They are developed and maintained as follows:

1) Risk Analysis
   The risk analysis determines which communities or areas are most likely to be endangered by a potential oil spill and why, their associated environmental sensitivities, plus the typical type of spill that could be expected. When considering the environmental sensitivities, the focus is on what is most likely to be impacted and to consider as many factors as are applicable. A single factor discovered in the risk assessment is just one of many layers in the decision to make a site a priority.

2) Priority Identification/Verification
   Current priorities are discussed with members of the Regional Environmental Emergencies Team (REET) at planning meetings. It provides the opportunity for additions, deletions or modifications. Where there are no REET meetings held, community consultations are organized by the Planning section.

3) Strategy and Tactics Development
   Canadian Coast Guard determines RMS objectives for the agreed upon priorities. Strategies are designed, that name the activities relative to those objectives. Those activities may be response actions to be implemented, or may be the type of resources that could be affected by the spill. For area plan development, tactics provide the detail for implementing the selected strategies. Tactics then specify the resources, both human and equipment, to facilitate, to install or to maintain the strategy.

4) Updating
   Area plans are reviewed and updated annually.

Regional Procedure Development

Regional procedures for notification, verification, activation and cost recovery of a response are all described in the *Central & Arctic Regional Response Plan* of the *Canadian Coast Guard National Response Plan*. Supporting documentation in the

form of Standard Operating Procedures and supplementary plans (e.g. Health & Safety Plan and Media Relations Plan) are not included in the Regional Response Plan but are referenced in Section 9.

Liaison with External and Internal Partners, Clients and Resources

To ensure that all partners, clients and resources are aware of the Canadian Coast Guard's mandate and responsibilities as they pertain to pollution preparedness and response, the Environmental Response Planning Section takes the initiative to:

- Work with Internal Partners within Fisheries & Oceans to communicate the branch's needs in the event of a pollution incident.

  Exception: Coordination of the Duty Officer (DO) function between Environmental Response (ER) and the Regional Operations Centre (ROC) is coordinated by the Regional Emergency Operations Officer REOO).
- Work with other government departments that have a mandate for pollution response within their jurisdiction to communicate the role that Canadian Coast Guard plays in marine and freshwater pollution incidents and to share what resources Canadian Coast Guard maintains for pollution response activities and the mechanism to access these resources in the event that another Lead Agency may require them for a non-CCG mandated spill or other type of emergency.
- Liaise with potential clients (oil handling facilities, shipping companies and other operators) so that CCG expectations in the event of an incident are understood.
- Provide copies of area plans to CCG vessels that are relevant to their area of operations. CCG ER will brief Operations at the pre and post season conferences on any changes to the plans and/or to the captain and/or crew's responsibilities.
- Maintain a network of contractors that can provide services to Canadian Coast Guard in the event of a pollution incident that exceeds the resource capability of the region.
- Upon request of the Regional Advisory Councils (RACs) or Secretariat (Transport Canada) on Marine Oil Spill Response, provide information on Central & Arctic Region's preparedness and spill response activities.

Arctic Community Emergency Plans

The Canadian Coast Guard is committed to assisting Arctic communities in the development of the marine pollution component of their Community Emergency Plans. This commitment was made in 1999 when the CCG Arctic Response Strategy (ARS) was published. The Arctic Response Strategy has since been re-assessed and viable components have been incorporated into the text of this Plan.

4.4 Training Program and Curriculum

Introduction

The Training Curriculum of the Environmental Response Branch is focused on providing the necessary skills and knowledge for responders to function effectively during a spill response operation. As the competencies required for an effective spill response are described and organized within the Response Management System (RMS), so too can the training curriculum be described in the context of RMS.

With RMS as the framework for spill response, all response team members will be trained in theory and application of RMS. The level of training complexity will vary by level of individual responsibility, but all members will have fundamental knowledge of the structure and processes that drive the RMS.

In addition to the training curriculum described in this section, it is understood that there are competencies and certifications required that are not specific to ER or spill response. These would include driver's licenses, radio operator's licenses, and familiarity with basic electronic equipment such as phones, fax machines, cell phones and laptop computers.

Training Curriculum

Command Staff

During a spill response operation, the command staff will vary depending on the size and complexity of the spill.
On a smaller spill, senior ER staff members may be appointed to command positions with few subordinate or supporting positions.
On larger scale spills, the OSC may be the Director of Maritime Services, or Assistant Commissioner Canadian Coast Guard, with multiple support positions from ER staff, CG fleet, base personnel and contractors.

To adequately prepare personnel for the management functions of spill response, the following curriculum has been identified:

On Scene Command Course (OSC)
This course trains participants in all aspects of spill response including planning, implementation, and supervision. Other topics include legislation, legal issues, financial responsibilities, and media relations. Prerequisites include BOSRC, MSROC, PPO designation, media relations and management training.

Response Management System Course (RMS)
The current RMS curriculum is an introductory two-day course on the system and its user's guide. It is anticipated that future development will include multiple levels of training which will include organizational structure and

responsibilities, as well as in-depth requirements of each position within this emergency management structure.

Federal Monitoring Course (FMO) - Proposed
Subject to national development, this course will augment the On Scene Command Course to provide those persons designated as Canadian Coast Guard Federal Monitoring Officers the necessary skills and knowledge to perform FMO duties.

Operations Section

During a spill response operation, the operations section of the RMS may be populated by regional ER staff, CCG fleet officers and crew, CCG/DFO base personnel or contractors. The resident knowledge of this group will vary, and a comprehensive ER training program exists to train responders in spill response operations. Training for members of the CCG Regional Response Team (RRT) personnel is offered in the following three areas:

(a) Safety Training
(b) Operational Training
(c) Specialty Training

(a) Safety Training

Health and Safety training is required to ensure compliance with federal and provincial legislation with the ultimate goal of ensuring the health and safety of response personnel. Additional video and printed reference material is available through the Canadian Coast Guard ER Training Officer.

Site Safety Course
The Site Safety Course is designed for response personnel prior to commencing work on a response site. Topics include employer and employee responsibilities, classification and hazards of petroleum products, and the safety practices and considerations associated with both water-based and shore-based operations. Site safety training is mandatory for Regional Response Team members and all volunteers or short time workers who may be employed during a response.

Workplace Hazardous Materials Information System (WHMIS)
This 3-hour course is provided to Canadian Coast Guard employees to ensure compliance with appropriate worker safety legislation. It was developed to ensure workers have the necessary information to work safely with hazardous materials in their workplace.

First Aid/CPR
This 16 hour course provides the participants with the skills and knowledge to successfully obtain the St. John Ambulance Standard First Aid Certificate. The primary focus of this 14-hour course is to provide adequate knowledge

and level of skill to persons in positions of responsibility to provide for persons suffering from respiratory and circulatory arrest. Preventative measures are discussed.

Small Non-Pleasure Vessel Basic Safety Course - MED A3
The 8-hour MED A3 course is *required by regulation* for crewmembers of small non-pleasure vessels of not more than 150 GT operating not more than 20 miles offshore. Topics include marine hazards and emergencies, marine firefighting, lifesaving appliances and abandonment and survival and rescue skills.

Transportation of Dangerous Goods (TDG)
This 6-hour course provides personnel with the responsibility for the transportation of dangerous goods to be aware of and comply with safety measures and appropriate legislation concerning TDG.

(b) Operational Training
There are various levels of oil spill response courses designed for response team members, ships crews and other responders who may be expected to assist with marine oil spill response. Operational training related to the assessment and response to petroleum spills is delivered by ER while training for response to hazardous and noxious materials spills is obtained outside of the Branch.

First Responder Oil Spill Training (FROST)
This 1 day course is designed specifically for CCG personnel in Central & Arctic Region who are designated custodians of First Response Units (FRUs), and may be tasked with deployment of the pollution countermeasures equipment. It has also been adapted for use in communities north of 60° where Arctic Community packs function as first response units.
It teaches First Responders to:

- assess an oil spill according to its extent, possible source and likely behavior
- deploy boom for containment and protection purposes and in support of response activities
- work safely at the spill site

Basic Oil Spill Response Course (BOSRC)
This 20 hour course instructs First Responders how to:

- assess an oil spill according to its extent, possible source and likely behavior
- deploy boom for containment and protection purposes and in support of response activities
- operate oil recovery equipment
- undertake basic shoreline cleanup operations
- work safely at the spill site

Marine Spill Response Operations Course (MSROC)
This 40-hour course will enable trained and experienced personnel to coordinate and supervise the response operations of a marine oil spill. It is intended to train individuals to be On Scene Commander (OSC) for small (tier 1) spills, or operations section chief on larger spills. Topics include legislative framework, safety, equipment suites and strategies, media relations, RMS, shoreline assessment and cleanup techniques, and disposal. Prerequisites include BOSRC, a Radio Operator License and current or future deployment to a spill response team.

Environmental Response Duty Officer (ERDO) Training
This 15 hour course is a prerequisite for duty officers for the ER branch and the regional operations centre. It introduces the participant to CCG mandate, lead agency responsibilities and introductory spill assessment techniques. It also integrates delivery of training on the Marine Pollution Incident Reporting System (MPIRS), the database used to capture spill report and response information.

Pollution Response Officer (PRO) Training
This three day course is currently provided by the Environmental Response Branch of the Canadian Coast Guard and is required training for all Environmental Response personnel. Participants who successfully complete this course earn the designation of Pollution Response Officer under Part 8 of the Canada Shipping Act (2001). This course examines the powers of a PRO, specific procedures related to vessel directions and detentions and the legal framework and implications surrounding the execution of those powers. Course participants also learn sampling procedures and gain an understanding of the role of other government agencies involved in a marine pollution incident.

Pollution Prevention Officer (PPO) Training
This 40 hour course is currently provided by the Marine Safety Branch of Transport Canada. It is a prerequisite for any officer of the Canadian Coast Guard to be delegated Pollution Prevention Officer (PPO) powers under the *Arctic Waters Pollution Prevention Act*. Participants learn the existing pollution prevention and response regime, the powers of a PPO and the specific tasks of prevention, control, investigation and prosecution.

Small Vessel Operator Proficiency
This 21-hour course meets the training needs of the small vessel master. This course is required by regulation (for vessels less than 5GT on sheltered and near coastal voyages) and teaches participants to effectively manage safety of those on board, protect the vessel from damage and protect the marine environment.

Basic Barge Operator Training
This course was developed and is delivered by regional ER staff. Through both classroom and practical sessions, the course introduces participants to safe boating practices and procedures, rules of the road, collision regulations, load plans for pollution response vessels, safe deployment of oil spill response equipment and basic trailer towing and maneuvering.

Single Side Sweep System
The single side sweep is an equipment suite designed to allow one vessel to perform oil containment and recovery, and allow for temporary storage. This two day training session is provided to some ER staff and crews of Canadian Coast Guard vessels that can support this equipment. This training typically is conducted with crews who have previously completed BOSRC.

HAZMAT Awareness
This 6-hour course is intended for First Responders on the scene of a hazardous materials incident and shows how to assess the incident. Topics include; First Responder's role and responsibilities, scene safety, recognizing and identifying hazardous materials, incident management, and sources of assistance.

HAZMAT Technicians Level
This 40-hour course is designed for responders to releases or potential releases of hazardous substances. The focus is on recognizing and evaluating a hazardous materials incident, organizing the response team, protecting response personnel, identifying and using response resources, implementing basic control measures, decision-making, and protecting the public and environment. Emphasis is on hands-on use of equipment practically applying lecture information through exercises. Participants will wear fully encapsulating suits.
Prerequisite: Hazmat Awareness.

(c) Specialty Training
Specialty training includes training that only select members of the Regional Response Team (RRT) will have to apply.

Shoreline Clean up and Assessment (SCAT)
This 24-hour course covers how oil impacts the shoreline. Specific topics include shoreline types and effects of oil, wind, waves and ice on shorelines. Shoreline protection and cleanup methods are described in depth. Field exercises are conducted as part of the training.

Media Training
This 16-hour course is designed to provide participants with the skills and knowledge to communicate effectively and proficiently with various forms of media. Topics include; developing and disseminating incident information to

news media, incident personnel, other appropriate agencies and organizations.

Communications System Training
This 8 hours hands-on course provides participants with the knowledge and skills to provide communications in support of a spill response. Topics include; mobile telephone, fax, and intercom set up, preparing communication plans, and internal/external spill response communications.

Wildlife Rehabilitation
The capture and treatment of oiled wildlife is typically assigned to the trained experts at Canadian Wildlife Service (CWS). This CWS training is periodically made available to outside agencies, and some ER staff may participate to facilitate a better understanding of each others' role at the time of a spill.

Financial Management
This training is provided by the Public Service Commission (PSC) and teaches government spending and cost accounting principles. It is imperative that any response team member who may have to purchase assets or manage contracts be familiar with these practices and procedures.

Planning Section
During a spill response operation, the planning section of the RMS will likely be populated with ER staff whose substantive positions are as Planning Officers within the branch. Therefore, the planning skills and training required to effectively and efficiently perform these tasks should be resident within our branch staff.

Should additional personnel be required to fulfill these roles, they would require training in RMS, as well as Site Safety (as required by OSH regulation). The required planning skills and spill response knowledge may be acquired through various training or experience factors, and would be assessed prior to assignment on the response team. In addition to planning skills, preferred training might include SCAT, FROST and/or BOSRC, and MSROC.

Logistics Section
During a spill response operation, the logistics section of the RMS will likely be populated with ER staff whose substantive position involves the tracking of spill response equipment inventory and human resources within the region. Therefore, the skills and training required to efficiently and effectively perform the logistics function should be resident within our regional ER staff.

Should additional personnel be required to fulfill these roles, they would require training in RMS, as well as Site Safety (as required by OSH regulation). The required logistical skills may be acquired through various training or experience factors (knowledge of IRCMS and TMA, BOSRC training) and would be assessed prior to assignment on the response team.

Finance Section
During a spill response operation, the finance section of the RMS will likely be populated by regional finance staff whose substantive positions involve government expenditure and cost accounting knowledge and application. Therefore, the skills and knowledge required to effectively and efficiently perform the finance function should be resident within regional Canadian Coast Guard staff. These personnel will require RMS and Site Safety training prior to deployment on a spill response team.

Training Records
Records for personnel trained in spill response and/or emergency management are maintained by the Region.

4.5 Exercise Program

Introduction
Under the guidelines of the National Exercise Program (NEP), the Environmental Response Branch will implement a Regional Exercise Program. This program will be conducted over a three-year cycle. Coordination of the program will be the responsibility of the Regional Exercise Officer (RXO) of the Environmental Response Branch. Exercises will be designed and conducted in coordination with departmental staff, CCG base staff and CCG vessels on a regular basis. The purpose of the Regional Exercise Program is to validate environmental response training and regional emergency preparedness standards, policies and procedures.

Canadian Coast Guard will, through regional and area-specific exercising, ensure high priority initiatives such as exercising complex equipment (i.e. Lori Brush skimmers, sweep systems and command/communications facilities) are undertaken and will use industry and private sources of personnel where possible and/or appropriate.

Exercise Planning Matrix
The matrix below represents a typical three year exercising cycle followed by Canadian Coast Guard. The program cycle is designed to test all 17-response functions as outlined under NEP as well as including the different types of exercises. It includes internal, external (with other government departments as well as private sector organizations) and international exercises.

Table 4.1 *- Central & Arctic Region Exercise Matrix*

EXERCISE TYPE	YEAR1	YEAR2	YEAR3
Notification	**Quarterly**	**Quarterly**	**Quarterly**
Management	**2**	**2**	**2**
Operational drills	**3**	**3**	**3**
Combined Functional	**1**	**1**	**1**
Full Scale	**0**	**1**	**0**

Notification exercises will test the regional call-out system. Some of these exercises will be internal to the branch, some will be a full regional call-out to all CCG and DFO staff as well as to external resources (eg: freight contractors to check their availability to move Marine Emergency Response Trailers (MERTs) or First Response Units (FRUs).

Management exercises will focus on the development of the spill through the Response Management System (RMS).

Operational Drills will focus on equipment deployments in packages (i.e. a First Response Unit, NOFI V-Sweep).

Combined Functional exercises will be an equipment deployment (operational drill) with the goal of implementing a tactic designed in one of the Region's Area Plan Annexes.

A *Full Scale* exercise will incorporate a management-type exercise with the concurrent deployment of a spill countermeasure system (system = pollution containment, recovery, primary and secondary storage devices)

Exercising Partnership

Canadian Coast Guard will endeavor to participate, by request and on a situation by situation basis, in exercises lead by Oil Handling Facilities (OHFs), certified Response Organizations (ROs) and other government agencies throughout the Region.

Central and Arctic Region is a part of the Canadian Coast Guard response community and as such is also part of the International Response Community. Canadian Coast Guard's regional boundaries are in such close proximity with our United States neighboring response communities that joint exercising is a high priority. Specifically this region conducts joint exercises in the geographic areas of the Great Lakes and the Beaufort Sea with the United States Coast Guard's (USCG) (9^{th}) ninth (Great Lakes) and (17^{th}) seventeenth (Alaska) districts, respectively.

Exercise Evaluation and Shared Learnings

An important part of the National Exercise Program is the evaluation and use of subsequent findings. Four types of information can be learned from an exercise, all of which lead to improvement of overall response capability.

1) Contingency planning
2) Response techniques
3) Response training
4) Exercise program development

The primary sources of the information and learning will be the formal exercise evaluation report that is produced for every exercise by the evaluation team. This formal exercise report will follow the format laid out in Section 11 of the *Canadian Coast Guard National Exercise Program Planning and Evaluation Guide*.

4.6 Inventory Management, Maintenance and Infrastructure

Inventory Response Control Management System

To ensure that a nationally consistent and effective state of preparedness is maintained, an Inventory Response Control & Management System (IRCMS) has been implemented which utilizes The Management Authority database as its main tool. CCG HQ administers this system in concert with regional IRCMS Officers. In this region the program is administered by the Logistics and Statistics Officer in the Operations Section.

This system has been developed to:

- Maintain a real time record of the location and quantity of resources;
- Maintain a proper state of readiness through a pro-active approach using work orders and preventative maintenance;
- Assist in keeping response managers informed about Environmental Response's state of preparedness;
- Assist in the tracking of National Response Team personnel or equipment assigned to National or International incidents

Pre-positioned Equipment Caches and Depots

Central and Arctic Region covers an extremely large geographical and culturally diverse portion of Canada. There are, in essence, two zones of operation which are entrenched in the *Canada Shipping Act*. These are:

- the Arctic Zone, or all areas of Canadian jurisdiction north of 60^0 North Latitude; and
- the Central Zone, dominated in a marine transportation sense by the Great Lakes, but which include the southern portions of Hudson and James Bay, along with the major waterways and watersheds of Lake Winnipeg, Winnipegosis, Lake of the Woods, and Lake Athabasca.

The Environmental Response (ER) Branch has pre-positioned equipment to facilitate and maintain an effective response operation. Response strategies in each of the two zones (Central or Arctic) are based upon identification of local and regional response. This is means that the equipment generally required for such a spill size is contained within the Region. This capacity is supplemented by nationally available resources, which would be "cascaded" from/to other regions when and if required. Preparedness capacities in other regions are identified in their respective Regional Response Plans.

