

## **HOLYROOD THERMAL GENERATING STATION TERMINAL INFORMATION AND GUIDELINES BOOKLET**



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## 1.0 INTRODUCTION

Holyrood Thermal Generating Station (HTGS) is located in the town of Holyrood on the Avalon Peninsula in Newfoundland and Labrador (the Province). It is the largest fossil fuelled station in the Province and is capable of providing approximately 500 MW of electricity for the Province. HTGS typically generates between 25 and 40 percent of the power requirements for the Province. The station burns heavy fuel oil at a rate of approximately 2700 m<sup>3</sup> per day in its three operating units when operating at maximum load.

HTGS is part of Thermal Generation, a division of Newfoundland and Labrador Hydro (NLH) operating under Nalcor Energy Company.

Reference in this booklet (hereinafter referred to as the “Terminal Regulations”) to “Terminal”, “Facility”, “Facilities”, “Station” or any one of these words, means collectively all of the real and personal property comprising the oil storage, and electric generating facility of HTGS located in Holyrood, Conception Bay, Newfoundland and Labrador, whether now or hereafter existing, including, but not limited to land, causeways, jetties, berths, piping, storage tanks, buildings, equipment, and all other facilities provided by HTGS for handling fuel oil and performing related activities; as well as all other facilities of HTGS (whether leased or owned from time to time) for the purpose of, or relating to, the business of HTGS which includes, but is not limited to, the acquisition, construction, development, operation and maintenance of the generating station located in Holyrood, Conception Bay, Newfoundland and Labrador scheduling and coordination of tanker movements, and all related activities.

These Terminal Regulations are intended to provide information to owners, operators, managers, charterers and Masters of tankers with regard to safety regulations, general conditions, terminal facilities, and available services at the Terminal.

HTGS’s corporate values are:

- **Safety**  
To be a world class safety leader
- **Environment**  
To be an environmental leader
- **Business Excellence**  
Through operational excellence to provide exceptional value to all consumers of our energy

- **People**

To ensure a highly-skilled and motivated team of employees who are strongly committed to our success and future direction

- **Community**

To be a valued corporate citizen in Newfoundland and Labrador

## **2.0 DISCLAIMER**

The information contained in these Terminal Regulations is believed to be correct at the time of issue; however, HTGS does not guarantee the accuracy of the information and accepts no liability for any damage, delay or loss resulting from any inaccuracy contained herein.

## **3.0 RIGHT TO SUSPEND OPERATIONS**

The NLH HGTS Terminal and vessels using the Terminal are expected to operate in a safe, non-destructive and environmentally friendly manner. NLH and the HGTS reserve the right to suspend operations and proceed in the removal of any vessel from the Terminal under the following circumstances:

- For a breach of, or default under, the Terminal guidelines.
- For defects in, on or associated with the vessel that may present a hazard at or to the Terminal.
- Where unsatisfactory performance of the vessel causes significant inefficiencies and constraints on Terminal operations.
- Where, for whatever reason, the safety of the Terminal, personnel, environment or the vessel causes concern.

### **Limitation of Liability**

For the purposes of this section, the following terms have the following meanings:

“Claims” means any claims, demands, damages, costs, expenses (including, without limitation, legal fees), fines, penalties, losses, liabilities, actions or causes of action, whether in law or in equity.

“Vessel Parties” means the vessel, its Master, its owners, its charterers, its operators, its managers, its agents, its contractors and subcontractors or the contractors and subcontractors of either one of them (including, without limitation, pilots) and its crew; personnel, servants and any person whatsoever on board such vessel from time to time; and, any other person who enters upon the Terminal for the purpose (directly or indirectly) of conducting business with, or on behalf of, the vessel, and “Vessel Party” means any one of them.

IN NO EVENT SHALL HTGS OR HYDRO (their employees, servants, contractors or agents) BE LIABLE for Claims incurred by a Vessel Party, including without limitation, with respect to injury to, or death of, persons or damage to, or destruction of, property due to any cause whatsoever, including without limitation the negligence or gross negligence of HTGS or HYDRO arising directly or indirectly from the use by the

Vessel Parties of the Terminal, or due to the refusal to load all or part of a nominated shipment, delay to or suspension of loading or other operations.

In addition, each of the Vessel Parties agrees that it shall indemnify HTGS and/or HYDRO and hold each of HTGS and HYDRO harmless from and against:

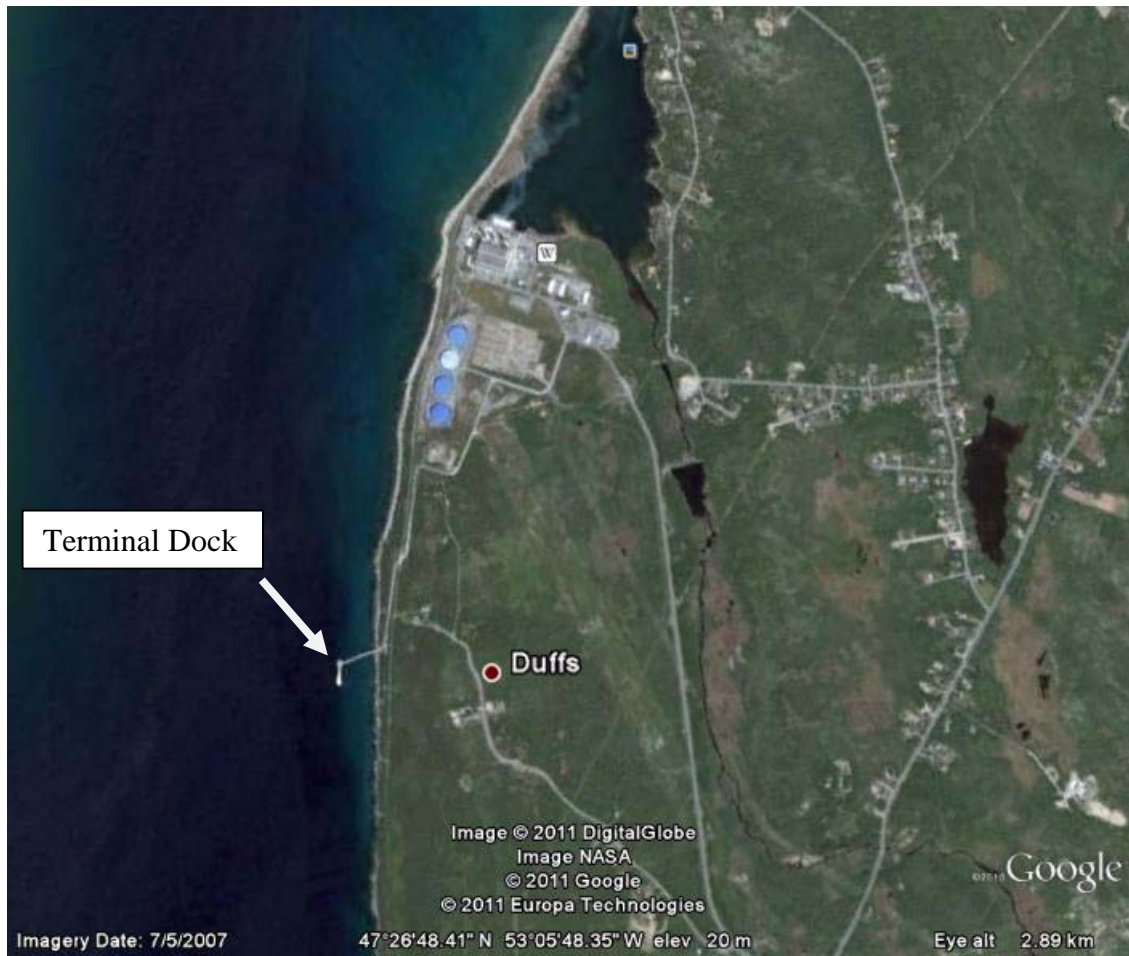
- (a) any Claims by or in respect of a Vessel Party; and
- (b) any Claims by or in respect of any other person, arising directly or indirectly from the use by the Vessel Parties, or any one of them, of the Terminal, or due to the refusal to load all or part of a nominated shipment, delay to or suspension of loading or other operations. Each of the Vessel Parties agrees that the obligation to indemnify contained herein is joint and several.

## **4.0 GENERAL INFORMATION**

### **4.1 Location and Layout**

The Newfoundland and Labrador Hydro, Holyrood Generating Station, hereafter referred to in this booklet as the Terminal, is located at the southern end of the eastern side of Conception Bay in approximate position N47° 26'36" W053° 06'26". The NL Hydro dock lays in an approximately 15/195 degree direction. See Canadian Hydrographic Service (CHS) Chart 4848 Holyrood and Long Pond. A web link to the CHS can be found at <http://www.dfo-mpo.gc.ca/>.





The Holyrood Generating Station has been operating for almost 40 years and is a critical asset for NL Hydro to supply electricity to the island of Newfoundland. The marine facility was constructed in 1969 and consists of a concrete deck supported on circular steel piles with a causeway supported on piled bents. The unloading platform has two breasting dolphins equipped with gravity based fenders aligned along a crescent to distribute berthing forces.

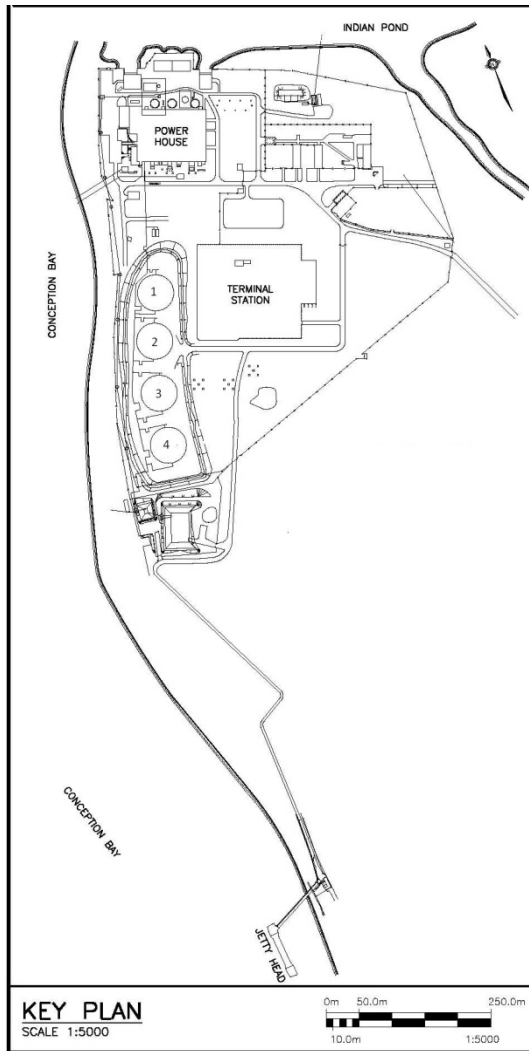
The coastline consist of exposed granite bedrock and the bottom consists of a till overlay on top of the granite.





**Terminal Dock**

Cargo arms are connected to an 18" shoreline leading to four 217,000 bbl tanks interconnected through a main 18" header. The tanks are ordered in a north-south arrangement with Tank 4 being most southerly and Tank 1 most northerly at approximately 850m from the Jetty.



## Terminal Layout

The shore cargo line is heat traced and insulated from the shore side of the causeway to the tanks while the line along the causeway is only heat traced. An emergency nitrogen actuated shut-off valve is located in the 18" line at the shore side of the causeway. During an emergency the Jetty Operator may remotely close this valve from the Jetty Control Room. The valve takes approximately 15s to close from an open position.