Arctic Zone

Arctic Community Packs (ACPs) are placed in northern communities for rapid (local) initial response. Canadian Coast Guard provides initial response training to members of the communities so that they may effectively deploy equipment in the ACPs in the event of a spill. Access (keys) for the ACPs have been given to an official in each community in most cases. The Senior Response Officer (ER-Hay River) maintains the current key holder listing.

The inventory for each Canadian Coast Guard Arctic Community Pack location is listed in Table 4-2. The program has received funding under the Health of the Oceans Initiative to proceed with placing Arctic Community Packs in additional sites. The equipment profiles at the existing Arctic Community Pack sites will be changed to reflect characteristics of the community. The inventory at all communities will be "site specific" and will coincide with response strategies designed by the ER planning group. The locations for the proposed additional Arctic Community Packs are: Baker Lake, Broughton Island (Qikiqtarjuaq), Chesterfield Inlet, Churchill, Hall Beach, Kimmirut, Iqaluit, Pangnirtung, Tuktoyaktuk and Yellowknife.

The main base of operations with Environmental Response dedicated personnel is located in Hay River, Northwest Territories. This base is home to a Rapid Air Transportable (RAT) cache of equipment known as the "RAT150". The RAT150T used in conjunction with the "Delta" (Δ) 1000T meets planning standards for a 1000 tonne (T) response. The selection of equipment for the RAT150 must meet pumping rates / capacities of 1000T thresholds and be complimentary[2] to the equipment held in the Δ1000T depots.

The response package, warehoused in Hay River, will be maintained in 100% readiness during the shipping season. The equipment will be broken down and be containerized such that it will fit through the smallest cargo door of any of the selected aircraft. Equipment will be TDG compliant, be palletized as appropriate, and labelled for ease of selection and loading.

[2] The logistics of moving large bulky items (ISO containers) in the arctic necessitates a LCM, deck barge, cargo vessel, icebreakers or any combination thereof. Consequently it is estimated that the 1000T design capacity would be available staged on-scene in 5 - 7 days. Following the doctrine *something sooner rather than everything later* having 150T of the 1000T equipment suite air-lifted within 48 hours is preferable to having nothing until the entire 1000T capacity arrives a week later.

Table 4-2 *- Canadian Coast Guard Arctic Community Pack Locations*

LOCATION	EQUIPMENT SUMMARY			
	Boom (24")	**Skimmers**	**Boats**	**Storage**
Arctic Bay (Ikpiarjuk)	3,650'	TDS-118	16' Aluminum	Open top Tank
Cambridge Bay (Ikaluktutiak)	1,350'	TDS-118	16' Aluminum	Open top Tank
Cape Dorset (Kinngait)	1500'	TDS-118	16' Aluminum	Open top Tank
Clyde River (Kangiqtugaapik)	4,500'	TDS-118	16' Aluminum	Open top Tank
Coppermine (Kugluktuk)	1,350'	TDS-118	16' Aluminum	Open top Tank
Coral Harbour (Salliq)	1,500'	TDS-118	16' Aluminum	Open top Tank
Gjoa Haven (Uqsuqtuuq)	1,350'	TDS-118	16' Aluminum	Open top Tank
Holman (Ulukhaktok)	1,500'	TDS-118	16' Aluminum	Open top Tank
Rankin Inlet (Kangiqsiniq)	2,200'	TDS-118	16' Aluminum	Open top Tank
Resolute (Qausuittuq)	1,350'	TDS-118	16' Aluminum	Open top Tank
Hay River FRU +	1,000'	-	37' Seatruck 42' Cutter	-

In combination with the RAT150T, equipment found in the ∆1000T depots will be at a 1000T capacity. Hence, the delta or "∆" is the difference between the RAT150T and a full 1000T. The ∆1000T depots will have containerized heavier equipment (not suitable for air transport to smaller communities) augmenting the RAT150T to a 1000T capacity, ready to be loaded on deck barge, Canadian Coast Guard icebreaker or freighter. While response personnel cascade in to the spill site pre-identified local, CCG base and available ER personnel will mobilize to the centres and load the equipment on suitable marine transport.

Three ∆1000T depots are strategically located in the northern communities of Tuktoyaktuk (NorthWest Territories), Iqaluit (Nunavut), and in Churchill (Manitoba). For the purposes of response in Central & Arctic Region, Churchill is included in the Arctic Zone of operations despite it being south of 60° North Latitude due to the similarities in response characteristics that it shares with locations north of 60° North Latitude.

Table 4-3 *- Canadian Coast Guard Arctic Design Inventory*[3]

PCM equipment	Description	Hay River RAT150T	Tuk Δ1000T	Iqaluit Δ1000T	Churchill Δ1000T
Skimmers	Light to medium product /disk type	3	1	1	1
	Heavy product /weir type	0	2	2	2
Boom	24" river type	0	10000'	10000'	10000'
	24" lay-flat type	5000'	0	0	0
Land storage	4T Open top tank	0	0	0	0
	8T Open top tank	7	3	3	3
	45T shore bladders	3	0	0	0
O/w storage	Total (in 5-25T Seaslugs)	50	250T	250T	250T
Pumps	2" low pres / volume style	4	1	1	1
	4" trash	5	1	1	1
	3" positive displacement	6	1	1	1
Vessels	"Car-topper" + 9.9hp	0	0	0	0
	Seatruck	0	2	2	2
	RAT RHI	2	0	0	0
Generators	5KW gas	7	2	2	2
Pressure washer	Larger hot water type	1	1	1	1
	Small cold water type	3	1	1	1
Incinerator	Sorbent	2	0	0	0
	Liquid waste	2	0	0	0

Central Zone

The Central zone is dominated by the Great Lakes and has well defined road transportation infrastructure.

Local / first response inventories have been established at all regional Canadian Coast Guard shore-side facilities that have fleet assets or a significant number of program vessels and that have operational personnel to deploy the equipment. Standardized inventory consists of a 20-24' trailer with a 1000' (nominal) of 24" boom and related accessories.

The 2500T Rapid Road Transportable cache is centred around the St. Mary's River and from time to time in major CCG facilities in Ontario. The response package warehoused in a series of 45' transport trailers will be maintained in 100% readiness during the shipping season. The primary purpose of the RRT 2500T system is significant containment of resources; shoreline, sheltered, and off-shore sweep and recovery ability; and staging and storage transfer area equipment.

[3] Inventories in Tuktoyaktuk and Iqaluit are at 95% completion. The Churchill Depot is at about 50% (pending the construction of a new and adequate facility) with the bulk of the inventory in storage at the Thundar Bay Coast Guard base. The RAT 150 needs an evaluation of the command and control component as well as storage for the second Saccke burner.

Table 4-4 *Canadian Coast Guard RRT 2500T Design Inventory*

PCM equipment	Description	BOOMERT #1-5 (each)	SKIMMERT #1 and #2[4]	Softside
Skimmers	Light to medium product/ disk type	-	3	
	Heavy product/ weir type	-	1	1
Boom	24" river type	4000'		
Sweep	36" Nofi V-sweep	-		1
Land storage	4T Open top tank	-	7	1
O/w storage	25T Towable bladders	-	4	4
Pumps	3" positive displacement	-	4	1
Generators	5KW gas	-	2	

Table 4-5 *Canadian Coast Guard locations for First Response Units (FRUs)*

Location	Relevant Area Plan(s)	Primary custodian	Secondary custodian
Amherstburg	Lake Erie/St. Clair-Detroit	SAR crew	ITS field services
Cobourg	Lake Ontario	SAR crew	
Gimli	Lake Winnipeg	SAR crew	
Goderich	Lake Huron	SAR crew	
Kenora	Lake of the Woods	ITS field services	
Kingston	Lake Ontario	SAR crew	
Meaford	Lake Huron	SAR crew	
Parry Sound	Lake Huron	ER personnel	ITS field services
Port Dover	Lake Erie	SAR crew	
Port Weller	Lake Ontario	SAR crew	
Prescott	St. Lawrence River	ER personnel	ITS field services
Selkirk	Lake Winnipeg	ITS field services	
Thunder Bay	Lake Superior	SAR crew	ITS field services
Tobermory	Lake Huron	SAR crew	
Hay River	Mackenzie River & Delta	ER personnel	ITS field services

[4] An additional SkimMERT is being added this year to accommodate additional hoses. The exact configuration of each SKIMMERT is not known yet so the inventories will remain listed together for this year.

Section 5 - RESPONSE OPERATIONS

5.1 Pattern of Response

Based upon the principles outlined in the *National Response Plan*, *(Sections 1.3, 1.5 & 4.4),* Central and Arctic Region assesses, notifies relevant parties, and initiates the tasking/deployment of necessary resources. This is based upon the determination of CCG's role as Lead or Resource Agency and the appropriate CCG Posture. The Duty Officer (DO) is tasked with this initial assessment, which is then verified by the Superintendent, Environmental Response. The appropriate response is activated by the Superintendent who in turn assigns an On-scene Commander (OSC) or Federal Monitoring Officer (FMO) and notifies Canadian Coast Guard (CCG) Management. Upon termination of the incident cost recovery actions are undertaken. To illustrate the generic process see Figure 5-1-Typical Sequence of Events and Table 5-1-Typical Functions Descriptions has been provided.

CCG Expectations of Ships for Response

In most instances when a spill occurs the initial report will trigger the mobilization of local response organizations. It is not normally practical for ship personnel to be directly involved in the clean up activities.

Small Spills

Ships are expected to take whatever actions listed in their Shipboard Oil Pollution Emergency Plan (SOPEP) that are reasonable and necessary to prevent the oil from escaping over the side and having done so, to take action to clean-up the oil contained on deck. Spilled oil should not be washed overboard, nor should degreasers or dispersants be used on spilled oil in the water. Once the oil is in the water, the ship's ability to respond in a practical manner is greatly reduced. It is Canadian Coast Guard's expectation that a response organization or other competent contractor be called upon to provide operational response capability at the discretion of the Polluter.

Where there is no availability of local response contractors or where there is a delay in response activation, the Master of the vessel should consider the use of available materials to contain and clean up the spilled oil by, for example, using ship-stocked absorbent material or utilizing mooring ropes or air filled hoses as makeshift booms.

Large Spills

The ship is restricted as to what action it can take to respond to a major spill. In the case of a casualty the safety of the ship and crew take priority. Therefore the ship's actions will be limited to reporting the incident details

to the appropriate authorities and to ensure that a response is initiated. In large spills it is Canadian Coast Guard's expectation that the Polluter appoint an On-Scene Commander (OSC) which may be a representative of the company that owns the ship or the ship's insurer.

Canadian Coast Guard needs to be kept informed as to the escalating response costs accrued by the Polluter during a response in order to prepare for the possibility that the Polluter will cease their response activities once their Limit of Liability is reached.

CCG expectations of Oil Handling Facilities (OHF) for Response

In most instances when a spill occurs, the initial report will trigger the mobilization of the facility response team. It is normal, in most cases, for the oil handling facility personnel to be the initial responders when a spill occurs.

Small Spills

For the purpose of this plan, a small spill will be defined based on the maximum oil transfer rate of the oil handling facility (i.e. what Level it is assigned under the *Canada Shipping Act, 2001),* which directly links to the minimum spill size to which it must be prepared to respond to within one hour. Oil handling facilities are required to have the resources on site to contain a spill of a minimum size within one hour and have the resources required to recover, or where the oil cannot be recovered the resources to control a spill of a minimum spill size within six hours. Response organizations may be called upon to provide additional operational response capability at the discretion of the Polluter.

Large Spills

For the purposes of this plan, any spill above the facility's minimum spill size will be characterized as a large spill. Oil handling facility personnel are still expected to deploy their on-site equipment. Response organizations will likely be called upon to provide additional operational response capability at the discretion of the Polluter.

***Figure 5-**1 - Pattern of Response – Typical Sequence of Events*

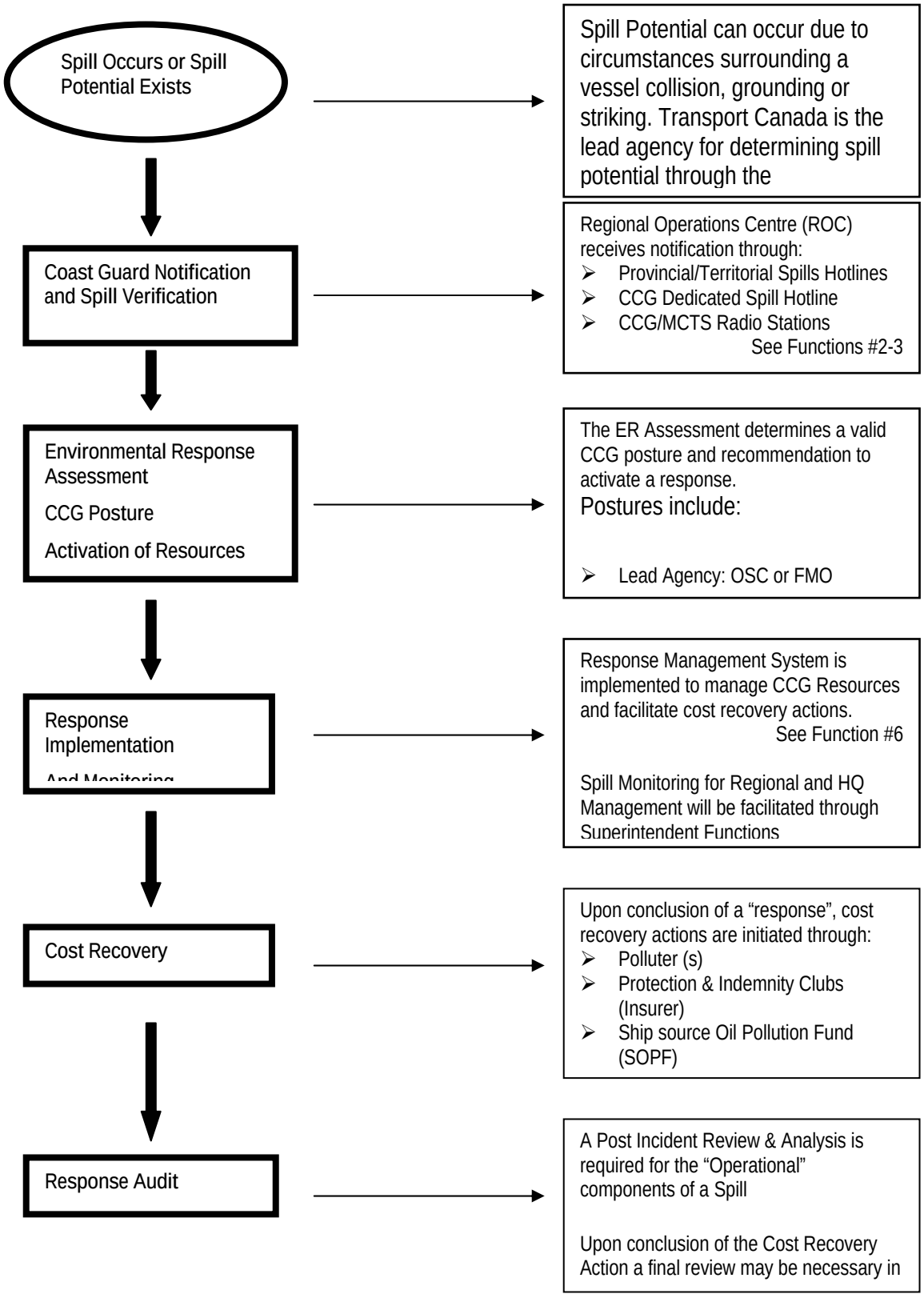


Table 5-1 *- Pattern of Response – Function Descriptions*

Function		***Description***
1	**Responsible Party/Third Party Functions** *(Spill occurs or sufficient potential risk exists)*	• Spill is sighted/reported. Spill reports originate from source (to regulatory body) or by third party (to various emergency or dedicated pollution hotlines) • Transport Canada is responsible for determining potential risk
2	**Spills Hotline Functions** *(Canadian Coast Guard Notification)*	• Assessment for dissemination • Dissemination (fan out according to applicable procedures) to relevant parties, calls from other spill hotlines are received by CCG-ROC.
3	**CCG-ROC Duty Officer Functions** *(Canadian Coast Guard Spill Verification)*	• Spill Assessment-pollution verification ➢ Mandate Confirmation ➢ Pollution Verification ➢ Source Credibility • Notification to ERDO • Dissemination • Initiation of MPIRS
4	**ER Duty Officer Functions** *(Environmental Response Assessment – CCG Posture)*	• Spill Assessment-response analysis • Source Control/Mitigation • Safety Issues • Tactical & Logistical Issues • Recommendation to Superintendent of likely Response Posture • Documentation – MPIRS
5	**Superintendent Functions** *(Environmental Response Assessment – Activation of CCG Resources)*	• Response Posture Evaluation ➢ Potential Risk to CCG Personnel and Equipment ➢ Propriety of request ➢ International Implications • Identification of OSC/FMO • Obtain an Order-In-Council (Arctic) • Obtain a Finance Code & Regional File Number • Notification of Senior Management and ongoing monitoring • MPIRS documentation • Obtain AC CCG sign off on MPIRS situation report
6	**OSC/FMO Functions** *(Response Implementation*	• Management or monitoring of response using the Response Management System (RMS). Escalation or de-escalation in accordance with needs of the incident. • Consolidation of all documentation upon conclusion of the response for Cost Recovery purposes. • Coordinate final debrief to facilitate future improvements to the systems and processes in place.
7	**Chief Financial Officer Function** *(Cost Recovery)*	• Utilizing CCG Ship-source and Marine Pollution Response Costing Principles and Documentation Standards (DFO 6332) compile pollution response costs recovery claim.

8.	**Internal** **Review Team Functions** *(Audit)*	• Utilizing the National Exercise Program Planning and Evaluation Guide, a Team is selected to complete the Post-Incident Review of an incident. • Improvements & corrective actions are to be documented

5.2 Spill Potential or Pollution Risk Assessment

Given an actual spill (i.e. pollutant in the water), the activities specified in this plan are rather obvious. However, in the event of vessel grounding, striking or collision that does not immediately result in a release, the responsibility for determining the risk of pollution rests with a Pollution Prevention Officer (PPO) within the Marine Safety (MS) branch of Transport Canada (TC). Should TC-MS be unable to make that determination, the Canadian Coast Guard (CCG), Environmental Response Duty Officer (ERDO) will complete that requirement. In some cases this may involve engaging a marine architect as no accredited expertise for vessel stability assessment resides within the ER section.

For all other areas where Canadian Coast Guard is the Lead Agency, this activity shall be considered the responsibility of the Canadian Coast Guard, Environmental Response Duty Officer.

5.3 Notification

To facilitate the notification of Canadian Coast Guard, and in addition to the existing Marine Communications system, a series of call-out or “Spill Hotline” agreements with the Province of Ontario, Nunavut and Northwest Territories and other Federal Departments within the Region have been implemented.

In addition, Central and Arctic Region, provides a 24 hr public access spills hotline:

24 hour toll free - Spills Hotline:
1-800-265-0237

Notification may occur through various mechanisms, depending upon the manner in which the spill (incident) occurs.

5.4 Verification

In all cases, spill information is initially processed and verified through the Regional Operations Centre (ROC) located in Sarnia, Ontario (See Section 3.3 – Organization). The ROC Officer on duty:

1. Determines whether the pollution is within Canadian Coast Guard’s mandate as Lead Agency or as a potential Resource Agency
2. Establishes the credibility of the source

3. Identifies the following:
    - Incident name (nature of incident)
    - Time of call (local / UTC)
    - Time of spill (local/UTC) *(if available)*
    - Reported by / call back particulars
    - Source determination
    - Incident background and description of clean-up activities (if any)
    - On-scene environmental/atmospheric conditions
    - Pollutant type and quantity
    - Verifying party contact information (as applicable)
4. Initiates an MPIRS entry for the following cases:
    - Originally pursuing verification as Canadian Coast Guard mandate but additional information about source changes lead to another agency
    - Canadian Coast Guard mandate and verified no pollution
    - Canadian Coast Guard mandate and verified pollution
    - Likely to impact on / impacting on foreign waters
    - Significant impact on region, though not falling under Canadian Coast Guard mandate.
    - Request for Canadian Coast Guard as a resource agency.
5. Enters information into MPIRS (indicated in #3 above) as well as name of paged ERDO.

This information is then relayed to the Environmental Response Duty Officer to determine Canadian Coast Guard posture. It should be noted that all spill incidents, irrespective of CCG's mandate, may require Canadian Coast Guard resources if requested (see Resource Agency Role in Section 1.5 of the *National Response Plan).*

By agreement, spill verification will be completed by the Regional Operations Centre (ROC) Duty Officer. The verification will be complete when the ER Duty Officer is advised where Canadian Coast Guard is Lead Agency. (see Figure 5.2 Pollution Verification Process and Figure 5.3 Response Analysis Process)

5.5 Spill Assessment – Environmental Response Duty Officer

To facilitate the requirement for efficient and rapid notification and assessment of incidents, Central and Arctic Region, in accordance with the *National Response Plan,* Section 4.4, has instituted a 24-hr year round monitoring regime integrated with the Regional Operations Centre (ROC). The following sections identify the context in which this activity is carried out.

Coordination

The coordination of the ER Duty Officer is the responsibility of the ER Regional Emergency Operations Officer (REOO). These duties include assigning shifts in an equitable manner, keeping records of the duty officer schedules, maintaining equipment required to perform ER Duty Officer functions, reviewing individual ER Duty Officer performance, reviewing ER Duty Officer procedures, and liaising with the ROC and National HQ.

Performance

The ER Duty Officer function shall be performed by the following positions provided sufficient experience, appropriate training, and at the discretion of the Superintendent ER:

- ✓ Senior Officers
- ✓ Those in capacity to act for Senior Officer.

Review

The ER Duty Officer procedures shall be reviewed in reaction to:

- Changes at the Regional Operations Centre (ROC) affecting the ER Duty Officer function
- Changes in Canadian Coast Guard (CCG) policy on the response to ship source pollution
- In consideration of accepted recommendations stemming from exercises and operational responses.

The individual officer performance shall be reviewed in context of their execution of a spill assessment.

Responsibilities

At the beginning of the ER Duty Officer's shift the following are required:

- Functioning communication equipment (pager, cell phone/Blackberry);
- The necessary analytical tools (e.g. spill assessment forms, Greenwood's Guide to Great Lakes Shipping, Area Plans, Oil Spill Response Field Guide, OSH reference tools, and the CANUTEC Emergency Response Guide book.)

During the ER Duty Officers shift the following are required to be complete:

- MPIRS cases for any spill reports that required ER Duty Officer analysis by noon of the next business day;
- Extra Duty Reports;
- Notification of the next ER Duty Officer and the ER Regional Emergency Operations Officer of any on-going cases.

Availability

The availability of the ER Duty Officer is 24 hours/7 days a week. Pages must be responded to within 10 minutes of notification. Should the ER Duty Officer (DO) be unable to fulfill their duties at any time during the shift, they are required to

notify the ER Regional Emergency Operations Officer (REOO) immediately who will notify the ROC of any changes immediately. The following activities conflict with the performance of the ER Duty Officer function:

- travel out of country / region / pager range;
- inability to respond immediately due to performance of other job functions (instructing a course, running an exercise, delivering a presentation, involved in a maintenance run that would be too difficult to reschedule, chairing a meeting, or participating in any activity that requires attendance or would be inappropriate to leave);
- inability to respond immediately due to personal reasons (vacation, sickness, etc.).

Should an individual become unavailable for a significant portion of the shift for reasons noted above, that shift may be assigned to another officer at the discretion of the ER Regional Emergency Operations Officer.

Function

The primary function of the ER Duty Officer is to complete an initial incident assessment and analysis, making a recommendation to the Superintendent of ER as to the appropriate course of action. **

The initial assessment will be complete for the following cases:

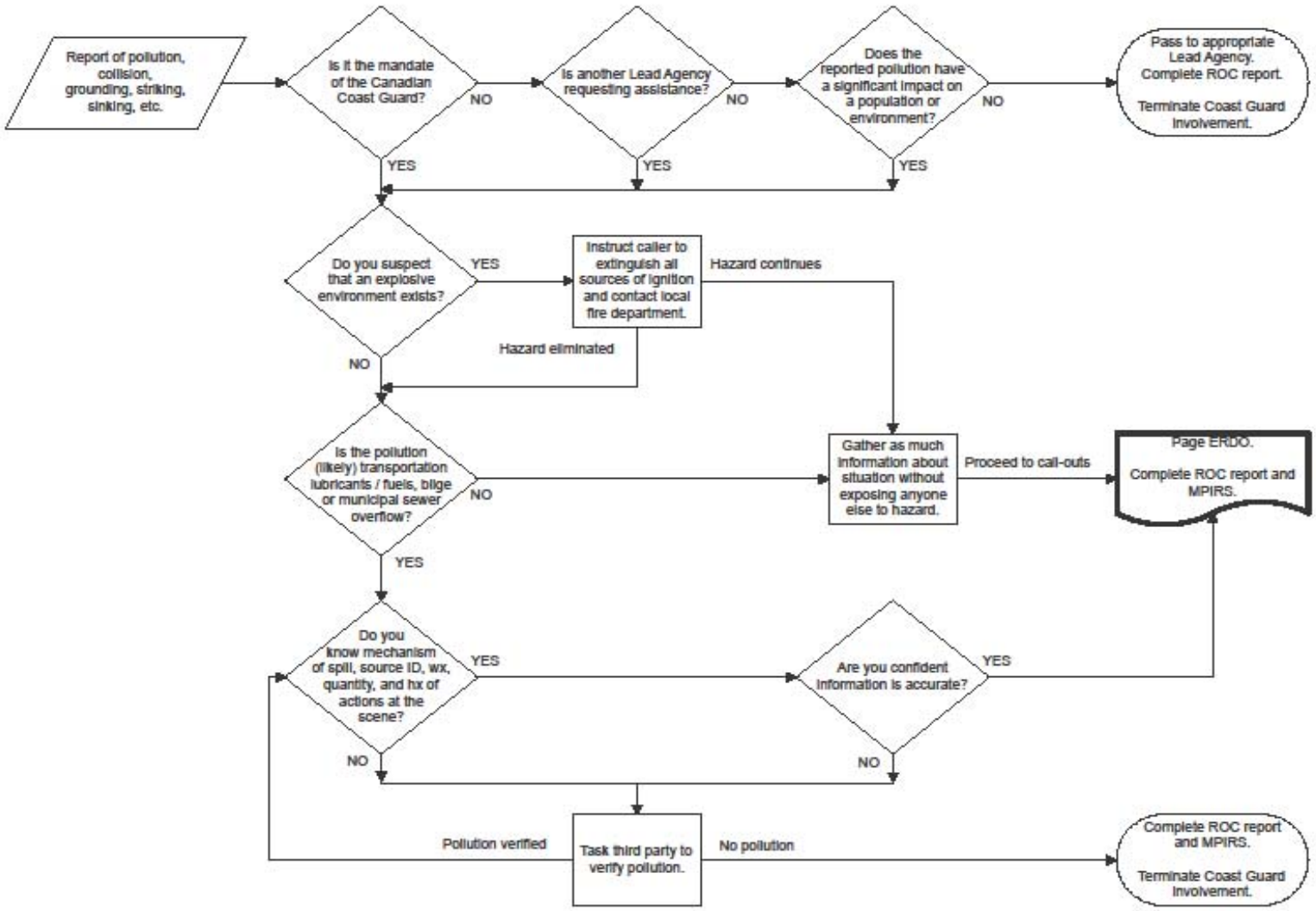
- Canadian Coast Guard mandate and verified pollution
- Likely to impact on / impacting on foreign waters
- Significant impact on region, though not falling under Canadian Coast Guard mandate.
- Request for Canadian Coast Guard as a resource agency.

The analysis function is complete when the Superintendent ER is informed and advised of the recommended course of action that will consider the following (see flow chart):

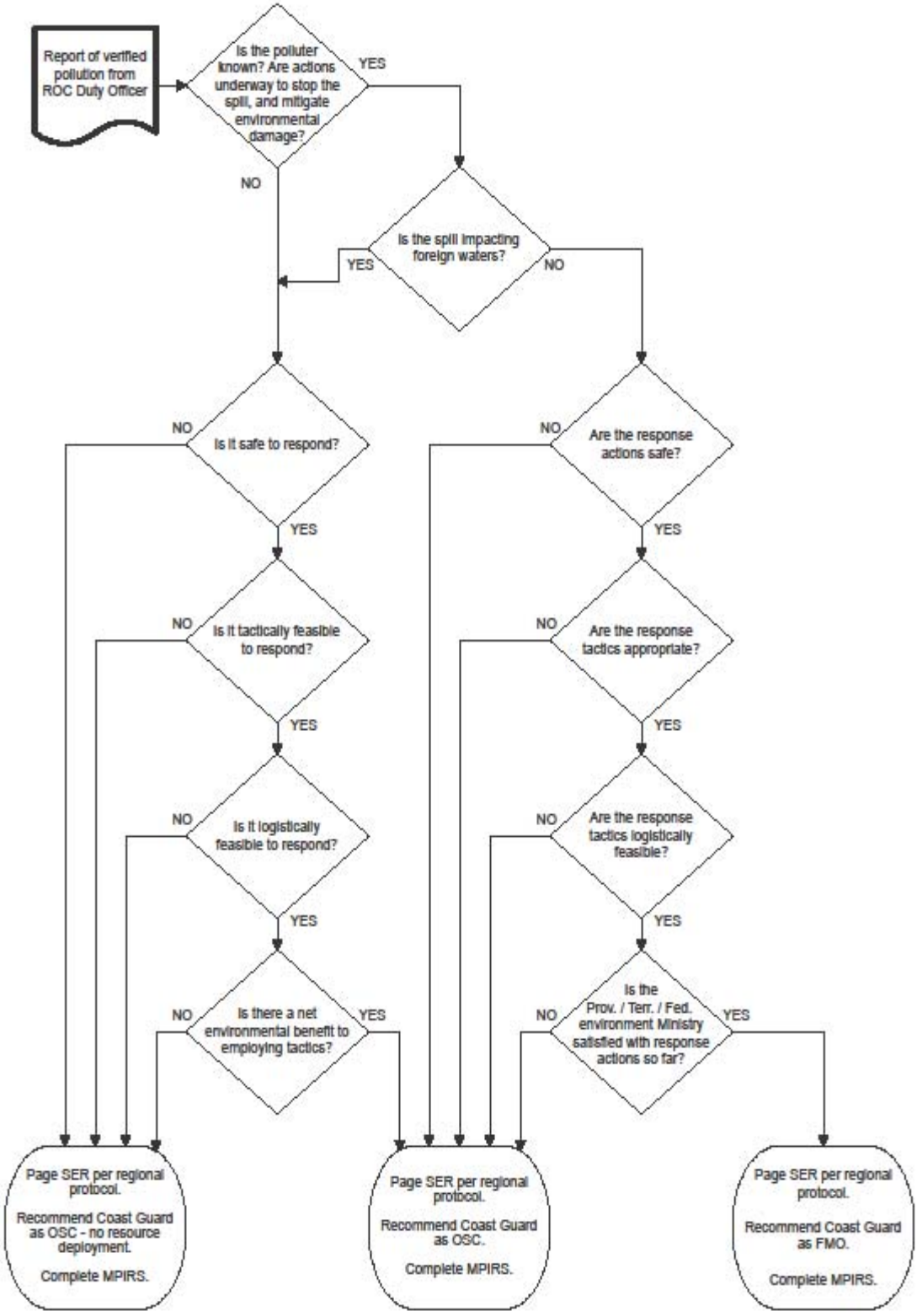
- polluter's actions and intentions (if applicable);
- safety concerns, tactical, logistical, and environmental feasibility of any response.

** The ER Duty Officer does not need to notify the Superintendent of any incidents that require "no activation" of CCG resources (assets/personnel) in monitoring/clean-up activity.

Spill assessment: *pollution verification process*



Spill assessment: *response analysis process*



5.6 Activation of Canadian Coast Guard Response Resources

In the event of small (0-150 T) to medium size (150-1000 T) spill incidents, the Superintendent, Environmental Response, acting upon the assessment provided by the Duty Officer, initiates/activates the appropriate response. This entails, but is not limited to, the following activities:

- Identification of overall health and safety risks to response personnel.
- Establishing the propriety of the recommended response posture. This includes the verification of international issues in border areas.
- Verification of Canadian Coast Guard capability to respond, impact on normal regional operations and, if necessary, the potential requirement for the notification and activation of the National Response Team.
- Assignment of the designated On-Scene Commander (OSC) or Federal Monitoring Officer (FMO). SROs are typically assigned as FMO/OSC for incidents occurring within their geographic area.
- Obtaining the necessary Order-in-Council, for spills in Arctic Waters
- Obtaining the financial project code, and forwarding it to the OSC/FMO.
- Signing a contract with the Response Organization (RO) in accordance with PWGSC contracting rules.
- Creation and dissemination of initial situation report to Regional and National management in accordance with the *Safety and Environmental Response Systems (SERS) – Incident Notification Guidelines*.
- Completion of MPIRS to document above activities.

For significantly larger spill incidents (1000T and above) the Superintendent, Environmental Response shall immediately assume the OSC/FMO role, notify Regional and National management of the situation and initiate the Response Management System (RMS) (and activation of the National Response Team, if necessary) in addition to the above activities. Upon stabilization of the immediate emergency, the Assistant Commissioner, Canadian Coast Guard, Central and Arctic Region and/or Director General, Canadian Coast Guard shall assess the requirement for assigning a new OSC/FMO.

5.7 Response Implementation

As stated previously (Section 4 - Preparedness), the Canadian Coast Guard will employ the Response Management System (RMS) as its primary management and operational tool. At the heart of this system is the development of clear obtainable objectives and the implementation of the supporting tactical deployment. This is achieved through the creation of incident action plans spanning specified operational time periods. For small spills these plans can be rather informal. As spill size and impacts increase, so to will the complexity of

operational assignments and hence a need for greater formalization of the Incident Action Plan.

All operations shall be carried out in accordance with the Guiding Principles set out in *Section 1.3* of the *National Response Plan* and the *Oil Spill Response Field Guide* (ISBN 0-660-16112-5).

Central and Arctic Region covers an extremely large geographical and culturally diverse portion of Canada. There are, in essence, two zones of operation which are entrenched in the *Canada Shipping Act*.
These are the:

- Arctic zone, or all areas of Canadian jurisdiction north of 60^0 N Latitude;
- Central zone, dominated in a marine transportation sense by the Great Lakes, but which include the southern portions of Hudson, James and Ungava Bay, along with the major waterways and watersheds of Lake Winnipeg, Winnipegosis, Lake of the Woods, and Lake Athabasca.

Arctic zone – first response
The highest risk of pollution in the arctic is during a ship fuel transfer to facilities in Canada's northern communities. Should pollution occur, the vessel and oil handling facility have responsibilities to implement their Oil Pollution Emergency Plans (OPEP) that deal with source control. The next step would be for the community to respond using its response plan, protecting the identified priority area(s) and employing the response equipment in an Arctic Community Pack, if so equipped.

Arctic zone – escalation
If the pollution is beyond the ship, facility, and community response then the Rapid Air Transportable (RAT)150T will be the first line Canadian Coast Guard ER response (Arctic icebreakers or Special River Nav-aid Tenders may have been on-scene first). Upon activation of the RAT150T, standing offers with aviation contractors will be called up. Closest ER personnel will be dispatched to the community to assess, plan, assemble (and train) responders, while preparing to stage the in-coming equipment. The Hay River base personnel will transport the pallets to the airport where they will be loaded into the awaiting airframe. Upon arrival the pallets will be unloaded and a trailer tongue and wheels affixed to the pallet to facilitate movement (by ATV if necessary) to a forward staging area and ultimately to a beach site. The timeframe for full forward staged capacity with personnel at any community with suitable runways is under 48 hours.

The hospitality industry of Arctic communities can be rapidly overwhelmed with the influx of as little as 10 people. Experience has shown that these communities could only support 10-15 additional personnel and only offer 10-15 community responders. Consequently, the RAT was designed considering the amount and type of equipment that is most easily handled by a combination of trained

Canadian Coast Guard personnel and community responders. The RAT150T response is predicated on an in-community response with the following positions identified in the table below:

Table 5-2 *Anticipated personnel usage for the RAT150T in an Arctic community*

Position	Canadian Coast Guard responder	Community responder
OSC	X	
OSC support		X
Chief Ops & Planning	X	
Logs – services	X	X
Logs – support	X	X
Ops skimming (A)	X	X
Ops skimming (B)	X	X
Ops shoreline (A)	X	X X X X
Ops shoreline (B)	X	X X X X
Ops booming vessel (A)	X	X
Ops booming vessel (B)	X	X
Transfer / disposal	X	X
Totals	**11**	**16**

Upon escalating beyond a RAT150T response, the Δ1000T will be stood up. Standing offers / arrangements with local contractors will be activated to move the containers / seatrucks to a location where they can be transferred to a ship / barge. If required, closest Canadian Coast Guard base personnel will be dispatched to the depot to assist. The closest suitable marine transportation asset will also be contracted to move the equipment to the spill site. The timeframe for full forward staged capacity with personnel is estimated at one week.

As the 150T response is predicated on an in-community response a larger spill would have to be supported by a Canadian Coast Guard icebreaker, rented camp barge, or flown in from surrounding communities.

Table 5-3 *Anticipated personnel usage for the 1000T in an Arctic community.*

Position	Canadian Coast Guard ER responder	CCG Fleet or professional contractor	Community responder
OSC	X		
OSC support		X	X
Chief of Planning	X		
Plan – response	X		
Plan – demobilization	X		
Chief of Logs	X		
Logs – services		X	X
Logs – support	X X	X X X	
Chief of Ops	X		
Air Ops		X	
Ops on-water	X X	X X X X	
Ops shoreline	X X		X X X X X X X X X
Ops booming	X X	X X X X	
Transfer / disposal	X	X	X
Totals	**14**	**13**	**13**

Central Zone – first response

The highest risk of pollution occurring in the region is found in the Great Lakes. Statistically the areas in the Great Lakes of highest risk are the connecting channels due to volumes, numbers of transits, and convergence factors (existing VTS / navigational aid systems recognize this). Areas with traditionally high pleasure craft and small commercial craft traffic experience frequent (though low in volume) pollution incidents.