To reduce the possibility of a spill during the periods between shipments, the cargo line along the causeway is normally drained. The volume contained in this line is 138 BBLS.

## Tankage

	Shell Capacity (bbls)	Operating Max (m)	Operating Min (m)	Elevation (m)	Elevation Top of Tank (m)
Tank 1	216508	14.3	0.9	15.95	30.55
Tank 2	216117	14.3	0.9	15.95	30.65
Tank 3	216317	14.3	0.9	16.04	30.64
Tank 4	216162	14.3	0.9	16.05	30.65

### 4.2 Environmental Sensitivity

Conception Bay is home to a wide variety of wildlife including birds, fish, marine mammals and shellfish. The bay is also home to a huge number of recreational boaters, sport divers and tour boat operators who appreciate the beauty and pristine nature of the area. Protection of the environment is in the interest of all stakeholders and vessel operators are expected to make it one of their top priorities.

### 4.3 Ship Acceptance Criteria

All tankers nominated for calling at the Terminal must be approved by NLH prior to being accepted at the Terminal. All tankers calling at the Terminal must fully comply with all applicable international conventions, regulations and accepted industry standards including the most recent edition of the International Safety Guide for Oil Tankers and Terminals (ISGOTT).

The Terminal does not have dirty ballast reception facilities available. If necessary whilst alongside, only clean ballast from segregated ballast tanks (SBT) will be allowed to be discharged into the sea. Tankers calling at the Terminal will need to be able to meet the STB requirements of the International Maritime Organization's (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) Annex 1, Regulation 13(2) and/or any amendments to same.

All tankers calling at the Terminal must be capable of closed discharging/loading and closed gauging. And, provide to the Terminal the particulars of the ship/shore interface including manifold configuration, connection spacing and flanging specifications.

#### 4.4 Local Time

Newfoundland and Labrador keeps Newfoundland Standard Time which is minus 3 ½ from Greenwich Mean Time (GMT). Daylight Saving Time is in effect from the second Sunday in March to the first Sunday in November and during this period the time is minus 2 ½ from GMT.

#### 4.5 Ship's Agency

Tankers calling at the Terminal are required to avail of Canadian Maritime Agency Limited (CMAL) as the vessel's agent.

#### 4.6 Smoking

Smoking is strictly prohibited on board tankers alongside, on jetties and within the HTGS Terminal restricted zone, except in those enclosed spaces on board ship specifically designated by the Master as "Smoking Areas"

#### 4.7 Important Contact Information

	Telephone	Fax	Cell
TERMINAL			
Jetty Control Room	(709) 229-2721		
Control Room-Shift Supervisor	(709) 229-2132		
General Information			
Security (Main Gate)	(709) 229-2180		
Security (Dock)	(709) 229-2720		
Marine Facility Security Officer (MFSO)	(709) 229-2112		
Marine Terminal Supervisor (Load Master)	(709) 229-2145/2146		(709) 682-7381
Person On Call	(709) 682-7382		
Emergency Number			(709) 682-7381/7382
SERVICES			
Ship's Agent (Canadian Maritime Agency Limited)	(709) 463-8735	(709)463-8737	
St. John's MCTS	(709) 772-2083		
Line Handling			(709) 682-7381
Atlantic Pilotage Authority	(877) 272-3477		
Pilot Boat (St. John's)	(709) 687-0052		

(Holyrood)			(709) 363-7700
Support Services Vessel	(709) 744-2075 or (709) 229-1958		(709) 682-7827
Vacuum Truck	(709) 722-8212		
Holyrood Taxi	(709) 834-4441		
<b>FIRE/POLICE/MEDICAL/ENVIRONMENTAL SERVICES</b>			
<b>Internal</b>			
Environmental Emergency			(709) 682-7382
Emergency Response (working hours)	(709) 229-2739		(709) 699-2171
Emergency Response (after hours)	(709) 229-2754 or Channel 1		
<b>Police</b>			
RCMP Holyrood Detachment	(709) 229-3892		
<b>Medical</b>			
Local Ambulance	(709) 229-1111		
Health Sciences Centre (Ambulance)	(709) 727-6320		
Local Medical Clinic	(709) 834-2171		
<b>Environmental</b>			
Eastern Canada Response Corp. (ECRC)	1-613-930-9690		
Canadian Coast Guard	1-800-563-9089		(709) 772-2083

## 5.0 METEOROLOGICAL INFORMATION

### 5.1 Temperature

Air temperatures vary considerably throughout the year with historical extremes ranging from -27°C in winter to 34°C in summer. During winter months, the daily lows average approximately -6°C while the daily highs average approximately 2°Cs. During the summer months, daily highs average approximately 20°C while the daily lows average approximate 10°C. Winter months present freezing temperatures and harsh environmental conditions, therefore the vessel and crewmembers need to be adequately prepared!

## **5.2 Wind Direction**

The east coast of Canada is home to the convergence of many high and low pressure weather systems moving in from the Canadian arctic, western Canada and the east coast USA. The convergence of these weather systems often brings about unsettled weather, high amounts of precipitation and high winds which can suddenly change direction. Whilst the prevailing wind is from the southwest, there is little fetch area at the Terminal from this direction to cause any significant sea state. However, during winter months northerly winds are more common than they are during summer months. The Terminal is not sheltered from northerly winds and thus significant sea states are possible.

## **5.3 Visibility**

During winter months, the combination of high winds and heavy snowfall amounts can cause white out conditions and severely reduce visibility. During summer months fog is common along much of the east coast of Newfoundland and visibility can be reduced to less than half of a nautical mile.

## **5.4 Waves**

The Terminal is open to the Atlantic from a northerly direction in general and thus exposed to potentially adverse sea conditions. The terminal is sheltered from easterly and southerly winds. While the Terminal is open to westerly and south westerly winds, the fetch distance is insufficient to allow the build-up of any significant sea state

## **5.5 Tides and Currents**

Tidal ranges at the Terminal are relatively small with a maximum range of 1.42 metres. Currents are weak with an approximately 0.25 - 0.5 knot northerly current running out the bay.

## **5.6 Ice**

Conception Bay is open to the North Atlantic and has been covered with arctic sea ice in the past. However, in recent years during the winter and spring months the bay has not been subjected to any significant concentrations of arctic sea ice. Icebergs pose a significant risk to navigation, especially during reduced visibility, and are common off the east coast of Newfoundland during the months of April-June. Vessels calling at the Terminal can obtain up to date marine information including forecasts, hurricanes and ice charts from Environment Canada at the following link:

[http://www.weatheroffice.gc.ca/forecast/canada/index\\_e.html?id=NL](http://www.weatheroffice.gc.ca/forecast/canada/index_e.html?id=NL) or from Canadian Ice Services at the following link:

<http://ice-glaces.ec.gc.ca/app/WsvPrdCanQry.cfm?CanID=11091&Lang=eng>.

Information concerning the Canadian Coast Guard icebreaking program can be found at the following link:

[http://www.ccg-gcc.gc.ca/eng/CCG/Ice\\_Home](http://www.ccg-gcc.gc.ca/eng/CCG/Ice_Home)

The CCG publication “Ice Navigation in Canadian Waters” is available at the following link:

<http://www.ccg-gcc.gc.ca/folios/00028/docs/icenav-eng.pdf>

And, information concerning ice navigation and request for ice breaker assistance can be found in Notices No. 6 and No. 7 of the Annual Edition of Notices to Mariners at the following link:

<http://www.notmar.gc.ca/>

Vessel icing from freezing spray poses a risk to vessels during winter months and ship masters may want to consider speed reductions or course alterations to help reduce the accumulation of ice on board. Crew need to be properly dressed for work in freezing conditions and any standing water in outside piping may need to be drained downed in order to prevent freezing. The relative density of dock water at the terminal is considered to be approximately 1.025.

## **6.0 COMMUNICATIONS**

### **6.1 Pre-arrival**

**Masters will communicate with CMAL (Fax: 709 463-4733 / Email: [opschbc@canadianmaritime.nf.ca](mailto:opschbc@canadianmaritime.nf.ca)) before arrival and provide the following information:**

- Please advise any requirements in due time.
- Your vessel is required to report to ECAREG at least 96 hours prior to arrival. Please send requests for clearances to [ecaregsnf@innav.gc.ca](mailto:ecaregsnf@innav.gc.ca) and [hlxecareg1@innav.gc.ca](mailto:hlxecareg1@innav.gc.ca) . Failure to give the proper notice or information may result in your vessel being delayed receiving clearance to enter



Canadian waters. Please advise if you require us to email you the ECAREG reporting format.

- Please advise daily ETA's for the pilot station 47°33'.42N 52°37'.54W near St. John's. Please state if time is local or GMT.
- Vessels are expected to berth Starboard side alongside. Connections are 2 X 12 inch. Berthing is generally daylight only and max arrival draft should be 35ft SW. We will advise berthing prospects as they become available.
- The following documents will be required on arrival to the berth or to anchorage: last port clearance, ship's stores, crew effects, and crew list. IMO or Company forms are acceptable.
- The following Canadian charts or US equivalent are required for Holyrood: 4017, 4846, 4847, and 4848. We can make arrangements to have these delivered by the pilot if required.
- Emergency reporting numbers are:
  - Coast Guard (Tel: 709-772-2083) (Fax: 709-772-5369)
  - Eastern Canada Response Corporation (Tel: 613-930-9690)
  - Terminal: (Tel: 709-229-7441) (Fax: 709-229-7894)
  - VHF Ch 06
- Your vessel will have to supply own gangway.
- Please advise following at least 96 hrs prior to arrival.
  - Last 6 ports of call.
  - Crew list and passenger list (if applicable) either by fax or email.
  - Copy of your ISSC Certificate by fax or email.
  - Expiry dates and certificate numbers for the following certificates: CLCC, IOPP, Loadline, Safecon, Saferad, Safeequip and Ship Sanitation certificate.
  - Port state and official registry number of your vessel.
  - A copy of vessel particulars.
  - Please note that Canadian Customs may board your vessel for a random search. Please ensure that ship's stores and crews effects

declaration documents are accurate as they may audit this also. Any variance in these documents could result in a penalty being issued to your vessel or crew. Each crew member is permitted 200 cigs and 1 litre of spirits. Bond lockers are not to be opened while in port without the permission of Canada Customs.

- We will arrange pilot for your arrival/departure.
- Please confirm that your vessel has a valid contract with Eastern Canada Response Corporation (ECRC), and advise your contract number. Please advise who is authorized to activate ECRC.
- Please advise the amount of cargo you have onboard, and the amount you will be discharging. We will need a copy of the Bill of Lading and load port SOF at least 96 hours before arrival. We will also need details of any intransit cargoes on board.
- Canadian Fishery regulations do not permit fishing at anchorage, or alongside berths. Please comply with this regulation.
- Please confirm that your vessel is aware of Canada's ballast water regulations, and that you will be complying. Please forward any ballast water reports to: [atlanticballastwater@tc.gc.ca](mailto:atlanticballastwater@tc.gc.ca)
- Customs regulations require that crewmembers signing off with cash or monetary instruments (bonds, travellers cheques, etc) that are equal or greater than \$10000.00 Canadian (or equivalent in another currency) report this to CBSA. We have the appropriate reporting forms in our office and can provide. This should be reported 48 hrs prior to arrival.
- Please advise if your vessel is carrying any passengers or supernumeraries. Some nationalities are required to have Canadian visas in order to visit Canada. Your vessel can be subject to a \$3200.00 penalty if there any passengers or supernumeraries on board without a Canadian visa from one of those countries.