If the pollution is in the local vicinity of a Canadian Coast Guard Search and Rescue (SAR) station or facility with operational staff, a First Response Unit (FRU) may be deployed as an initial attempt at containment. If more equipment sweeps systems or recovery units are required then the Rapid Road Transportable (RRT) 2500T will be activated.

Transfer of Lead Agency

Transfer of Lead from CCG

Should an incident initially appear to fall within the jurisdiction of the Canadian Coast Guard yet later is determined to be another government agency's

responsibility, the CCG-appointed OSC or FMO will verbally acknowledge the transfer of Lead Agency responsibility followed by written confirmation on the terms of the transfer (this may require time for termination of a response contract with CCG and the establishment of a response contract with the appropriate Lead Agency.) When the Lead is transferred from CCG to another Lead Agency, CCG will submit an invoice of its response costs to the Lead Agency for response activities undertaken up to the time of transfer recognition.
Should the Lead Agency wish to retain CCG as a Resource Agency, the criteria in Section 7 of the *National Response Plan* of the *CCG National Marine Spills Response Plan* will apply.

Transfer of Lead to CCG
When the Lead is transferred to Canadian Coast Guard from another agency, the Canadian Coast Guard will incorporate the appropriate costs borne by the other agency in the initial stages of the spill into its claim to the Polluter or to the Ship Source Oil Pollution Fund, (SOPF) as the case may be.

Safety Procedures and Considerations

All petroleum cargoes are considered hazardous substances. Canadian Coast Guard command, clean-up, monitoring and verification personnel have protective equipment and training available to them up to Level “D”. All Environmental Response branch staff have been issued with a variety of personal protective equipment (PPE) and are expected to deploy to a spill site (includes exercises and training) with all appropriate gear. Safety glasses and rain suits with rubber boots and gloves are appropriate for Canadian Coast Guard's traditional verification of and response to oil pollution.

Bulk chemical carriers, rail cars, road trailers, sour (H2S) petroleum products or BTX (benzene, toluene, xylene) carried on oil tankers are all sources of substances for which Canadian Coast Guard personnel are not readily equipped for. In most cases where the pollutant reported is suspected to be from one of these sources Canadian Coast Guard assets should not be tasked to verify. If it falls within Canadian Coast Guard mandate the ER program personnel will get directly involved in the verification, likely looking to other government departments or contractors to continue with the assessment and response.

When the pollution is reported to the ROC by a member of the public, or by a credible professional as a mystery spill, closer examination of the circumstances or probable cause of the pollution will occur as part of spill verification. During the conversation with the individual reporting the incident the ROC Duty Officer will want to find out what it is that they observed. These are:

- Colour [typical petroleum silvery to rainbow to dark purple / brown or is it frothy, green organic matter, rusty, etc.]
- Odour [does it smell like gas, diesel, rotten eggs, no odour]
- Proximity to any likely source [vessel, industrial outfall, municipal outfall, midlake, mid channel, washed up industrial storage drum]

- Volumes [football field sized, shopping mall parking lot big, or a thin ribbon]
- Other factors [heavy rainfall in last 12 hours; seasonal conditions / times / areas known for algae blooms; fish or animal kills].

By picking up on any "flags" during an assessment it can be reasonably determined whether the pollution should not/should be classified as a hazardous substance (for which CCG personnel are unable to respond to). The ER duty officer will consult with experts in Environment Canada (EC), Spills Action Centre (SAC), and CANUTEC, as appropriate to determine the safety for personnel.

Alternative countermeasures

Alternative countermeasures are those non-mechanical techniques utilized in oil spill response operations such as in-situ burning, dispersant application, and shoreline cleaner application.

Central Zone

The likelihood of approval of in-situ burning operations on the Great Lakes or in connecting channels or inland lakes is minimal. The use of dispersants in the Great Lakes, connecting channels or in inland waterways will not be considered. Shoreline cleaner agents approved by Environment Canada may be considered.

Arctic Zone

In view of the difficulties associated with mounting an effective response in the Arctic, the CCG has recommended that further research be done in the areas of in-situ burning, the use of dispersants (reference Quebec paper) and other oil in ice recovery methods. This research should be operational R&D and assume that the product spilled is Arctic diesel and that the spill occurs during the Arctic shipping season.

5.8 Summary Report and Post Incident Review

It is regional policy to provide a Summary Report and/or conduct a formal Post Incident Review for incidents deemed noteworthy or valuable by the OSC/FMO or Assistant Commissioner, Canadian Coast Guard.

Summary Report

The summary report shall contain at minimum the following, but can include any information deemed relevant by the OSC/FMO.

Summary Incident Report Format

(a) Overview of Crisis Event

- spill source (not cause), initial environmental conditions and assessment of situation

(b) Spill chronology
- spill response activities and climate/wind /sea condition data
- key response objectives (success and failures in implementation), major shifts in tactics, other agencies involvement

(c) Costs and cost recovery issues
- total estimated cost summary
- identification of Cost Recovery requirements and options

(d) References
- Situation Reports

Post Incident Review

The main objective of a Post Incident Review is the evaluation of the incident to ultimately improve Canadian Coast Guard's effectiveness at spill response. To that end, this requirement is essentially similar to the principles of exercise evaluation. Therefore, when required, the review shall be conducted in accordance with the principles contained in the *National Exercise Program – Evaluation guidelines, Chapter 11*.

This entails six distinct tasks:

1) Brief the Evaluation Team
2) Brief the Response Team
3) Evaluate the Incident
4) Prepare a Preliminary Summary of Key Observations
5) Hold an Incident Debriefing Session
6) Prepare an Official Post Incident Evaluation Report

Post Incident Evaluation Report Format

(a) Executive Summary -Summarizes overall findings and observations

(b) Overview of Incident Objectives -Briefly describes the key objectives, environmental conditions and initial situation assessment

(c) Evaluation Techniques and Criteria - Describes the technique(s) (i.e. self, peer or independent evaluation) and the major evaluation criteria used

(d) Assessment of Key Incident Objectives - This provides a critical appraisal of the incident objectives or major shifts in tactics. Each key objective assessment will include the following:

Findings – A summary statement describing key positive and negative findings.

Specific Observations - Observed decisions and tasks noted during the incident by responders, management and interested parties.

Conclusions - Assessment of the impact of the finding on overall achievement of the incident objective(s)

Recommendations – A description of potential corrective or follow-up action required to implement the findings to improve overall marine spill response preparedness.

(e) Appendices or Attachments - May or may not be required

Section 6 – CLAIMS & COST RECOVERY

6.1 Purpose

The purpose of this section of the *Regional Response Plan* is to outline the requirements and regional processes to assist in the creation of a claim to the relevant fund or directly to a polluter.

The ability of Canadian Coast Guard to recover or pursue recovery of response expenses or costs associated with monitoring activities is set out in the *Marine Liability Act, Part 6, "Liability and Compensation for Pollution"*. This ability to recover costs is seen as the embodiment of the polluter-pay-principle set out in the *National Response Plan, Guiding Principles, Section 1.3*.
Note: That at this time there is no mechanism to recover monitoring costs from an oil handling facility.

In addition to the above and recognizing the potential financial risks and impacts to Canada, Canadian legislation also provides for the creation and maintenance of a Ship-Source Oil Pollution Fund, (SOPF). This fund, in addition to the International Oil Pollution Compensation Fund (IOPCF) and the Protection & Indemnity (P&I) Clubs, provides for the assessment of claims/loss against member ships and/or shipping companies. Neither of these funds hinder nor otherwise limit Canadian Coast Guard's ability to lay claims directly against a Polluter. However, the Polluter is only required to reimburse a claim up to its Limit of Liability. This limit is calculated using the guidelines established in the *Convention on Limitation of Liability for Maritime Claims (LLMC), 1976*.

6.2 Policy Guidelines

The following points serve as regional guidelines for pursuing cost recovery activities:

- The decision to seek cost recovery should be made based on common sense and in consultation with other operational and finance team members.
- Cost recovery should be avoided in situations where the administrative costs of recovery action exceed the dollars expected to be recovered.
- Cost recovery embodies the "Polluter Pays" principle.
- Costs incurred while acting as a resource agency must be recovered from the lead agency.
- Costs incurred while acting as OSC/FMO are recoverable from either the polluter, its P&I Club, the Ship-Source Oil Pollution Fund or from the International Oil Pollution Compensation Fund.

6.3 Responsibilities

On-Scene Commander/Federal Monitoring Officer (OSC/FMO)
The OSC/FMO is responsible for ensuring that complete and accurate documentation is provided for a timely and effective cost recovery process. The OSC/FMO is responsible for preparing all documentation necessary to initiate cost recovery.

Regional Finance Staff
Response, monitoring and administrative costs must be calculated in accordance with national financial accounting and recording practices. Senior administrative officers within Maritime Services may be called upon to provide expert advice as required. It is recommended that a regional finance representative be on-scene as soon as possible to help establish procedures, to safeguard documentation, and to ensure the integrity of the costing process.

Environmental Response Headquarters
The Environmental Response Senior Advisor for Cost Recovery and Claims will submit those claims that are intended for the Ship-Source Oil Pollution Fund and to International Fund Conventions in accordance with the guidelines specified by each. The Advisor will also issue equipment charge-out rates periodically for use by all regions.

6.4 Process
The Response Management System (RMS) documentation (field notes, Incident Action Plans, Minutes and meeting records, time sheets and any and all expense records, invoices/requisitions etc.) shall form the basis of data for the Cost Recovery action.

The Region will initiate cost recovery actions against the Polluter. Should the Polluter be unable or unwilling to pay the costs, the Region will forward the claim to HQ Senior Advisor for Cost Recovery and Claims for submission to the Ship-Source Oil Pollution Fund. Should the costs of the response exceed the Limit of Liability of the Polluter, reimbursement of costs will be through the SOPF and then through the IOPCF. Claims associated with mystery spills will be submitted directly to HQ for a claim against the SOPF.

6.5 Documentation
Proper documentation alleviates the need to reconstruct the incident after the fact, reduces the volume of questions, and adds credence to the claim. The key source of information that enables various parties to determine the degree of reasonableness of the actions taken and the costs claimed is the part of the cost recovery summary known as a “narrative”. That justification is considered to be a critical component to successful and timely claims.

The regional guideline for producing cost summaries and documentation handling is as follows:

Incidents of minimum complexity and limited expenditures (under $15K)

- Expenditures may be summarized within the body of the Final Report, including any description of "calculated" values (i.e. administration costs)
- Original invoices shall be kept on the dedicated spill file.

Incidents of medium complexity and moderate expenditures (up to $50K)

- Expenditures will be summarized in a single table by Cost Element within the body of the Final Report.
- A supporting cost summary document or appendix shall be created to provide a detailed cost summary by date. Copies of the expenditure documentation will be included.
- Original invoices shall be kept on the dedicated spill file organized by date.

Incidents of high complexity and significant expenditures ($50K plus)

- Expenditures will be summarized in a single table by Cost Element within the body of the Final Report. (similar to medium complexity incidents)
- A supporting cost summary document will be created summarizing the daily expenditures by individual cost element, followed by a cumulative summary of each cost element (spreadsheet of all daily summaries). The sum total of all cost elements will then be summarized for use in the final report.
- Due to the volume of transactions, copies of the expenditure documents will not be provided in the supporting cost summary document.
- Original invoices will be kept in their original state, filed by date and archived when feasible to a dedicated file.

Table 6.1 Sample Cost Element Table

Cost Element	Description
Personnel	Includes hourly regular and overtime costs associated with CCG Staff (includes EBP)
Equipment	Includes cost of all CCG assets, based upon established charge out rates
Purchases/Expendables	Includes expendables such as office supplies and PPE
Travel	Includes meals and accommodation costs incurred by CCG staff accordance with TB travel directive.
Contractors	Includes the costs of all private sector contractor/goods and services.
Administration	Includes the cost of CCG administration.
Total Estimated Cost	

6.6 References

- CCG Ship Source and Marine Pollution Response Costing Principles and Documentation Standards DFO2004-6332
- Cost Recovery of Ship Source and Marine Pollution Response Directive # D-4010-2001-01
- Cost Recovery Related Policies, Memorandum dated October 26, 1998, File AWE 1001-5-2-1 (AWEA)

6.7 Third Party Claims

While monitoring or responding to an incident, Canadian Coast Guard will refer all inquiries regarding third party claims to the Polluter. In the case of a mystery spill, the Canadian Coast Guard will encourage claimants to submit a claim directly to the Ship Source Oil Pollution Fund.

Section 7 - PLAN MAINTENANCE AND CUSTODIANS

7.1 *Maintenance Process*

Responsibility
The *Regional Response Plan* of the *Canadian Coast Guard Marine Spills Response Plan* for Central & Arctic Region is the responsibility of:

Assistant Commissioner, Canadian Coast Guard
Central & Arctic Region
520 Exmouth Street
Sarnia, Ontario
N7T 8B1
fax (519) 383-1991

Revision Requests
All requests or suggestions for revision to this plan should be forwarded, in writing, to the above noted address and should include the following information:

- Originator (including return address and telephone number)
- Date
- Subject (i.e. request for revision)
- Suggested change (including section and page number references)
- Reason for revision

All formally received requests will be acknowledged in writing and assessed for inclusion into the plan. Upon approval the revision will be distributed accordingly.

Revision Record
Upon receiving a revision transmittal, recipients are requested to ensure that its number is next in sequence to the previous issue, process the amendments according to the transmittal instructions and complete the revision record in this section.

Should there be any discrepancies or questions, the recipient should contact the Canadian Coast Guard, Assistant Commissioner, Central & Arctic Region at the above address.

The onus is on the plan holder to maintain a current plan.

7.2 *Canadian Coast Guard Custodians*

This document is structured to reflect the fundamental phases of Environmental Response (ER) activities and hence reflects the co-operative nature of each

aspect of the Central and Arctic Region Environmental Response organization. In conjunction with this, each component has been assigned to a specific section within the branch (e.g. training is the responsibility of the Training Officer). The Assistant Commissioner – Canadian Coast Guard, Central and Arctic Region retains the overall responsibility for the document's implementation. The Emergency Plan Development Officer (EPDO) facilitates the physical management and co-ordination of this document.

These custodial relationships herein are designed to facilitate the annual review and maintenance of the *Regional Response Plan*.

Letter of Promulgation	Emergency Plan Development Officer
Record of Revision	Plan Holders
Section 1 – Introduction	Emergency Plan Development Officer
Section 2 - Agreements & Memoranda of Understanding	Emergency Plan Development Officer
Section 3 – Organization	Emergency Plan Development Officer
Section 4 – Preparedness 4.2 RMS	 Regional Training Officer
4.3 Planning	Emergency Plan Development Officer
4.4 Training	Regional Training Officer
4.5 Exercising	Regional Exercise Officer
4.6 Inventory Maintenance & Management	Regional Emergency Operations Officer
Section 5 – Response Operations	Regional Emergency Operations Officer
Section 6 – Claims & Cost Recovery	TBD
Section 7 - Plan Maintenance & Custodians	Emergency Plan Development Officer
Section 8 – Contacts	Emergency Plan Development Officer
Section 9 – References & Annexes	Responsibility for each annex is assigned in each Annex.

All unassigned sections shall be considered the responsibility of the Emergency Plan Development Officer unless otherwise indicated.

7.3 Plan Distribution

The *Regional Response Plan* shall be distributed to all holders of the *Canadian Coast Guard Marine Spills Response Plan*, in accordance with the Area of Responsibility set in Section 1 - Introduction. This includes the relevant Federal and Provincial Lead Agencies as described in the National Response Plan Section 1, sub-section 1.5; all Canadian Coast Guard Management; Facilities and Vessels; all Oil Handling Facilities and relevant certified Response Organizations by request and in accordance with Transport Canada-Marine

Safety, Compliance and Enforcement division. All subsequent revisions will be automatically distributed to these plan holders.

Any member of the general public wishing to obtain a copy may do so through the Fisheries and Oceans, Canadian Coast Guard, National Headquarters. These plan holders will not be advised of revisions.

Section 8 – CONTACTS

8.1 Pollution Reports for Canadian Coast Guard, Central & Arctic Region

To report a pollution emergency anywhere within Central & Arctic Region telephone the Canadian Coast Guard, Regional Operations Centre (ROC) toll free at:

1-800-265-0237

or report via

Marine Radio on VHF, Channel 16.

8.2 Other Lead Agencies that Maintain Spill Report Lines

- Ontario Ministry of the Environment - Spills Action Centre: 1-800-268-6060
- Territorial Spills Line – Arctic Alarm: 1-867-920-8130
- Manitoba Conservation: 1-204-944-4888
- Saskatchewan Environment - Saskatchewan Spill Centre: 1-800-667-7525
- Alberta Environment: 1-800-222-6514

8.3 Canadian Coast Guard, Environmental Response Branch (CCG/ER) Phone List – Regular Office Hours

Regional Office, Canadian Coast Guard **520 Exmouth Street** **Sarnia, ON N7T 8B1**	
Title	**Telephone**
Superintendent, Environmental Response	519-383-1954
Emergency Plan Development Officer	519-464-5126
Assistant Contingency Planning Officer	519-383-1953
Regional Exercise Officer	519-383-1978
Regional Emergency Operations Officer	519-383-1956
Environmental Training Officer	519-383-1957
Administrative Assistant	519-383-1951

Canadian Coast Guard Base **42037 McKenzie Highway** **Hay River, NT X0E 0R9**	
Title	**Telephone**
Senior Response Officer	867-874-5557
Response Specialist	867-874-5558
Response Specialist	867-874-5559

Canadian Coast Guard Base **PO Box 1000, 401 King Street** **Prescott, ON K0E 1T0**	
Title	**Telephone**
Senior Response Officer	613-925-2865 x 157
Response Specialist (2)	613-925-2865 x 262
Logistics and Statistics Officer	613-925-2865 x 126

Canadian Coast Guard Base **28 Waubeek Street** **Parry Sound, ON P2A 1B9**	
Title	**Telephone**
Senior Response Officer	705-746-2196 x 228
Response Specialist	705-746-2196 x 270
Response Specialist	705-746-2196 x 201

Section 9 – REFERENCES & ANNEXES

9.1 References

The following list includes those documents which supplement the Regional Response Plan.