- Please advise if there are any crew changes scheduled for this call. Please note that Air Canada has new baggage regulations. Travellers are allowed 1 check in bag up to 23 kgs/50 lbs and 1 carry on bag. Any overweight or additional bags will be subject to charges. Please advise if you require additional information on these regulations and charges.
- Please advise us of any personnel/visitors you expect, that we may not be aware of.
- Please advise what Marsec level your vessel is presently operating at, and advise your certificate number. The terminal (Holyrood Generating Station) is presently operating at Marsec level 1. Your ship security officer will have to verify and inspect any stores for your vessel. Please advise if you expect any stores or spares.
- Be advised that Bunkers and Freshwater are NOT available at this berth, and there are no bunker/water barges available.
- Shore leave is only permitted for medical or official business reasons. There is a telephone on the jetty that can be used by the officers and crew. Please advise if you require any telephone cards.

## **6.2 St. John's Marine Communications & Traffic Services (MCTS)**

The St. John's VTS zone comprises all Canadian waters contained within the area bounded by a line bearing 090° True from Cape St. Francis Light, 47°48'32"N, 52°47'16"W, and a line bearing 090° True from Bull Head Light, 47°18'39"N, 52°44'52"W, including the Port of St. John's. Please see additional information in Appendix A.

## **6.3 Terminal Communications**

- NL Hydro Terminal maintains watch on VHF Channel 16 prior to vessel arrival and will switch to VHF Channel 6 as vessel approaches the Terminal dock.
- Upon completion of vessel berthing, Jetty Control (dock) will maintain watch on VHF Channel 17. In addition, handheld UHF radios will be use for communication between the vessel, Jetty Control (dock) and the Terminal control room.
- St. John's Traffic maintains watch on VHF Channels 11 and 16.

- A web link to St. John's Marine Communication and Traffic Services can be found at [http://www.ccg-gcc.gc.ca/eng/CCG/MCTS\\_Home](http://www.ccg-gcc.gc.ca/eng/CCG/MCTS_Home).

## 7.0 NAVIGATION AND MOORING OPERATIONS

### 7.1 Traffic Separation Scheme

There is no Traffic Separation Scheme for the Terminal. Please see Appendix A for details of the Traffic Separation Scheme for the port of St. John's.

### 7.2 Pilots

Pilotage is compulsory for berthing and unberthing at the NL Hydro Terminal. While the following guidelines are to be taken into consideration regarding the berthing and unberthing of vessels at the NL Hydro Terminal, the ultimate decision will rest with the Pilot in consultation with the vessel's Captain as well as the Terminal as deemed appropriate.

Initial or primary boarding station is approximately 2 miles East of the entrance to St. John's harbour as per CHS Chart 4846 Motion Bay to Cape St. Francis.

In the event the vessel is put at anchor the secondary boarding station will take place at the anchorage which is located approximately 0.8 nautical miles South of the East end of Kellys Island in Conception Bay. See CHS Charts 4566 and 4847 Conception Bay.

Compulsory Pilotage Area	Pilot Boarding Station	First ETA UTC (Hours)	Confirm or Correct ETA (Hours)	Departure / Move Local Time (Hours)	Pilot Boat R/T Channel No.
Consists of all the navigable waters within a line drawn from Salmon Cove Point on a bearing of 090° (True) to the East shore of Conception Bay	<b>Off St. John's</b> 47° 33' 42"N 52° 37'54"W	12	1	4 (Confirm 2 Hours)	16
	<b>Off Holyrood</b> 47° 27' 48"N 53° 07'30"W	12	2	--	16 11

### 7.3 Fishing and Other Vessels

Conception Bay is home to numerous fishing vessel and recreational boaters including power boats and sail boats. While the recreational boaters are mostly

active during the summer months from late May to late September, the fishing vessels are active from early April to November. As indicated on CHS Chart 4565, there is a regular provincial ferry service between Bell Island and Portugal Cove. This service is operated by the provincial government of Newfoundland and Labrador.



#### **7.4 Tugs**

If the vessel has a bow thruster:

- One (1) 20 ton bollard pull tug capable of squaring up on the towline at one (1) knot

If the vessel does not have a bow thruster:

- Two (2) tugs of the above criteria

#### **7.5 Anchorage**

The anchorage is located approximately 0.8 nautical miles South of the East end of Kellys Island, in approximate position 47° 31' 48"N 53° 00' 12"W. See CHS Chart 4847 Conception Bay.

#### **7.6 Berthing Criteria and Mooring Operations**

##### **7.6.1 Berthing (Arrival)**

- Wind Speed Maximum Sustained Limits and Direction
  - 15 knots Westerly on the dock
  - 20-25 knots Easterly off the dock
  - 20 knots North or South along the dock
- Sea State
  - 1 metre maximum from the North

- Daylight only with no less than 0.5 mile visibility
- At the pilot's discretion, the vessel's anchor may be used to assist with berthing

### **7.6.2 Unberthing (Departure)**

- Wind Speed Maximum Sustained Limits and Direction
  - 15 knots Westerly on the dock
  - 20-25 knots Easterly off the dock
  - 20 knots North or South along the dock
- Sea State
  - 1 metre maximum from the North
- Normally daylight only. However, night-time departure may be possible depending on current weather conditions and next morning forecast.
- The vessel's anchor may be used to assist with vessel unberthing.

### **7.6.3 Mooring Arrangements**

- It is preferred for vessels to berth starboard side alongside. In the event a vessel is unable to berth starboard side alongside, the reason for doing so must be clearly communicated to the Marine Terminal Supervisor who shall grant permission to berth port side alongside.
- Vessels normally tie up to a 4/2/2/ mooring arrangement.
- Rope tails as per the OCIMF Mooring Equipment Guidelines.
- Combination of mooring ropes and wires is not preferred but accepted under the follow condition:
  - Each individual set of mooring lines are of same size and type (e.g. after spring lines are to be either two wire lines OR two synthetic ropes. One wire line and one synthetic rope shall be avoided. Also, the situation of having for example rope springs forward and wires aft should be avoided due to unequal loading.)
- Mooring winches and drums are to be use in accordance with OCIMF Mooring Equipment Guidelines and moorings are to be tended to regularly.
- Within throwing distance off the dock, spring lines are sent ashore first to assist with positioning of the vessel in line with the cargo arms.
- Head, breast and stern lines are sent ashore via dock tender lines and onshore capstans.
- Heaving line should be secured behind the eye of the mooring lines.



- A small boat is used to assist with the return of tender lines from the shore to the ship for head, breast and stern lines.
- Dock personnel will assist the vessel's crew in positioning the vessel's gangway.
- Dock personnel will not board the vessel until a safety net is properly positioned and secured according to industry standards.
- See Appendix F showing vessel moored alongside.



#### **7.6.4 Cargo Operation Weather Criteria**

Cargo operations will stop and cargo arms will be disconnected in the event of maximum sustained wind speeds greater than 40 knots. However, wind direction and weather forecast will be taken into consideration before stopping cargo and disconnection of cargo arms.



## **8.0 BERTHS**

### **8.1 Limiting Criteria**

The following are the limitations for vessel calling at the Terminal:

Minimum Depth Alongside	11 m
Maximum Draft	10.67 m
Maximum Length Overall	200 m
Minimum Length Overall	160 m
Maximum Displacement	55,000 DWT
Minimum Parallel Length	40.0 m

### **8.2 Mooring Equipment**

The mooring system is comprised of four shore dolphins complete with two bollards each and four bollards on the jetty. All mooring bollards are of 70 tonne bollard pull capacity. Two of the northern shore dolphins are shown in the picture below.





Please see Appendix F for a drawing of the Terminal mooring arrangements

### **8.3 Shore Gangway**

Shown in the picture below, a short shore gangway is available and used if and when necessary.

**Please note that while the vessel shown is berthing port side alongside, it is preferred that vessels berth starboard side alongside!**





#### **8.4 Shore Cranes/Stores Delivery**

There is no shore crane fitted on the Terminal dock. Any supplies taken on board by the vessel will have to be done with the vessel's crane or a boom truck.

#### **8.5 Discharging Arms**

- The terminal is fitted with two cargo arms classified as medium range loading arms.
- Each cargo arm is rated for approximately 5000 BBL/H.
- The cargo arms are designed for a maximum freeboard of approximately 12 metres at the vessel's manifold.
- The cargo arms are fitted with a 12 inch flange.
- They are equipped with draining capabilities for the dock side of the arm.
- Gravity drainage to the vessel for the outboard side of the arm. Compressed air, supplied by the vessel, is used to assist with the drainage into a designated cargo tank on board.

- The cargo arms are not insulated or heat traced.
- The cargo arms are connected to an 18 inch diameter shore pipeline which delivers the cargo to a four (4) tank storage farm with the furthest tank located approximately 850 metres from the dock.

## **8.6 Fire Fighting Equipment**

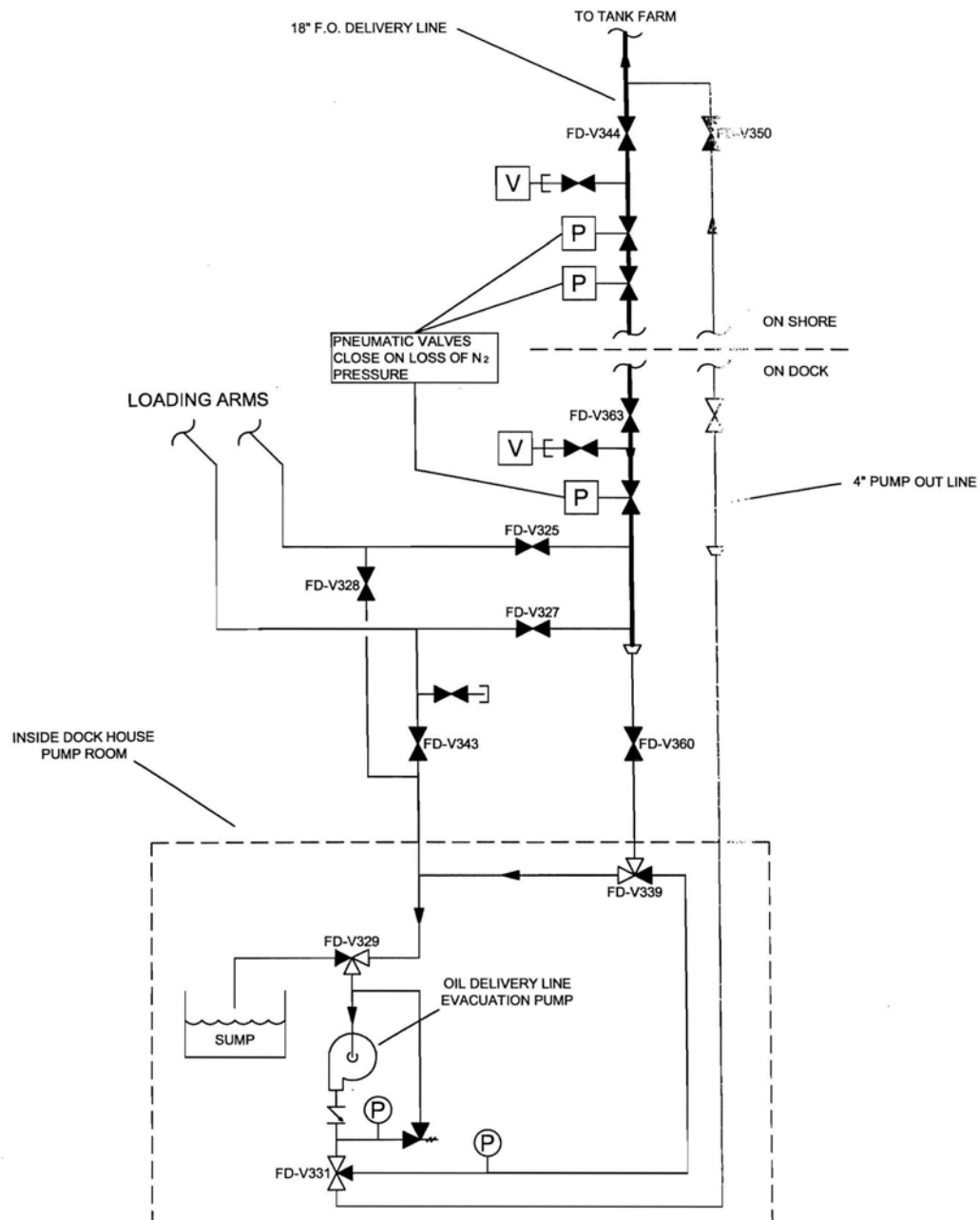
The Terminal jetty is not equipped to fight large fires. There are three 20lb fire extinguishers located in the jetty building.