Supplement	Custodian
Environmental Response Manual – Standard Operating Procedures and Directives	Canadian Coast Guard, Environmental Response, Headquarters
Response Management System User's Guide, version 3.0 (May 2006)	Canadian Coast Guard, Environmental Response, Headquarters
Environmental Response Superintendent's Manual	Superintendent, Environmental Response, Regional Office
Environmental Response Regional Health & Safety Plan	Environmental Response, Regional Emergency Operations Officer
National Exercise Program (NEP) Manual	Canadian Coast Guard, Environmental Response Headquarters
Inventory Control and Response Management System – TMA database	Regional Logistics and Statistics Officer, Environmental Response
DFO Crisis Communications Plan	DFO Corporate Services, Communications Branch

9.2 Annexes

The following Area Plans make up the Annexes to the Regional Chapter:

1) St. Lawrence River and Lake Francis
2) Lake Ontario
3) Lake Erie
4) St. Clair and Detroit River
5) Lake Huron, Georgian Bay and North Channel
6) St. Mary's River
7) Lake Superior
8) Lake of the Woods
9) Inland waters (South of 60°N Latitude)
10) Hudson and James Bay
11) Baffin Region
12) Keewatin Region
13) Kitikmeot Region
14) Great Slave Lake Region
15) Mackenzie River and Delta
16) Beaufort Sea and Amundsen Gulf

APPENDIX C - MSDS Jet-A and Diesel

DIESEL

Section 1. Identification

Common name: DIESEL
Product Code: 0210
Synonym: Ultra low sulfur Diesel (ULSD) A, Ultra low sulfur Diesel (ULSD) B, Colonial 62/67
Material uses: Fuel, Heating Oil

Supplier / Manufacturer:
Énergie Valero Inc.
1801 McGill College, 13e étage
Montréal
Québec, Canada, H3A 2N4
Phone: 800-295-0391

In case of emergency:
CANUTEC: (613) 996-6666
Quebec Poison Control Center: 800-463-5060
Ontario Regional Poison Information Center (Toronto): 416-813-5900
Ontario Regional Poison Information Center (toll-free): 800-268-9017
Newfoundland Poison Information Center: 709-722-1110
Nova Scotia / PEI Poison Control Center: 800-565-8161
Or call your local Emergency Health Services Center.

Section 2. Hazards identifications

Classification:

Flammable liquid, Category 3
Skin irritation, Category 2
Eye irritation, Category 2A
Carcinogenicity, Category 2
Reproductive toxicity, Category 2
Specific target organ toxicity - Single exposure, Category 1
Specific target organ toxicity - Repeated exposure, Category 2
Aspiration hazard, Category 1

Signal word: Danger

Hazard statements:
H226: Flammable liquid and vapor.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H351: Suspected of causing cancer.
H361: Suspected of damaging fertility or the unborn child.
H370: Causes damage to organs.
H373: May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260: Do not breathe dust/fumes/gas/mist/vapors/spray.
P264: Wash exposed and/or contaminated area thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or a doctor.
P302+P352: IF ON SKIN: Wash with plenty of water and soap.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P308+P313: If exposed: Call a POISON CENTER or doctor/physician.
P314: Get medical advice/attention if you feel unwell.
P321: Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.
P331: Do NOT induce vomiting.
P337+P313: If eye irritation persists get medical advice/attention.
P370+P378: In case of fire: See section 5 for extinguishing media.
P403+P235: Store in a well ventilated place. Keep cool.
P405: Store locked up.
P501: Dispose of contents / container by a local waste disposal company according to regional regulations.

Section 3. Composition and information on ingredients

Name	CAS	Concentration %
Fuels, diesel	68334-30-5	0 - 100
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 30
Nonane	111-84-2	0 - 3
Octane	111-65-9	0 - 2
Toluene	108-88-3	0 - 1
Xylene	1330-20-7	0 - 1
Ethylbenzene	100-41-4	0 - 1

Note:

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Section 4. First aid measures

Description of first aid if required:

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Eye contact:

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention if irritation develops and persists.

Skin contact:

Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Seek medical advice/attention. Wash contaminated clothing before reuse.

Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell.

Ingestion:
Call a physician or poison control centre immediately. Rinse mouth. DO NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Indication of immediate medical attention and special treatment needed, if necessary:
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

Most important acute symptoms and effects:
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness, pain and jaundice. Prolonged exposure may cause chronic effects.

Most important delayed symptoms and effects:
Aspiration may cause pulmonary oedema and pneumonitis.

Section 5. Firefighting measures

Flammability of the product:
Flammable liquid and vapor.

Flash point:
40°C / 104°F

Auto-ignition temperature:
> 220 °C / > 428 °F

Products of combustion:
Data not available

Special protective actions for firefighters:
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Move away immediately if the whistling sound from the safety devices increases or the discoloration of the tanks caused by a fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Vapors may form explosive air mixtures even at room temperature. Prevent buildup of vapors or gasses to explosive concentrations. Some of these materials, if spilled, may evaporate leaving a flammable residue. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed. In the event of fire and/or explosion do not breathe fumes.

Suitable extinguishing media:
Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Do not use a solid water stream as it may scatter and spread fire.

Specific hazard arising from the chemical:
Vapor may cause flash fire. Vapors can flow along surfaces to distant ignition source and cause flashback. Sensitive to static discharge.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
For non emergency personnel: Evacuate the area.
For emergency personnel: Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 for personal protective equipment. Local authorities should be advised according to applicable regulatory requirements.

Environmental precautions:
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Methods and material for containment and cleaning up:
Eliminate all sources of ignition (no cigarettes, torches, sparks or flames in the immediate area). Keep combustible materials (wood, paper, oil, etc.) away from the spilled product. Take precautionary measures against electrostatic discharge. Use tools that do not produce sparks. Prevent entry into waterways, sewers, basements or confined areas.

For large spills: Stop flow of substance if it can be done without risk. Dike spilled material, where possible. Use a non-combustible material such as vermiculite, sand or earth to absorb the product and place it in a container for later disposal. After collecting the product, rinse the area with water.

For small spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (eg, cloth, woolen). Clean the surface thoroughly to remove residual contamination.

Never put the spilled product back into its original container for reuse. Place the material in suitable, covered and labeled containers. For waste disposal, see section 13 of the safety data sheet.

Section 7. Handling and storage

Precautions in Handling:

Obtain instructions before use. Do not handle until you have read and understood all the safety precautions. Do not handle, store or open near an open flame, source of heat or other sources of ignition. Protect the product from direct sunlight. Do not smoke during use. Use local and general explosion-proof exhaust ventilation. Take precautionary measures against electrostatic discharge. All equipment used in handling this product must be earthed. Use non-sparking tools and explosion-proof equipment. Do not breathe mists or vapors. Avoid contact with eyes, skin and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Use only outdoors or in a well ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release into the environment. Observe good industrial hygiene practices.

Precautions in Storage:
Storage of flammable liquids. Do not handle or store near an open flame, heat source or other sources of ignition. This product can accumulate static charges which can cause sparks and become a source of ignition. Pressure in sealed containers may increase under the influence of heat. Keep the container in a cool, well-ventilated place. Keep away from food, drink and animal feed. Keep out of the reach of children.

Section 8. Exposure Controls, Personal Protections

Control parameters:

Component	CAS	Value	Control parameters	Basis
Toluene	108-88-3	TWA	20 ppm	USA - ACGIH
		TWA	50 ppm	Canada - Alberta
		TWA	188 mg/m^3	Canada - Alberta
		TWA	20 ppm	Canada - British Columbia
		TWA	20 ppm	Canada - Manitoba
		TWA	20 ppm	Canada - Ontario
		TWA	188 mg/m^3	Canada - Québec
		TWA	50 ppm	Canada - Québec
		TWA	375 mg/m^3	USA - NIOSH
		TWA	100 ppm	USA - NIOSH

Control parameters (continued) :

Component	CAS	Value	Control parameters	Basis
Xylene	1330-20-7	STEL	150 ppm	USA - ACGIH
		TWA	100 ppm	USA - ACGIH
		STEL	651 mg/m^3	Canada - Alberta
		STEL	150 ppm	Canada - Alberta
		TWA	434 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		STEL	150 ppm	Canada - British Columbia
		TWA	100 ppm	Canada - British Columbia
		STEL	150 ppm	Canada - Manitoba
		TWA	100 ppm	Canada - Manitoba
		STEL	150 ppm	Canada - Ontario
		TWA	100 ppm	Canada - Ontario
		STEL	651 mg/m^3	Canada - Québec
		STEL	150 ppm	Canada - Québec
		TWA	434 mg/m^3	Canada - Québec
		TWA	100 ppm	Canada - Québec
Octane	111-65-9	TWA	300 ppm	USA - ACGIH
		TWA	1400 mg/m^3	Canada - Alberta
		TWA	300 ppm	Canada - Alberta
		TWA	300 ppm	Canada - British Columbia
		TWA	300 ppm	Canada - Manitoba
		TWA	300 ppm	Canada - Ontario
		STEL	1750 mg/m^3	Canada - Québec
		STEL	375 ppm	Canada - Québec
		TWA	1400 mg/m^3	Canada - Québec
		TWA	300 ppm	Canada - Québec
Ethylbenzene	100-41-4	STEL	543 mg/m^3	Canada - Alberta
		STEL	125 ppm	Canada - Alberta
		TWA	434 mg/m^3	Canada - Alberta
		TWA	100 ppm	Canada - Alberta
		TWA	20 ppm	Canada - British Columbia
		TWA	20 ppm	Canada - Manitoba
		TWA	20 ppm	Canada - Ontario
		STEL	543 mg/m^3	Canada - Québec
		STEL	125 ppm	Canada - Québec
		TWA	434 mg/m^3	Canada - Québec
		TWA	100 ppm	Canada - Québec
		TWA	20 ppm	USA - ACGIH

Control parameters (continued) :

Component	CAS	Value	Control parameters	Basis
Nonane	111-84-2	TWA	200 ppm	Canada - Québec
		TWA	1050 mg/m^3	Canada - Québec
		TWA	200 ppm	Canada - Alberta
		TWA	1050 mg/m^3	Canada - Alberta
		TWA	200 ppm	Canada - British Columbia
		TWA	200 ppm	Canada - Manitoba
		TWA	200 ppm	Canada - Ontario
		TWA	200 ppm	USA - ACGIH
Fuels, diesel	68334-30-5	TWA	100 mg/m^3 (inhalable fraction)	USA - ACGIH
		TWA	100 mg/m^3	Canada - Alberta
		TWA	100 mg/m^3	Canada - British Columbia
		TWA	100 mg/m^3	Canada - Manitoba
		TWA	100 mg/m^3	Canada - Ontario

Engineering controls:
Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Personal protective equipment:

Eyes: Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin/body: Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended. Wear appropriate thermal protective clothing, when necessary.

Respiratory: 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. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Hands: Avoid exposure - obtain special instructions before use. Wear protective gloves.

Other: Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

Section 9. Physical and chemical properties

Physical state: Liquid

Color: Clear, yellow

Odour: Not available

Melting point/Freezing point: Data not available

Boiling point: From 145°C / 293°F to 375°C / 707°F

Appearance: Liquid

Lower explosion limit: 0.7 %

Upper explosion limit: 5 %

Flash point: 40°C / 104°F
Auto-ignition temperature: 220°C / 428°F
pH: Data not available
Kinematic viscosity: 1.3 - 4.1 cSt (40 °C)
Solubility: Data not available
Vapor pressure: 0.27 kPa (15 °C)
Density: Data not available
Relative vapor density: 0.78 - 0.88 g/ml
Evaporation rate: 0.2 BuAc

Section 10. Stability and reactivity

Chemical reactivity: The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability: Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions: Hazardous polymerisation does not occur.
Conditions to avoid: Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials: Strong oxidising agents.
Hazardous decomposition products: No hazardous decomposition products are known.

Section 11. Toxicological information

Acute toxicity:

Component	CAS	Value
Nonane	111-84-2	CL_{50} Inhalation: Rat = 3200 ppm - 4h
Toluene	108-88-3	DL_{50} Oral: Rat = 636 mg/kg DL_{50} Cutaneous: Rat = 12200 mg/kg CL_{50} Inhalation: Rat = 28.1 mg/L - 4h
Xylene	1330-20-7	DL_{50} Oral: Rat = 3523 mg/kg DL_{50} Cutaneous: Rabbit = 5000 mg/kg CL_{50} Inhalation: Rat = 27.6 mg/L - 4h
Ethylbenzene	100-41-4	DL_{50} Oral: Rat = 3500 mg/kg DL_{50} Cutaneous: Rabbit > 15400 mg/kg CL_{50} Inhalation: Rat = 17.4 mg/L - 4h

Skin corrosion/irritation:
Fuels, diesel, C9-18-alkane branched and linear: Causes skin irritation.
Nonane: Causes skin irritation.
Octane: Causes skin irritation.
Toluene: Causes skin irritation.
Xylene: Causes skin irritation.
Ethylbenzene: Causes skin irritation

Serious eye damage/irritation:
Fuels, diesel, C9-18-alkane branched and linear: Causes serious eye irritation.

Respiratory or skin sensitisation:
Not applicable

Germ cell mutagenicity:
Not applicable

Carcinogenicity:
Fuels, diesel, C9-18-alkane branched and linear: Suspected of causing cancer.
Ethylbenzene: Suspected of causing cancer.

Reproductive toxicity:
Toluene: Suspected of damaging fertility or the unborn child.
Xylene: Suspected of damaging fertility or the unborn child.

STOT- Single exposure:
Fuels, diesel, C9-18-alkane branched and linear: Causes damage to organs.
Octane: May cause drowsiness or dizziness.
Toluene: May cause drowsiness or dizziness.
Xylene: May cause irritation to respiratory tract and may cause drowsiness or dizziness.

STOT- repeated exposure:
Toluene: May cause damage to organs through prolonged or repeated exposure cause the hazard.
Xylene: May cause damage to organs through prolonged or repeated exposure cause the hazard.

Aspiration hazard:
Fuels, diesel, C9-18-alkane branched and linear: May be fatal if swallowed and enters airways.
Nonane: May be fatal if swallowed and enters airways.
Octane: May be fatal if swallowed and enters airways.
Toluene: May be fatal if swallowed and enters airways.
Xylene: May be fatal if swallowed and enters airways.
Ethylbenzene: May be fatal if swallowed and enters airways.

Information on likely route of exposure:
Not applicable

Section 12. Ecological information

Ecological data for aquatic environments:

Component	CAS	Value
Octane	111-65-9	CL_{50} - Fish 0.42 mg/L - 96h CE_{50} - Daphnia magna 0.38 mg/L - 48h
Toluene	108-88-3	CL_{50} - Oncorhynchus kisutch 5.5 mg/L - 96h CE_{50} - Daphnia magna 11.5 mg/L - 48h
Ethylbenzene	100-41-4	CE_{50} - Menidia menidia (atlantic silverside) 5.1 mg/L - 96h CL_{50} - Daphnia magna 1.8 mg/L - 48h CE_{50} - Skeletonema costatum 4.9 mg/L - 72h

Persistence and degradability:
Ethylbenzene: Easily biodegradable.

Bioaccumulative potential:
Data not available

Mobility in soil:
Data not available

Other adverse effects:
Data not available

Section 13. Disposal considerations

Waste disposal:
Dispose of this material and its container to hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations. Waste codes should be assigned by the user based on the application for which the product was used. Dispose of in accordance with local regulations. Offer rinsed packaging material to local recycling facilities.

Section 14. Transportation information

TDG		
UN #: UN1202	**Proper shipping name:** DIESEL FUEL	
Class: 3	**Packing group:** III	

DOT		
UN #: UN1202	**Proper shipping name:** DIESEL FUEL	
Class: 3	**Packing group:** III	

IMDG			
UN #: UN1202	**Proper shipping name:** DIESEL FUEL		
Class: 3	**Packing group:** III	**EMS-No:**	

IATA		
UN #: UN1202	**Proper shipping name:** DIESEL FUEL	
Class: 3	**Packing group:** III	

Section 15. Regulatory information

NFPA Classification:

Health ◆: 1
Flammable ◆: 2
Stability ◆: 0
Special hazards ◇: 0

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

General product information:
Canada: This product has been classified in accordance with the hazard criteria of the hazard product regulations and the safety data sheet contains all the information required by the hazard product regulations.

Section 16. Additional information

Date of issue:
2021-09-15

Version:
1.00

Elaborated by:
Toxyscan Inc.

Notice to reader:
To the best of our knowledge, the information contained in this document is accurate. However, neither Toxyscan Inc., nor the supplier, nor any of their affiliates can assume any responsibility for the accuracy or completeness of the information contained herein. All materials may present unknown hazards and should be used with caution. Although some hazards are described herein, we cannot guarantee that there are no other hazards. Valero Energy Inc. can not anticipate all conditions of use of this information and its product, or products of other manufacturers associated with its product. It is the responsibility of the user to ensure safe handling, storage and disposal of the product. The user is liable for any loss, injury, damage or expense caused by improper use.

SAFETY DATA SHEET

1. Identification

Product identifier	**Jet Fuels**
Other means of identification	
SDS number	104-GHS
Synonyms	Jet Fuel, Jet Fuel Stock, Jet A, Aviation Jet Fuel A, JP-5, JP-8, DERD See section 16 for complete information.
Recommended use	Refinery feedstock.
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufacturer/Supplier	Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000
General Assistance	210-345-4593
E-Mail	CorpHSE@valero.com
Contact Person	Industrial Hygienist
Emergency Telephone	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable Liquids	Category 3
Health Hazards	Skin corrosion/irritation	Category 2
	Germ cell mutagenicity	Category 1B
	Carcinogenicity	Category 1B
	Reproductive toxicity	Category 2
	Specific Target Organ Toxicity, Single Exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Flammable liquid and vapor. Causes skin irritation. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Keep away from heat/sparks/open flames and hot surfaces. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Wash thoroughly after handling. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area.

Response	If exposed or concerned: Get medical advice/attention. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. In case of fire: Use for extinction. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before re-use. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you fell unwell. If swallowed: Immediately call a poison center/doctor.
Storage	Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Kerosene	8008-20-6	0 - 100
Naphthalene	91-20-3	0 - 3
Xylene (o,m,p isomers)	1330-20-7	0 - 2
Benzene	71-43-2	0 - 1
Ethylbenzene	100-41-4	0 - 1
Toluene	108-88-3	0 - 1

4. First-aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Cyanosis (blue tissue condition, nails, lips, and/or skin). Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures

Suitable extinguishing media	Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	Vapor may cause flash fire. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Vapors may form explosive air mixtures even at room temperature. Prevent buildup of vapors or gases to explosive concentrations. Some of these materials, if spilled, may evaporate leaving a flammable residue. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.
Specific methods	Use water spray to cool unopened containers.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Use non-sparking tools and explosion-proof equipment. Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment. Clean up in accordance with all applicable regulations.
Environmental precautions	If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

7. Handling and storage

Precautions for safe handling	Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.
Conditions for safe storage, including any incompatibilities	Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Benzene (CAS 71-43-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Ethylbenzene (CAS 100-41-4)	PEL	435 mg/m3
		100 ppm
Naphthalene (CAS 91-20-3)	PEL	50 mg/m3
		10 ppm
Xylene (o,m,p isomers) (CAS 1330-20-7)	PEL	435 mg/m3
		100 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Benzene (CAS 71-43-2)	Ceiling	25 ppm
	TWA	10 ppm
Toluene (CAS 108-88-3)	Ceiling	300 ppm
	TWA	200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Benzene (CAS 71-43-2)	STEL	2.5 ppm	
	TWA	0.5 ppm	
Ethylbenzene (CAS 100-41-4)	TWA	20 ppm	
Kerosene (CAS 8008-20-6)	TWA	200 mg/m3	Non-aerosol.
Naphthalene (CAS 91-20-3)	TWA	10 ppm	
Toluene (CAS 108-88-3)	TWA	20 ppm	
Xylene (o,m,p isomers) (CAS 1330-20-7)	STEL	150 ppm	
	TWA	100 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Benzene (CAS 71-43-2)	STEL	1 ppm
	TWA	0.1 ppm
Ethylbenzene (CAS 100-41-4)	STEL	545 mg/m3
		125 ppm
	TWA	435 mg/m3
		100 ppm
Kerosene (CAS 8008-20-6)	TWA	100 mg/m3
Naphthalene (CAS 91-20-3)	STEL	75 mg/m3
		15 ppm
	TWA	50 mg/m3
		10 ppm
Toluene (CAS 108-88-3)	STEL	560 mg/m3
		150 ppm
	TWA	375 mg/m3
		100 ppm
Xylene (o,m,p isomers) (CAS 1330-20-7)	STEL	655 mg/m3
		150 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
	TWA	435 mg/m3
		100 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Benzene (CAS 71-43-2)	25 µg/g	S-Phenylmercapturic acid	Creatinine in urine	*
Ethylbenzene (CAS 100-41-4)	0.15 g/g	Sum of mandelic acid and phenylglyoxylic acid	Creatinine in urine	*
Toluene (CAS 108-88-3)	0.3 mg/g	o-Cresol, with hydrolysis	Creatinine in urine	*
	0.03 mg/l	Toluene	Urine	*
	0.02 mg/l	Toluene	Blood	*
Xylene (o,m,p isomers) (CAS 1330-20-7)	1.5 g/g	Methylhippuric acids	Creatinine in urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Benzene (CAS 71-43-2)	Can be absorbed through the skin.
Toluene (CAS 108-88-3)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Toluene (CAS 108-88-3)	Skin designation applies.