## **8.7 Emergency Shutdown System (ESD)**

The Terminal is equipped with nitrogen activated emergency shutdown valves (fail closed) that will shut down fuel flow to and from the Jetty. This system is activated at the Jetty by the Terminal Operator. The following outlines the procedures used for Jetty or Shore initiation of ESD and Ship initiation of ESD.

### **8.7.1 ESD Procedure Initiated by Terminal Operator**

- Terminal Operator will contact the Ship and request immediate discharge shutdown.
- Terminal Operator will confirm with Ship that the discharge is shut down and immediately isolate the nitrogen supply to the 18" Quick Closing Valve and open the nitrogen system dump valves located in the Jetty Control Rom and just outside the Jetty Control Room.
- Terminal Operator will proceed to isolate or confirm isolated the following valves.
  - FD-V325
  - FD-V327
  - FD-V328
  - FD-V343
  - FD-V360
  - FD-V344

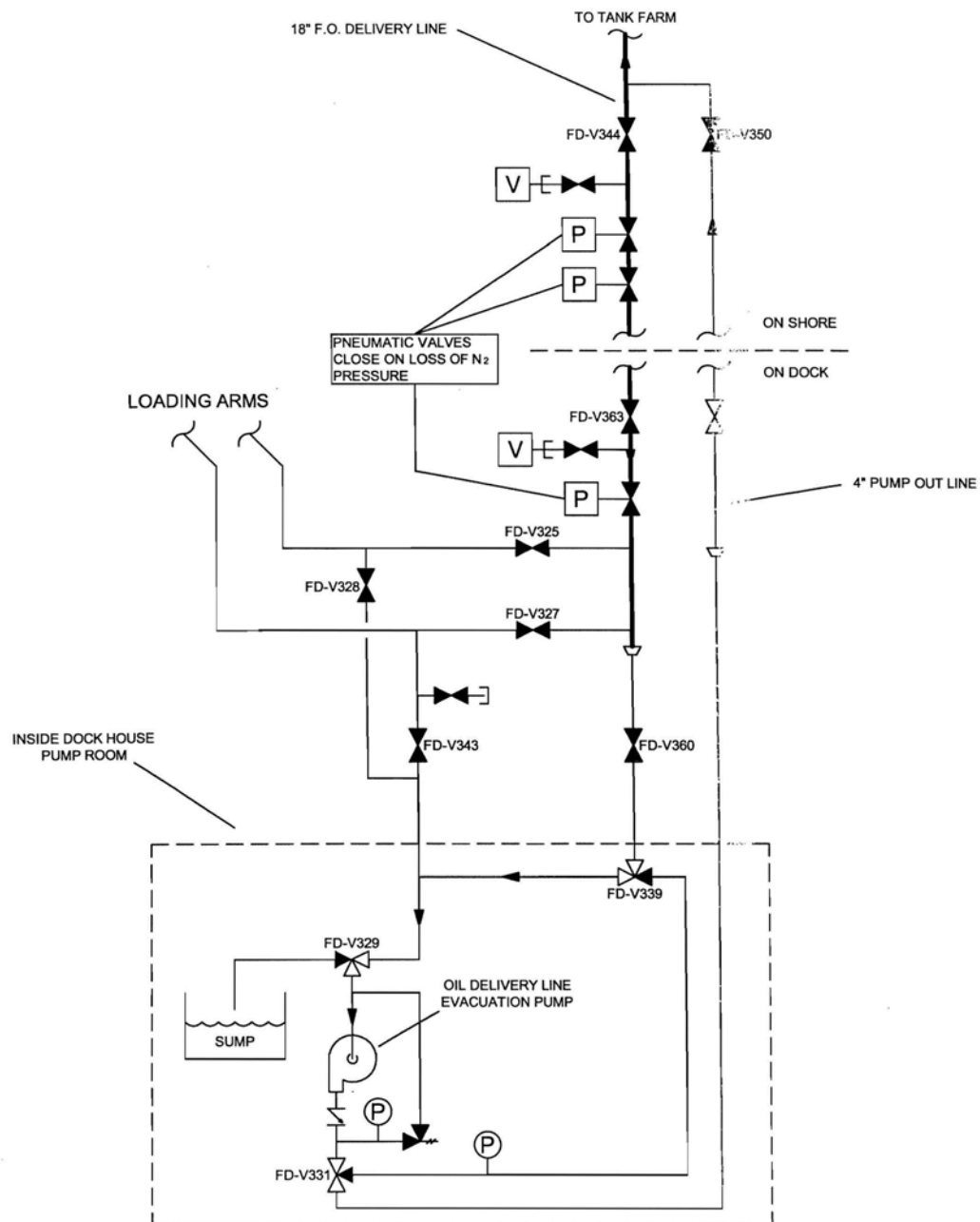


NEWFOUNDLAND AND LABRADOR HYDRO		<b>FIG. 4</b>	
		LOADING TERMINAL FUEL OIL OFFLOADING FLOW DIAGRAM	
SCALE:	NTS		
DRAWN:	GFP		
CHECKED:			
APPROVED:	W.O.NO.	DATE	DWG#:
		09/16/04	

### **8.7.2 ESD Initiated by Terminal Supervisor**

- Terminal Supervisor will contact the Ship and request immediate discharge shutdown.
- Terminal Supervisor will contact Terminal Operator to initiate ESD
- Terminal Operator will confirm with Ship that the discharge is shut down and immediately isolate the nitrogen supply to the 18" Quick Closing Valve and open the nitrogen system dump valves located in the Jetty Control Room and just outside the Jetty Control Room.
- Terminal Operator will proceed to isolate or confirm isolated the following valves.
  - FD-V325
  - FD-V327
  - FD-V328
  - FD-V343
  - FD-V360
  - FD-V344





NEWFOUNDLAND AND LABRADOR HYDRO		<b>FIG. 4</b>
		LOADING TERMINAL FUEL OIL OFFLOADING FLOW DIAGRAM
SCALE: NTS		
DRAWN: GFP		
CHECKED:		
APPROVED:	W.O.NO.	DATE 09/16/04 DWG#:

### **8.7.3 ESD Initiated by Ship**

- Ship will immediately notify the Terminal Operator of Emergency Discharge Shut Down.
- Terminal Operator will proceed to isolate the 18" Quick Closing Valve and continue isolations as in 8.7.1

## **8.8 Terminal Pollution Response Equipment**

Oil spill response equipment is readily available on-site for handling small spills less than 95 barrels.

The Holyrood Thermal Generating Station Terminal has the following pollution response equipment on-site:

- 2 mobile spools of 1000' of 36" solid flotation boom, in 50' sections
- 60 bags of Oil Absorbent Pom-Poms
- 1200 Oil Absorbent diking socks (3" x 4')
- 15 rolls of 3M Oil Absorbent Blankets (36" x 150')
- 40 Oil Absorbent pillows (15" x 19" x 2")
- 11 bags of Qualisorb, oil absorbent (22 litre bags)
- 34 bags of Hi-Point oil absorbent (44 litre bags)
- 12 Bags of Blue Absorbent Boom (5" x 10')

In the event of any cargo leakage, operations shall cease immediately and will remain stopped until the cause of the leak or discharge has been corrected. Hydro personnel will be notified by the vessel of all leaks and spills that have the potential to contaminate the environment.