US ACGIH Threshold Limit Values: Skin designation

Benzene (CAS 71-43-2)	Can be absorbed through the skin.
Kerosene (CAS 8008-20-6)	Can be absorbed through the skin.
Naphthalene (CAS 91-20-3)	Can be absorbed through the skin.

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

Hand protection Avoid exposure - obtain special instructions before use. Wear protective gloves. Protective gloves.

Other Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

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. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Liquid (may be dyed red).

Physical state Liquid.

Form Liquid.

Color Clear. Straw.

Odor	Kerosene (strong).
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	320 - 579.9 °F (160 - 304.39 °C)
Flash point	> 100.0 °F (> 37.8 °C) Closed Cup
Evaporation rate	< 0.1 (butyl acetate = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	>= 0.7
Flammability limit - upper (%)	<= 7
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 2.7 kPa (<20mmHg) (at 20 °C)
Vapor density	3 (Air=1)
Relative density	79 - 0.84 (Water=1)
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	399.9 °F (204.39 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Percent volatile	Negligible.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	In high concentrations, mists/vapors may irritate throat and respiratory system and cause coughing. May cause drowsiness or dizziness.
Skin contact	Causes skin irritation. Prolonged contact may cause dryness of the skin.
Eye contact	May cause eye irritation.
Ingestion	May be fatal if swallowed and enters airways.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Cyanosis (blue tissue condition, nails, lips, and/or skin). Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash.

Information on toxicological effects

Acute toxicity	May be fatal if swallowed and enters airways.

Components	Species	Test Results
Benzene (CAS 71-43-2)		
Acute		
Dermal		
LD50	Guinea pig; Rabbit	> 9.4 ml/kg, 24 Hours
Inhalation		
LC50	Mouse	9980 ppm
		9980 ppm, 7 Hours
	Rat	43767 mg/m3, 4 Hours
		13700 ppm, 4 Hours
		10000 ppm, 7 Hours
Oral		
LD50	Rat	5970 mg/kg
Ethylbenzene (CAS 100-41-4)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
		17.8 ml/kg, 24 Hours
Inhalation		
LC50	Mouse	> 8000 ppm, 20 Minutes
	Rat	4000 ppm
Oral		
LD50	Rat	5.46 g/kg
Other		
LD50	Mouse	17.81 mm/kg
Kerosene (CAS 8008-20-6)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	> 4.3 mg/l, 4 Hours
Oral		
LD50	Rat	> 5000 mg/kg
Naphthalene (CAS 91-20-3)		
Acute		
Dermal		
LD50	Rabbit	> 2 g/kg
Oral		
LD50	Rat	490 mg/kg
Toluene (CAS 108-88-3)		
Acute		
Dermal		
LD50	Rabbit	14.1 ml/kg
Inhalation		
LC50	Rat	49000 mg/m³, 4 Hours
Oral		
LD50	Rat	636 mg/kg
Xylene (o,m,p isomers) (CAS 1330-20-7)		
Acute		
Dermal		
LD50	Rabbit	12126 mg/kg, 24 Hours

Components	Species	Test Results
		> 5000 ml/kg, 4 Hours
Inhalation		
LC50	Mouse	5300 ppm, 6 Hours
	Rat	5922 ppm, 4 Hours
Oral		
LD50	Mouse	5251 mg/kg
	Rat	3523 mg/kg
		10 ml/kg

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.
This substance may have a potential for sensitization which may provoke an allergic reaction among sensitive individuals.

Germ cell mutagenicity May cause genetic defects.
In in-vitro experiments, neither benzene, toluene nor xylene changed the number of sister-chromatid exchanges (SCEs) or the number of chromosomal aberrations in human lymphocytes. However, toluene and xylene caused a significant cell growth inhibition which was not observed with benzene in the same concentrations. In in-vivo experiments, toluene changed the number of sister-chromatid exchanges (SCEs) in human lymphocytes. Toluene may cause heritable genetic damage.

Carcinogenicity May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Benzene (CAS 71-43-2)	1 Carcinogenic to humans.
Ethylbenzene (CAS 100-41-4)	2B Possibly carcinogenic to humans.
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.
Toluene (CAS 108-88-3)	3 Not classifiable as to carcinogenicity to humans.
Xylene (o,m,p isomers) (CAS 1330-20-7)	3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

Benzene (CAS 71-43-2)	Known To Be Human Carcinogen.
Naphthalene (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Benzene (CAS 71-43-2)	Cancer

Reproductive toxicity Suspected of damaging fertility or the unborn child.
Benzene, xylene and toluene have demonstrated animal effects of reproductive toxicity. Animal studies of benzene have shown testicular effects, alterations in reproductive cycles, chromosomal aberrations and embryo/fetotoxicity. Can cause adverse reproductive effects - such as birth defects, miscarriages, or infertility. Avoid exposure to women during early pregnancy. Avoid contact during pregnancy/while nursing.

Specific target organ toxicity - single exposure May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Cancer hazard. Can cause cancer. Contains a substance which may have a mutagenic effect. Suspected of damaging fertility or the unborn child. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Further information Symptoms may be delayed.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Benzene (CAS 71-43-2)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	8.76 - 15.6 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	5.3 mg/l, 96 hours
Ethylbenzene (CAS 100-41-4)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1 - 4 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	4 mg/l, 96 hours
Naphthalene (CAS 91-20-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha)	0.95 - 1.62 mg/l, 96 hours
Toluene (CAS 108-88-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	5.46 - 9.83 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	5.89 - 7.81 mg/l, 96 hours
Xylene (o,m,p isomers) (CAS 1330-20-7)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	8 mg/l, 96 Hours

Persistence and degradability None known.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Benzene (CAS 71-43-2)	2.13
Ethylbenzene (CAS 100-41-4)	3.15
Toluene (CAS 108-88-3)	2.73
Xylene (o,m,p isomers) (CAS 1330-20-7)	3.2

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F
D018: Waste Benzene

US RCRA Hazardous Waste U List: Reference

Benzene (CAS 71-43-2)	U019
Naphthalene (CAS 91-20-3)	U165
Toluene (CAS 108-88-3)	U220
Xylene (o,m,p isomers) (CAS 1330-20-7)	U239

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT

UN number UN1863

UN proper shipping name Fuel, aviation, turbine engine

Transport hazard class(es)

Class	- Combustible Liquid
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	144, B1, IB3, T2, TP1
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	242

IATA

UN number	UN1863
UN proper shipping name	Fuel, aviation, turbine engine
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	III
Environmental hazards	Yes
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1863
UN proper shipping name	FUEL, AVIATION, TURBINE ENGINE
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Benzene (CAS 71-43-2)	Cancer Central nervous system Blood Aspiration Skin Eye respiratory tract irritation Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Benzene (CAS 71-43-2)	LISTED
Ethylbenzene (CAS 100-41-4)	LISTED
Naphthalene (CAS 91-20-3)	LISTED
Toluene (CAS 108-88-3)	LISTED
Xylene (o,m,p isomers) (CAS 1330-20-7)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Naphthalene	91-20-3	0 - 3
Xylene (o,m,p isomers)	1330-20-7	0 - 2
Benzene	71-43-2	0 - 1
Ethylbenzene	100-41-4	0 - 1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Benzene (CAS 71-43-2)
Ethylbenzene (CAS 100-41-4)
Naphthalene (CAS 91-20-3)
Toluene (CAS 108-88-3)
Xylene (o,m,p isomers) (CAS 1330-20-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Toluene (CAS 108-88-3) 6594

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Toluene (CAS 108-88-3) 35 %WV

DEA Exempt Chemical Mixtures Code Number

Toluene (CAS 108-88-3) 594

US state regulations WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Benzene (CAS 71-43-2)
Ethylbenzene (CAS 100-41-4)
Kerosene (CAS 8008-20-6)
Naphthalene (CAS 91-20-3)
Toluene (CAS 108-88-3)
Xylene (o,m,p isomers) (CAS 1330-20-7)

US. New Jersey Worker and Community Right-to-Know Act

Benzene (CAS 71-43-2)
Ethylbenzene (CAS 100-41-4)
Kerosene (CAS 8008-20-6)
Naphthalene (CAS 91-20-3)
Toluene (CAS 108-88-3)
Xylene (o,m,p isomers) (CAS 1330-20-7)

US. Pennsylvania Worker and Community Right-to-Know Law

Benzene (CAS 71-43-2)
Ethylbenzene (CAS 100-41-4)
Kerosene (CAS 8008-20-6)
Naphthalene (CAS 91-20-3)
Toluene (CAS 108-88-3)
Xylene (o,m,p isomers) (CAS 1330-20-7)

US. Rhode Island RTK

Benzene (CAS 71-43-2)
Ethylbenzene (CAS 100-41-4)

Naphthalene (CAS 91-20-3)
Toluene (CAS 108-88-3)
Xylene (o,m,p isomers) (CAS 1330-20-7)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Benzene (CAS 71-43-2)
Ethylbenzene (CAS 100-41-4)
Naphthalene (CAS 91-20-3)
Toluene (CAS 108-88-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 27-June-2013

Revision date 03-September-2014

Version # 03

NFPA ratings

References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use , the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

APPENDIX D 1.1– Agnico Eagle Pre-discharge and Spill Response Sea Can checklists

Agnico Eagle Mines: Meadowbank Division
Environment Department

AGNICO EAGLE MEADOWBANK

Pre-discharge Checklist for AEM's Oil Handling Facility in Baker Lake

Date: _____ **Inspected By:** _____

Time: _____ **Vessel Unloading:** _____

Pre-Discharge Check List	Conform	Non-Conform	Comments
Is there two way communications between the OHF and the off-loading Vessel?			
Has a review of response material checklist been completed?			
Current Copy of OPEP and Declaration at the OHF.			
Prior to discharge have the certification of the transfer conduits been received?			
Has there been secondary containment placed underneath each connection of Conduit?			
Is lighting in place at the transfer flange to provide illumination during any transfers taking place during the low to no light hours.			
Prior to discharge has the Vessels Ship/Shore checklist been reviewed and a completed copy received by AEM.			
Prior to discharge inform H&S and Environment Departments that fuel transfer will commence.			
Has the emergency response equipment been reviewed with all personnel and contractors on shore.			

Comments/Recommendations:_____

_____

_____

_____

_____

_____

_____

Signature : _____

Agnico Eagle Mines: Meadowbank Division
Environment Department

AGNICO EAGLE MEADOWBANK

Inventory report for Spill Response Sea Can at AEM's Oil Handling Facility in Baker Lake

Date: _____ **Inspected By:** _____

Time: _____ **Vessel Unloading:** _____

Subject	Conform	Non-conform	Comments
Is the material and PPE stored in a manner that is organized and accessible in order to easily respond to spill?			
Are the sea cans is physically in good shape? Easy to open?			
Are the sea cans identified as "Environmental Emergency Sea Can"?			
Is all the spill material in place? Nothing Missing?			
3 x Empty drums (sealed)			
2 x Mini Berm 36"x 36"			
2 x 4 Drums Berm 4'x 8'			
4 x Tarp 20'x 30'			
4 x Tarp 30'x 50'			
20 x Oil Spill Absorbent Pads			
10 x Universal Absorbent Boom 5"x 10' (For Hydro-soluble Chemical)			
10 x Universal Absorbent Boom 8"x 10' (For Hydro-soluble Chemical)			
10 x Petroleum base Absorbent Boom 5"x 10' (for Petroleum product)			
8 x Maritime Barrier (Baffle)			
5 x ABS pipe: 10' long x 4" diameter			
2 x Cell-U-Sorb (Absorbent)			
2 x Amerisorb Peat moss (Absorbent)			

2 x Oil Gator Absorbent			
1 x Plug Patties			
4 x Quatrex bags			
2 x Fork Lift Crate			
4 x Hand Shovel			
1 x Cro Bar Chisel			
1 x Ice Breaker Chisel			
1 x Sledge hammer			
15 x Rod bar 4'			
1x ½ drum containment			
100 feet of rope			
Knife to cut rope			
Emergency Boat			
18ft Lund boat			
20 HP motor			
Fresh gasoline in jerry can			
Boat Safety Kit			
2 Mustang Suits			
2 Paddles			
Anchor with 30 feet of rope			
Additional 20 feet of rope			
Is all the PPE material in its place?			
6 x Rain gear -- Pants and Top (L & 2-XL)			
6 x Rubber boots (size 8, 10,12)			
12 x Rubber gloves			
6 x Goggles			
6 x Tyvex suits (L & 2 XL)			

6 x Safety glasses			
6 x Leather gloves			

Comments/Recommendations:_____
_____
_____
_____
_____
_____
_____
_____

Signature: _____

APPENDIX D 1.2 – OHF Ship to Shore Fuel Discharge Procedure

OHF / Ship to Shore Fuel Discharge

		PROCEDURE NUMBER:	**MBK-ENV-0013 Rev. 2**
People concerned	• **Environment** • **Site Services** • **Procurement and Logistics** • **Health and Safety**	**Prepared by**	**Environment Department**
		Authorized by	**Jeffrey Pratt – Environment Coordinator**
Effective :	**July 8, 2015**	***"Safety First, Safety Last … Safety Always!"*** ***"No Repeats" – Our Stepping Stone to ZERO HARM***	
This procedure corresponds to the required minimum standard. Each and every one also have to comply with the rules and regulations of the Nunavut Government in terms of health and safety at work.			

Objective:

- To ensure that prior to the discharge of any fuel into the Agnico Eagle Baker Lake Tank Farm or Agnico Eagle Baker Lake Oil Handling Facility (OHF) that all proper steps are in place to ensure compliance with Canadian Shipping Act, as well as Nunavut Water Board License and Nunavut Impact Review Board Certificate.

Concerned departments:

Environment | Health & Safety | Site Services | Procurement and Logistics

Risks/ Impacts Legend

Health & Safety | Process/quality | Legal Requirement | Environment

Prior to the beginning of the annual fuel discharge the following must be completed.

Procedure	Risks/ Impacts
1. The Oil Pollution Emergency Plan (OPEP) must be reviewed on an annual basis and updated prior to the first annual discharge. This will include but not limited to: a) Reviewing the Phone numbers for emergency's b) Updating maps c) Review and if necessary update equipment lists d) Review roles and responsibilities e) Update Declaration This is the responsibility of the Environment department.	
2. Contact Canadian Coast Guard and Transport Canada Pollution Prevention and make them aware of plans for transferring of fuel into our OHF for that season. This is the responsibility of the Environment department.	
3. Complete *Inventory report for Spill Response Sea Can at AEM's Oil Handling Facility in Baker Lake*. (*Inventory Checklist found on Page 6) This is the responsibility of the Environment department.	
4. Ensure Woodward (Shipping Company) has provided Transfer Conduit Annual certification. This is the responsibility of Environment Department.	
5. All personnel who will be a part of the fuel transfer (including Baker Lake Supervisor and third part contractor Intertek) must review the OPEP and be familiar with preventive measures to take and with the steps to take in the case of a spill event while fueling. This is the responsibility of Procurement and Logistics	
6. Install secondary containment underneath each connection of conduit on land. This is the responsibility of Environment Department	

7. Monitor secondary containment underneath each connection of conduit on land. This is the responsibility of Procurement and Logistics	
8. Ensure there is two way functional communications between the OHF and the off-loading Vessel. This is the responsibility of Procurement and Logistics	
9. Ensure there is lighting in place at the transfer flange to provide illumination during any transfers taking place during the low to no light hours. This is the responsibility of Procurement and Logistics	
10. Prior to any discharge AEM must receive a copy of the Ship/Shore checklist completed by Woodward. And should verify this has been completed (as much as realistically possibly without boarding the ship). This is the responsibility of Procurement and Logistics	
11. Contact must be made with both the H&S and Environmental Departments prior to the discharge of fuels. Meadowbank Health & Safety meadowbank.healthandsafety@agnicoeagle.com Meadowbank Environment meadowbank.environment@agnicoeagle.com This is the responsibility of Procurement and Logistics	
12. The *Pre-discharge Checklist for AEM's Oil Handling Facility in Baker Lake* must be completed, signed and provided to the Environment department prior to discharge. (*Checklist found on Page 5) This must be done for each fuel tanker for each campaign. This is the responsibility of Procurement and Logistics	
Transfer	
1. Once the above points are completed, the ship to shore transfer can commence.	
2. Photos of the complete fuel transfer process should be taken, visually proving that all above procedures have been reached. This is the responsibility of Environment department and Procurement and Logistics.	

3. During the ship-to-shore transfer, AEM will have competent personnel on location at all times to monitor the fuel transfer and maintain contact with the tanker's crew. This is the responsibility of Procurement and Logistics.	
4. Monitor the fuel transfer at the beginning of each transfer and after that on an hourly basis checking the manifold, conduit, tank, and any connection points on land for spills and/or leaks. Communication between shore and ship should take place on an hourly basis. This is the responsibility of Procurement and Logistics.	
5. We are required by law to have a fuel spill scenario every two years. However, since we have shift work at Meadowbank, to ensure adequate training annually we will do mock spill/training and switch shifts each year. This way each shift completes every second year. This is the responsibility of Environment Department in conjunction with ERT to plan and execute.	

APPENDIX D 1.3 – 2023 Mock Spill Minutes

AGNICO EAGLE
MEADOWBANK COMPLEX

Mock Spill – Post Exercise Report
Baker Lake Fuel Farm Facility

July 2023

Table of Contents

SECTION 1 • PURPOSE

The annual mock spill is directed at operations where there is potential for either land-based or marine based spills to occur. The mock spill attempts to demonstrate using verbal instruction and a practical effective exercise which can be taken to prevent spills and/or reduce the damage that results from a potential spill. The mock spill also emphasizes the need to avoid situations that are a potential danger to human health and safety.

The mock spill attempts to capture the scenarios likely encountered by front line staff. Emphasis is placed on diesel and Jet-A as these products are transferred at Baker Lake. The 2023 mock spill exercise selected diesel as the product spilled during the simulation, but the response would have been the same if Jet-A was the selected product. A total of six (6) individuals participated, including two (2) Agnico Eagle Environment team members, two (2) Agnico Eagle Logistics team members, and two (2) representatives from Intertek on July 14, 2023.

SECTION 2 • SPILL MANAGEMENT

2.1 MOCK SPILL SCENARIO

On July 14, 2023, while inspecting the diesel pipeline at the Baker Lake Marshalling facility, an Intertek employee noticed a leak coming from the main flange on shore. Moments later, the Intertek employee is informed that a piece of equipment has reported contacting the fuel line near the lake resulting in another leak. This scenario simulates a spill with a high potential environmental impact to a water body, as well as a fire hazard. As the two spills will be discovered at the same time, the team will have to manage their resources and workforce to contain both leaks.

For the purpose of this scenario, two water totes of ~1000 L will be placed at different areas of the pipe acting as the diesel spill.

A representative of the environment department will take photos and document the spill scenario as well as act as the "Control Room" responder and the Baker Lake dispatch.

The Intertek employee(s) will be requested to:

- Assemble two orange curtains together on shore and deploy the curtains in the water along the shoreline;
- Manage both locations safely and efficiently with the resources available;
- Control and clean up the spill with available response equipment; and
- Ensure fire hazard control measures are put in place (identify any potential fire hazards and move them out of the line of fire).

2.2 ROLE AND RESPONSIBILITY

- Agnico Eagle Environmental department: Felix Quessy-Savard
  - Role and responsibility: Act as the dispatcher and control room team during the scenario. Provide recommendations to improve the process if deemed necessary.

- Agnico Eagle Environmental department: Thomas Dahm
  - Role and responsibility: Monitored and documented the actions executed by the on-scene workers during the event in order to ensure protocols are followed and to give recommendations to improve the process if deemed necessary.

- Agnico Eagle Logistics department: Vincent Gravel and Frederic Marcotte
  - Role and responsibility: Aid the Intertek crews upon their request to respond to the environmental emergency. Act as the loader operator that stuck and damaged the fuel line causing the major spill.

- Intertek: Derbin Tan and Nacceur Arroah
    - Role and responsibility: Inspecting and monitoring the fuel transfer from the manifold through the permanent pipe up to the fuel farm. Respond to any environmental emergency.

2.3 RESPONSE

- **14:25** A leak coming out of the main flange was spotted by the Intertek team.
    1. Intertek personnel immediately contacted the vessel for them to stop the fuel discharge.
    2. Code 1 was called on the radio by Intertek personnel.
    3. Vincent Gravel (Agnico Eagle) was contacted by Intertek personnel for support.
    4. Confirmation given from fuel ship that the pumps were stopped. The three (3) check valves are closed on the line to prevent back flow from Agnico Eagle's tanks.

- **14:30** Vincent and Frederic (Agnico Eagle) arrived on scene and observed that the leak was under control. As they arrive, Intertek receives another call saying that a truck has damaged the fuel line near the shore.
    1. They immediately asked the operator to move his equipment and shut it down.
    2. Intertek asked Vincent and Frederic to assist in containing the spill.
    3. Code 1 was called to Baker Lake Dispatch by Intertek personnel.

- **14:32** Intertek representatives arrive at the spill scene with absorbent pads, absorbent boom, shovels, and PPE. One Intertek employee utilizes a shovel and the loose sand to build a berm to slow the flow of the diesel towards Baker Lake.
    1. Vincent was asked to deploy absorbent pads downstream of the contaminated area.
    2. One Intertek employee calls for Environment on the radio looking for support.

- **14:40** Control room has assembled and is asking for an update on the spill situation from the Intertek employees.
    1. One Intertek representative advises the control room that diesel fuel is heading towards the lake.
    2. Control room advises Intertek to deploy marine barriers in the water to contain any fuel that may make it to the lake and to have an emergency boat in the water on standby. The boats already in the water from the ship are ready and waiting to help deploy booms in water as needed until emergency boat is ready.

- **14:42** Both Intertek employees along with loader operator remove marine barriers and deploy them along the shore.

- **14:47** One Intertek employee heads to their truck to attach the boat and proceeds to back the boat in the water with the other employee acting as the spotter.

- **14:50** Boat was deployed and started.

- **14:52** Confirmation is given to the control room that no contamination has reached a water body. Photos are sent out via cell phone.

- **14:54** Spill matting pickup and requested the loader operator assist with collecting contaminated soil.

- **14:55** Mock spill is ended as the situation is under control.

2.4 DEBRIEFING

After the mock spill, Agnico Eagle and Intertek representatives conducted a debriefing about the mock spill and discussed ways to improve spill response. Overall, the participant's actions and response to the spill are deemed satisfactory.

- Quick reaction and response from Intertek representatives;
- Organization of Environmental emergency seacans was adequate and Intertek representatives were easily able to gather the response material;
- Suggestion from Intertek crew to have the vessel involved and test the response and awareness of their crew;
- Suggestion to include more of the Agnico Eagle logistics team as well as third party contractor Arctic Fuel to increase their knowledge regarding spill response;and
- Agnico Eagle advised Intertek and Logistics that any contaminated material from a spill at the Baker Lake Marshalling facility will need to be transported back to the MBK landfarm.

SECTION 3 • MOCK SPILL PHOTOS

Retrieving Spill Response material from the Emergency Seacan

Utilizing shovel to construct a berm, collecting, and slowing the flow of diesel.

Assembly of marine barriers

Deploying barriers from Emergency Seacan

Barrier ready to be deployed on the lake.

3.1 PRE-DISCHARGE AND MOCK SPILL ATTENDANCE SHEET

AGNICO EAGLE
MEADOWBANK

Pre Discharge

Meeting attendance sheet

Topic: Pre-Discharge Presentation, Mock spill
Date:
Department:

Name (Print)	Signature
Feliy Quessy (AEM)	
Vincent Gravel	
Frédéric Marcotte	
DERGIN TAN (INTERTEK)	
NACEUR ALBOSTA (Intertek)	
THOMAS DAVIN (AEM)	

APPENDIX E–Woodward Checklist

ISGOTT Checks pre-arrival Ship/Shore Safety Checklist

Date and time: _____

Port and berth: _____

Tanker:_____

Terminal:_____

Product to be transferred:_____

Part 1A. Tanker: checks pre-arrival			
Item	**Check**	**Status**	**Remarks**
1	Pre-arrival information is exchanged (6.5, 21.2)	Yes / No	
2	International shore fire connection is available (5.5, 19.4.3.1)	Yes / No	
3	Transfer hoses are of suitable construction (18.2)	Yes / No	
4	Terminal information booklet reviewed (15.2.2)	Yes / No	
5	Pre-berthing information is exchanged (21.3, 22.3)	Yes / No	
6	Pressure/vacuum valves and/or high-velocity vents are operational (11.1.8)	Yes / No	
7	Fixed and portable oxygen analyzers are operational (2.4)	Yes / No	

Part 1B. Tanker: checks pre-arrival if using an inert gas system			
Item	**Check**	**Status**	**Remarks**
8	Inert gas system pressure and oxygen recorders are operational (11.1.5.2, 11.1.11)	Yes / No	
9	Inert gas system and associated equipment are operational (11.1.5.2, 11.1.11)	Yes / No	
10	Cargo tank atmospheres' oxygen content is less than 8% (11.1.3)	Yes / No	
11	Cargo tank atmospheres are at positive pressure (11.1.3)	Yes / No	

Part 2. Terminal: checks pre-arrival			
Item	**Check**	**Status**	**Remarks**
12	Pre-arrival information is exchanged (6.5, 21.2)	Yes / No	
13	International shore fire connection is available (5.5, 19.4.3.1, 19.4.3.5)	Yes / No	
14	Transfer equipment is of suitable construction (18.1, 18.2)	Yes / No	
15	Terminal information booklet transmitted to the tanker (15.2.2)	Yes / No	
16	Pre-berthing information is exchanged (21.3, 22.3)	Yes / No	

ISGOTT Checks after mooring Ship/Shore Safety Checklist

Part 3. Tanker: checks after mooring			
Item	**Check (ISGOTT Reference)**	**Status (circle)**	**Remarks**
17	Fendering is effective (22.4.1)	Yes / No	
18	Mooring arrangement is effective (22.2, 22.4.3)	Yes / No	
19	Access to and from the tanker is safe (16.4)	Yes / No	
20	Scuppers and savealls are plugged (23.7.4, 23.7.5)	Yes / No	
21	Cargo system sea connections and overboard discharges are secured (23.7.3)	Yes / No	
22	Very high frequency and ultra-high frequency transceivers are set to low power mode (4.11.6, 4.13.2.2)	Yes / No	
23	External openings in superstructures are controlled (23.1)	Yes / No	
24	Pumproom ventilation is effective (10.12.2)	Yes / No	
25	Medium frequency/high-frequency radio antennae are isolated (4.11.4, 4.13.2.1)	Yes / No	
26	Accommodation spaces are at positive pressure (23.2)	Yes / No	
27	Fire control plans are readily available (9.11.2.5)	Yes / No	

Part 4. Terminal: checks after mooring			
Item	**Check**	**Status**	**Remarks**
28	Fendering is effective (22.4.1)	Yes / No	
29	Tanker is moored according to the terminal mooring plan (22.2, 22.4.3)	Yes / No	
30	Access to and from the terminal is safe (16.4)	Yes / No	
31	Spill containment and sumps are secure (18.4.2, 18.4.3, 23.7.4, 23.7.5)	Yes / No	

ISGOTT Checks pre-transfer Ship/Shore Safety Checklist

Date and time: _____

Port and berth: _____

Tanker: _____

Terminal: _____

Product to be transferred: _____

Part 5A. Tanker and terminal: pre-transfer conference				
Item	**Check**	**Tanker status**	**Terminal status**	**Remarks**
32	Tanker is ready to move at the agreed notice period (9.11, 21.7.1.1, 22.5.4)	Yes	Yes	
33	Effective tanker and terminal communications are established (21.1.1, 21.1.2)	Yes	Yes	
34	Transfer equipment is in a safe condition (isolated, drained, and de-pressurized) (18.4.1)	Yes	Yes	
35	Operation supervision and watchkeeping is adequate (7.9, 23.11)	Yes	Yes	
36	There are sufficient personnel to deal with an emergency (9.11.2.2, 23.11)	Yes	Yes	
37	Smoking restrictions and designated smoking areas are established (4.10, 23.10)	Yes	Yes	
38	Naked light restrictions are established (4.10.1)	Yes	Yes	
39	Control of electrical and electronic devices is agreed (4.11, 4.12)	Yes	Yes	
40	Means of emergency escape from both tanker and terminal are established (20.5)	Yes	Yes	
41	Firefighting equipment is ready for use (5, 19.4, 23.8)	Yes	Yes	
42	Oil spill clean-up material is available (20.4)	Yes	Yes	
43	Manifolds are properly connected (23.6.1)	Yes	Yes	
44	Sampling and gauging protocols are agreed (23.5.3.2, 23.7.7.5)	Yes	Yes	
45	Procedures for cargo, bunkers, and ballast handling operations are agreed (21.4, 21.5, 21.6)	Yes	Yes	

Part 5A. Tanker and terminal: pre-transfer conference (cont.)				
Item	**Check**	**Tanker status**	**Terminal status**	**Remarks**
46	Cargo transfer management controls are agreed (12.1)	Yes	Yes	
47	Cargo tank cleaning requirements, including crude oil washing, are agreed (12.3, 12.5, 21.4.1)	Yes	Yes	See also parts 7B/7C as applicable
48	Cargo tank gas freeing arrangements agreed (12.4)	Yes	Yes	See also part 7C
49	Cargo and bunker slop handling requirements agreed (12.1, 21.2, 21.4)	Yes	Yes	See also part 7C
50	Routine for regular checks on cargo transferred are agreed (23.7.2)	Yes	Yes	
51	Emergency signals and shutdown procedures are agreed (12.1.6.3, 18.5, 21.1.2)	Yes	Yes	
52	Safety data sheets are available (1.4.4, 20.1, 21.4)	Yes	Yes	
53	Hazardous properties of the products to be transferred are discussed (1.2, 1.4)	Yes	Yes	
54	Electrical insulation of the tanker/terminal interface is effective (12.9.5, 17.4, 18.2.14)	Yes	Yes	
55	Tank venting system and closed operation procedures are agreed (11.3.3.1, 21.4, 21.5, 23.3.3)	Yes	Yes	
56	Vapour return line operational parameters are agreed (11.5, 18.3, 23.7.7)	Yes	Yes	
57	Measures to avoid back-filling are agreed (12.1.13.7)	Yes	Yes	
58	Status of unused cargo and bunker connections is satisfactory (23.7.1, 23.7.6)	Yes	Yes	
59	Portable very high frequency and ultra high frequency radios are intrinsically safe (4.12.4, 21.1.1)	Yes	Yes	
60	Procedures for receiving nitrogen from terminal to cargo tank are agreed (12.1.14.8)	Yes	Yes	

Additional for chemical tankers – Checks pre-transfer

Part 5B. Tanker and terminal: bulk liquid chemicals. Checks pre-transfer				
Item	**Check**	**Tanker status**	**Terminal status**	**Remarks**
61	Inhibition certificate received (if required) from manufacturer	Yes	Yes	
62	Appropriate personal protective equipment identified and available (4.8.1)	Yes	Yes	
63	Countermeasures against personal contact with cargo are agreed (1.4)	Yes	Yes	
64	Cargo handling rate and relationship with valve closure times and automatic shutdown systems is agreed (16.8, 21.4, 21.5, 21.6)	Yes	Yes	
65	Cargo system gauge operation and alarm set points are confirmed (12.1.6.6.1)	Yes	Yes	
66	Adequate portable vapour detection instruments are in use (2.4)	Yes	Yes	
67	Information on firefighting media and procedures is exchanged (5, 19)	Yes	Yes	
68	Transfer hoses confirmed suitable for the product being handled (18.2)	Yes	Yes	
69	Confirm cargo handling is only by a permanent installed pipeline system	Yes	Yes	
70	Procedures are in place to receive nitrogen from the terminal for inerting or purging (12.1.14.8)	Yes	Yes	

Part 6. Tanker and terminal: agreements pre-transfer				
Part 5 item	**Agreement**	**Details**	**Tanker initials**	**Terminal initials**
32	Tanker manoeuvring readiness	Notice period (maximum) for full readiness to manoeuvre: Period of disablement (if permitted):		
33	Security protocols	Security level: Local requirements:		
33	Effective tanker/terminal communications	Primary system: Backup system:		
35	Operational supervision and watchkeeping	Tanker: Terminal:		
37 38	Dedicated smoking areas and naked lights restrictions	Tanker: Terminal:		
45	Maximum wind, current and sea/swell criteria or other environmental factors	Stop cargo transfer: Disconnect: Unberth:		
45 46	Limits for cargo, bunkers and ballast handling	Maximum transfer rates: Topping-off rates: Maximum manifold pressure: Cargo temperature: Other limitations:		
45 46	Pressure surge control	Minimum number of cargo tanks open: Tank switching protocols:		

Part 6. Tanker and terminal: agreements pre-transfer (cont.)				
Part 5 item	**Agreement**	**Details**	**Tanker initials**	**Terminal initials**
		Minimum number of cargo tanks open: Tank switching protocols: Full load rate: Topping-off rate: Closing time of automatic valves:		
46	Cargo transfer management procedures	Action notice periods: Transfer stop protocols:		
50	Routine for regular checks on cargo transferred are agreed	Routine transferred quantity checks:		
51	Emergency signals	Tanker: Terminal:		
55	Tank venting system	Procedure:		
55	Closed operations	Requirements:		
56	Vapour return line	Operational parameters: Maximum flow rate:		
60	Nitrogen supply from terminal	Procedures to receive: Maximum pressure: Flow rate:		
XX	Exceptions and additions	Special issues that both parties should be aware of:		

Date and time: _____

Port and berth: _____

Tanker:_____

Terminal: _____

Product to be transferred: _____

Part 7A. General tanker: checks pre-transfer			
Item	**Check**	**Status**	**Remarks**
84	Portable drip trays are correctly positioned and empty (23.7.5)	Yes	
85	Individual cargo tank inert gas supply valves are secured for cargo plan (12.1.13.4)	Yes	
86	Inert gas system delivering inert gas with oxygen content not more than 5% (11.1.3)	Yes	
87	Cargo tank high-level alarms are operational (12.1.6.6.1)	Yes	
88	All cargo, ballast and bunker tanks openings are secured (23.3)	Yes	

ISGOTT Checks after pre-transfer conference Ship/Shore Safety Checklist

For tankers that will perform tank cleaning alongside and/or gas freeing alongside

Part 7C. Tanker: checks before tank cleaning and/or gas freeing			
Item	**Check**	**Status**	**Remarks**
91	Permission for tank cleaning operations is confirmed (21.2.3, 21.4, 25.4.3)	Yes	
92	Permission for gas freeing operations is confirmed (12.4.3)	Yes	
93	Tank cleaning procedures are agreed (12.3.2, 21.4, 21.6)	Yes	
94	If cargo tank entry is required, procedures for entry have been agreed with the terminal (10.5)	Yes	
95	Slop reception facilities and requirements are confirmed (12.1, 21.2, 21.4)	Yes	

Declaration

We, the undersigned, have checked the items in the applicable parts 1 to 7 as marked and signed below:

	Tanker	Terminal
Part 1A. Tanker: checks pre-arrival	☐	☐
Part 1B. Tanker: checks pre-arrival if using an inert gas system	☐	☐
Part 2. Terminal: checks pre-arrival	☐	☐
Part 3. Tanker: checks after mooring	☐	☐
Part 4. Terminal: checks after mooring	☐	☐
Part 5A. Tanker and terminal: pre-transfer conference	☐	☐
Part 5B. Tanker and terminal: bulk liquid chemicals. Checks pre-transfer	☐	☐
Part 6. Tanker and terminal: agreements pre-transfer	☐	☐
Part 7A. General tanker: checks pre-transfer	☐	☐
Part 7C. Tanker: checks before tank cleaning and/or gas freeing	☐	☐

In accordance with the guidance in chapter 25 of ISGOTT, we have satisfied ourselves that the entries we have made are correct to the best of our knowledge and that the tanker and terminal are in agreement to undertake the transfer operation.

We have also agreed to carry out the repetitive checks noted in parts 8 and 9 of the ISGOTT SSSCL, which should occur at intervals of not more than_____ hours for the tanker and not more than_____ hours for the terminal.

If, to our knowledge, the status of any item changes, we will immediately inform the other party.

Tanker	Terminal
Name	Name
Rank	Position
Signature	Signature
Date	Date
Time	Time

ISGOTT Checks during transfer Ship/Shore Safety Checklist

Repetitive checks

Part 8. Tanker: repetitive checks during and after transfer								
Item ref	Check	Time	Time	Time	Time	Time	Time	Remarks
Interval time: ..... hrs								
8	Inert gas system pressure and oxygen recording operational	Yes	Yes	Yes	Yes	Yes	Yes	
9	Inert gas system and all associated equipment are operational	Yes	Yes	Yes	Yes	Yes	Yes	
11	Cargo tank atmospheres are at positive pressure	Yes	Yes	Yes	Yes	Yes	Yes	
18	Mooring arrangement is effective	Yes	Yes	Yes	Yes	Yes	Yes	
19	Access to and from the tanker is safe	Yes	Yes	Yes	Yes	Yes	Yes	
20	Scuppers and savealls are plugged	Yes	Yes	Yes	Yes	Yes	Yes	
23	External openings in superstructures are controlled	Yes	Yes	Yes	Yes	Yes	Yes	
24	Pumproom ventilation is effective	Yes	Yes	Yes	Yes	Yes	Yes	
28	Tanker is ready to move at agreed notice period	Yes	Yes	Yes	Yes	Yes	Yes	
29	Fendering is effective	Yes	Yes	Yes	Yes	Yes	Yes	
33	Communications are effective	Yes	Yes	Yes	Yes	Yes	Yes	
35	Supervision and watchkeeping is adequate	Yes	Yes	Yes	Yes	Yes	Yes	
36	Sufficient personnel are available to deal with an emergency	Yes	Yes	Yes	Yes	Yes	Yes	

Part 8. Tanker: repetitive checks during and after the transfer (cont.)								
37	Smoking restrictions and designated smoking areas are complied with	Yes	Yes	Yes	Yes	Yes	Yes	
38	Naked light restrictions are complied with	Yes	Yes	Yes	Yes	Yes	Yes	
39	Control of electrical devices and equipment in hazardous zones is complied with	Yes	Yes	Yes	Yes	Yes	Yes	
40 41 42 51	Emergency response preparedness is satisfactory	Yes	Yes	Yes	Yes	Yes	Yes	
54	Electrical insulation of the tanker/terminal interface is effective	Yes	Yes	Yes	Yes	Yes	Yes	
55	Tank venting system and closed operation procedures are as agreed	Yes	Yes	Yes	Yes	Yes	Yes	
85	Individual cargo tank inert gas valves settings are as agreed	Yes	Yes	Yes	Yes	Yes	Yes	
86	Inert gas delivery maintained at not more than 5% oxygen	Yes	Yes	Yes	Yes	Yes	Yes	
87	Cargo tank high level alarms are operational	Yes	Yes	Yes	Yes	Yes	Yes	
Initials								

Part 9. Terminal: repetitive checks during and after transfer								
Item ref	Check	Time	Time	Time	Time	Time	Time	Remarks
Interval time: ..... hrs								
18	Mooring arrangement is effective	Yes	Yes	Yes	Yes	Yes	Yes	
19	Access to and from the terminal is safe	Yes	Yes	Yes	Yes	Yes	Yes	
29	Fendering is effective	Yes	Yes	Yes	Yes	Yes	Yes	
32	Spill containment and sumps are secure	Yes	Yes	Yes	Yes	Yes	Yes	
33	Communications are effective	Yes	Yes	Yes	Yes	Yes	Yes	
35	Supervision and watchkeeping is adequate	Yes	Yes	Yes	Yes	Yes	Yes	
36	Sufficient personnel are available to deal with an emergency	Yes	Yes	Yes	Yes	Yes	Yes	
37	Smoking restrictions and designated smoking areas are complied with	Yes	Yes	Yes	Yes	Yes	Yes	
38	Naked light restrictions are complied with	Yes	Yes	Yes	Yes	Yes	Yes	
39	Control of electrical devices and equipment in hazardous zones is complied with	Yes	Yes	Yes	Yes	Yes	Yes	
40 41 47 51	Emergency response preparedness is satisfactory	Yes	Yes	Yes	Yes	Yes	Yes	
54	Electrical insulation of the tanker/terminal interface is effective	Yes	Yes	Yes	Yes	Yes	Yes	
55	Tank venting system and closed operation procedures are as agreed	Yes	Yes	Yes	Yes	Yes	Yes	
Initials								

APPENDIX F– Concordance Table

CONCORDANCE TABLE

Oil Handling Facilities (OHF)

The content of the Oil Pollution Prevention Plan (OPPP) and the Oil Pollution emergency Plan (OPEP) must make reference and meet the regulatory requirements from the following sources :

- Canada Shipping Act, 2001 – Part 8
- Environmental Response Regulations (SOR/2019-252)
- Environmental Response Standards (TP 14909)
- Vessel Pollution and Dangerous Chemicals Regulations (SOR/2012-69)

NOTE : The information contained in this document is for reference only. It is the responsibility of the OHF operator to inquire and become familiar with the provisions of the Act, and to ensure that the plans are compliant with applicable regulations and standards.

Canada Shipping Act, 2001 – Part 8

OHF Requirements

168 (1) Subject to the regulations, the operator of an oil handling facility of a class established by the regulations shall

(a) have an arrangement with a response organization in respect of any quantity of oil that is, at any time, involved in being loaded or unloaded to or from a vessel at the oil handling facility, to a prescribed maximum quantity;

(b) have on site a declaration in the form specified by the Minister that

(i) describes the manner in which the operator will comply with the regulations made under paragraph 182(1)(a),

(ii) confirms that the arrangement has been made, and

(iii) identifies every person who is authorized to implement the arrangement and the oil pollution emergency plan referred to in paragraph (d);

(c) have on site an up-to-date oil pollution prevention plan to prevent a discharge of oil during the loading or unloading of a vessel, which meets the requirements set out in the regulations;

(c.1) submit the up-to-date oil pollution prevention plan to the Minister within the time and in the circumstances set out in the regulations;

(d) have on site an up-to-date oil pollution emergency plan to respond to a discharge of oil during the loading or unloading of a vessel, which meets the requirements set out in the regulations;

(d.1) submit the up-to-date oil pollution emergency plan to the Minister within the time and in the circumstances set out in the regulations; and

(e) have the procedures, equipment and resources required by the regulations available for immediate use in the event of a discharge of oil during the loading or unloading of a vessel.

(2) [Repealed, 2014, c.29, s. 61]

Duty to take reasonable measures – oil handling facilities

(3) The operator of an oil handling facility referred to in subsection (1) shall take reasonable measures to implement

(a) the oil pollution prevention plan referred to in paragraph (1)(c); and

(b) in respect of an oil pollution incident, the oil pollution emergency plan referred to in paragraph (1)(d).

Update or revise plans

168.1 Despite any other provision of this Part or the regulations, the Minister may direct the operator of an oil handling facility to update or revise an oil pollution prevention plan or an oil pollution emergency plan and to submit the up-to-date or revised plan to the Minister within the time specified by the Minister.

Note: Exceptions to Section 168 of the Canada Shipping Act, 2001 can be found in the Environmental Response Regulations.

Exception – Arrangement with a Response Organization

Section 6 – Paragraph 168(1)(a) and subparagraphs 168(1)(b)(ii) and (iii) of the Act do not apply in respect of oil handling facilities that are located north of latitude 60° N.

Environmental Response Regulations (SOR/2019-252)

SECTION	REQUIREMENT	REFERENCE (page, section, etc.)
10(a)	**Oil Pollution Prevention Plan (OPPP)** **Content** The oil pollution prevention plan must contain the following: the position of the person who is responsible for supervising in person the loading or unloading of oil to or from a vessel;	Section 5.3, page 18
10(b)	the types and quantity of equipment for use in the loading or unloading of oil to or from a vessel and the measures to be taken in order to meet the manufacturer's specifications in respect of the maintenance and certification of that equipment;	Section 3.2.4, page 6; Section 5.3, page 18
10(c)	the procedures to be followed by the oil handling facility's personnel before and during the loading or unloading of oil to or from a vessel;	Section 5.3, page 18; Appendix D; Appendix E
10(d)	the procedures to be followed in order to meet the requirements of subsection 38(2) of the *Vessel Pollution and Dangerous Chemicals Regulations* and in order to reduce the rate of flow or pressure in a safe and efficient manner when the supervisor on board a vessel gives notice of the stopping of the loading or unloading of oil to or from the vessel to the person referred to in paragraph (a);	Section 5.3, page 18; Section 8, page 28; Section 10, page 39

10(e)	the measures to be taken in order to meet the requirements of section 33 of the *Vessel Pollution and Dangerous Chemicals Regulations* and, in the event of failure of the means of communication referred to in that section, in order to ensure that effective two-way communication between the person referred to in paragraph (a) and the supervisor on board the vessel is continuously maintained before and during the loading or unloading of oil to or from the vessel;	Section 8, page 28
10(f)	a description of the lighting to be provided in order to meet the requirements of section 34 of the *Vessel Pollution and Dangerous Chemicals Regulations*;	Section 5.3, page 18;
10(g)	documentation that demonstrates that the transfer conduit at the oil handling facility meets the requirements of subsection 35(1) of the *Vessel Pollution and Dangerous Chemicals Regulations*;	Section 3.2.4, page 6;
10(h)	the measures to be taken in order to meet the requirements of subsection 35(3) of the *Vessel Pollution and Dangerous Chemicals Regulations*;	Section 3.2.4, page 6
10(i)	the procedures to be followed by the person referred to in paragraph (a) in order to meet the requirements of subsection 35(4) of the *Vessel Pollution and Dangerous Chemicals Regulations*;	Section 10, page 39
10(j)	the procedures to be followed by the operator of the oil handling facility in order to prevent a discharge of oil;	Section 5.3, page 18;
10(k)	a description of the training provided, or to be provided, to the oil handling facility's personnel who are engaged in the loading or unloading of oil respecting the procedures to be followed in order to prevent an oil pollution incident, including the frequency of the training; and	Section 12, page 48
10(l)	the procedures to be followed for the review and updating of the plan in order to meet the requirements of section 12.	Section 2.1, page 2; Section 12, page 47

SECTION	REQUIREMENT	REFERENCE (page, section, etc.)
11(1)(a)	**Oil Pollution Emergency Plan (OPEP)** **Content** The operator of an oil handling facility must demonstrate in its oil pollution emergency plan that the operator has the ability to meet the requirements relating to the procedures, equipment and resources referred to in section 13 by providing the following information: (a) the procedures to be followed in order to respond to an oil pollution incident;	Section 10, page 39
11(1)(b)(i)	(b) in respect of each type of oil product that is loaded or unloaded to or from a vessel, an oil pollution scenario that (i) in the case of a facility of a class set out in the table to section 5 located at or south of latitude 60° N, describes the procedures to be followed to respond to a discharge of a quantity of that oil product of at least (A) 1 m^3, in the case of a class 1 facility, (B) 5 m^3, in the case of a class 2 facility, (C) 15 m^3, in the case of a class 3 facility, and (D) 50 m^3, in the case of a class 4 facility,	NA
11(1)(b)(ii)	(ii) in the case of a facility located north of latitude 60° N, describes the procedures to be followed to respond to a discharge of the total quantity of the oil product that could be loaded or unloaded to or from a vessel, up to a maximum of 10,000 tonnes,	All document, Section 11.4, page 43
11(1)(b)(iii)	(iii) identifies the assumptions on which that scenario is based,	Section 5.2, page 17

11(1)(b)(iv)	(iv) identifies the factors that were taken into account when developing those assumptions, including: (A) the nature of the oil product,	Section 5.1, page 15
	(B) the types of vessels to or from which the oil product is loaded or unloaded,	Section 5.1 and 5.2, page 15-17
	(C) the tides and currents that exist at the facility,	Section 4.3.7, page 12
	(D) the meteorological conditions that exist at the facility,	Section 4.3.8, page 12
	(E) the surrounding areas of environmental sensitivities that would likely be affected by a discharge,	Section 4.3.9, page 12
	(F) the measures to be taken to minimize the effects of a discharge, and	Section 5.3, page 18
	(G) the time necessary to carry out a response to an oil pollution incident in accordance with these Regulations	Section 3.2.1, page 5
11(1)(c)	(c) the activities to be carried out in the event of an oil pollution incident, the order in which and the time within which those activities are to be carried out, and the name and the position of the persons responsible for carrying them out, taking into account the following priorities: (i) the safety of the facility's personnel,	Section 2.1, page 2; Section 9, page 34 Section 10, page 39
	(ii) the safety of the facility,	Section 2.1, page 2; Section 10, page 39
	(iii) the safety of the communities living adjacent to the facility,	Section 2.1, page 2; Section 10, page 39
	(iv) the prevention of fire and explosion,	Section 2.1, page 2; Section 10, page 39
	(v) the minimization of the effects of a discharge,	Section 2.1, page 2; Section 10, page 39
	(vi) the reporting of the oil pollution incident,	Section 2.1, page 2; Section 10, page 39
	(vii) the environmental impact of a discharge, and	Section 2.1, page 2; Section 10, page 39
	(viii) the measures to be taken for clean-up following the oil pollution incident, including with respect to areas of environmental sensitivities and surrounding ecosystems;	Section 2.1, page 2; Section 10, page 39

11(1)(d)	the types and quantity of equipment and resources referred to in subsection 13(2) that are available for immediate use at the location of the discharge;	Section 7, page 23
11(1)(e)	the name of each person or organization and the location from which the equipment and resources will be obtained in the event of an oil pollution incident, and the manner in which the equipment and resources will be deployed at the location of the incident;	Section 7, page 23
11(1)(f)	the name and the position of the persons who are authorized and responsible for ensuring that the response to an oil pollution incident is immediate, effective and sustained;	Section 1, page 1; Section 7, page 23
11(1)(g)	the name or the position of each person who has received oil pollution incident response training or any other training in relation to an oil pollution incident;	Section 12.1 page 47
11(1)(h)	a description of the training provided, or to be provided, to the oil handling facility's personnel or other individuals in preparation for the responsibilities that they may be requested to undertake in response to an oil pollution incident;	Section 12.1, page 47
11(1)(i)	an oil pollution incident exercise program established to evaluate the effectiveness of all aspects of the procedures, equipment and resources that are identified in the plan, including exercises to be coordinated with vessels engaged in the loading or unloading of oil, vessels used to respond to oil pollution incidents, response organizations, the Department of Transport and the Canadian Coast Guard;	Section 11, page 43
11(1)(j)	the measures to be taken by the operator, in accordance with applicable federal and provincial regulations relating to health and safety, to protect the health and safety of personnel and of other individuals who are involved in responding to an oil pollution incident at the operator's request;	Section 2.1 Page 2 Section 10 Page 39 Appendix C Page 54
11(1)(k)	the procedures to be followed for the review and updating of the plan in order to meet the requirements of section 12;	Section 2.1 Page 2
11(1)(l)	the procedures to be followed by the operator in order to meet the requirements of section 39 of the *Vessel Pollution and Dangerous Chemicals Regulations*; and	Section 10 page 39; Section 11.4, page 43
11(1)(m)	the procedures to be followed by the operator to investigate any oil pollution incident in order to determine the causes and contributing factors and the actions that are needed to reduce the risk of reoccurrence.	Section 9.3, page 38
11(2)	**Other plans** The operator must ensure that the oil pollution emergency plan takes into account any contingency plan for its geographical area that may affect the facility's plan, including contingency plans that are issued by the Canadian Coast Guard or provincial or municipal	Section 10.1.2, page 40
11(3)	**Notification — exercise** The operator must submit a written description of any exercise referred to in paragraph (1)(i) to the Minister at least 30 days before the day on which it conducts the exercise.	Section 11, page 42

SECTION	REQUIREMENTS	REFERENCE (page, section, etc.)
12(1)	**Plan Reviews and Updates** **Annual review** The operator of an oil handling facility must review the oil pollution prevention plan and the oil pollution emergency plan annually and, if necessary, update the plans to ensure that they meet the requirements of section 10 or 11, as the case may be.	Section 2.1 Page 2
12(2)	**Review — events** The operator of an oil handling facility must review the oil pollution prevention plan and the oil pollution emergency plan when any of the following events occur and, if necessary, update those plans within 90 days after the day on which the event occurred: (a) any change in the law or in environmental factors that could affect the loading or unloading of oil to or from a vessel;	Section 2.1 Page 2
	(b) any change in personnel involved in the loading or unloading of oil to or from a vessel;	Section 2.1 Page 2
	(c) the identification of a gap in either of the plans after an oil pollution incident or exercise; and	Section 2.1 Page 2
	(d) any change in the business practices, policies or operational procedures of the facility that could affect the loading or unloading of oil to or from a vessel.	Section 2.1 Page 2
12(3)	**Submission of updates to Minister** If the operator of an oil handling facility updates the oil pollution prevention plan or the oil pollution emergency plan, the operator must submit the up-to-date plan to the Minister no later than one year after the update.	Section 2.1 Page 2
12(4)	**Record** The operator of an oil handling facility must keep a record of the date and the results of each review of the oil pollution prevention plan and the oil pollution emergency plan conducted under subsections (1) and (2), including any updates, and must maintain the record for three years after the day on which it is created.	Document Control, page v

13(1)	**Procedures, Equipment and Resources** **Procedures** The procedures referred to in paragraph 168(1)(e) of the Act must include the following: (a) the immediate shut down of loading or unloading operations and their restart in a manner that would not interfere with the immediate, effective and sustained response to the discharge;	Section 10.4, page 41
	(b) the reporting of the discharge in accordance with section 133 of the *Vessel Pollution and Dangerous Chemicals Regulations*;	Section 10.2, page 40
	(c) the coordination of the oil handling facility's response operation with the activities of the Canadian Coast Guard and federal, provincial and other bodies responsible for, or involved in, the protection of the marine environment;	Section 10.1, page 40
	(d) the taking into account by the operator of the oil handling facility of the priorities set out in paragraph 11(1)(c) during the entire response to the discharge;	Section 2.1, page 2; Section 10, page 39
	(e) the making available of at least one of the persons referred to in paragraph 11(1)(f) to the Department of Transport and the Canadian Coast Guard during the entire response to the discharge;	Section 1, page 1
	(f) the measures necessary to ensure that the operator of the oil handling facility is prepared to respond in the event of a discharge of oil of at least the applicable quantity set out in clauses 11(1)(b)(i)(A) to (D);	Section 3.2, page 5; Section 5.3, page 18; Section 7, page 23; Section 8, page 28; Section 9, page 34 Section 10, page 39; Section 11, page 42
	(g) the deployment of the equipment and resources referred to in subsection (2) at the location of the discharge within the time frames set out in that subsection; and	Section 3.1, page 5
	(h) the undertaking of an investigation of the discharge in order to determine the causes and contributing factors, and the actions that are needed to reduce the risk of reoccurrence.	Section 9.3, page 38
13(2)(a)	**Equipment and resources** The equipment and resources that the operator of the oil handling facility must have available for immediate use in accordance with paragraph 168(1)(e) of the Act are those (a) that are required to contain, control, recover and clean up a discharge of oil of at least the applicable quantity set out in clauses 11(1)(b)(i)(A) to (D); and	Section 7, page 23
13(2)(b)	(b) that can be deployed, if it is possible to do so in a safe, effective and practicable manner, at the location of the discharge, (i) for the purposes of containing and controlling the oil, within one hour after the discovery of the discharge, and	Section 3.1, page 5

		(ii) for the purposes of recovering the oil and cleaning up, within six hours after the discovery of the discharge.	Section 3.1, page 5