At all times during the vessel's stay at this terminal, a sufficient number of personnel shall be present on board the vessel and shore installation to deal with an oil spill emergency.

The emergency signal and shutdown procedure to be used by the ship to shore, shall be explained and understood before commencing pumping operations.

In the event of a land based spill or release of product, the following procedures are to be followed:

- The first person discovering the spill will immediately notify (by pre-determined method of signalling) both Nalcor/Hydro personnel and the vessel's senior officer to discontinue pumping operations.
- Spill response activities for shore based spills is the responsibility of the terminal and are coordinated by the On-Scene Commander (OSC-1) assigned by Nalcor/Hydro.
- Spill response activities for ship based spills are the responsibility of the vessel.
- It is the vessel's responsibility to ensure adequate spill response equipment is readily available on board to mitigate the effects of a ship based spill.
- Remove all ignition sources (No smoking, flares, sparks, or flames) in the immediate area.

## **9.0 GENERAL PRECAUTIONS**

### **9.1 Fire Precautions**

Fire fighting appliances on the vessel, including all fire pumps, must be kept ready for immediate use.

An international ship to shore fire connection shall be readily available.

Holyrood Thermal Generating Station Marine Terminal is not equipped with a water distribution system capable to support fire fighting operations.

In the event of a fire on the Marine Terminal or on-board the vessel, the following alarms and instructions are to be followed;

#### **Ship's Action for Ship Based fires:**

1. Prolonged blasts of the ships whistle each blast of not less than ten seconds duration supplemented by a continuous sounding of the ship's general alarm system.
2. Immediate notification by portable radio channel to Marine Terminal Operators and VHF channel 17.
3. Fight fires and prevent fire spreading.
4. Cease all cargo operations and close all valves when pumping has ceased.
5. Stand by to disconnect loading arms.
6. Bring engines to standby.

### **Terminal Actions for Ship Based Fires:**

1. Terminal Supervisor or Terminal Operator will notify Control Room and Canadian Coast Guard (CCG) of the emergency, stating name, location and nature of emergency.
2. Control Room Shift Supervisor will activate internal Emergency Response Procedures and notify local fire, police and ambulance.
3. OSC-1 will muster all personnel at the terminal and give them an update.
4. OSC-1 initiates an emergency call out through Control Room Shift Supervisor and verify no personnel are injured or missing. Attempt to determine status of any injured/missing personnel.
5. Focus on securing terminal and containing vessel fire using tugs (if immediately available) and terminal fire fighting equipment.
6. Terminal Supervisor or Terminal Operator to contact person on call at 682-7382 as soon as possible through pre-determined procedures.
7. Terminal Supervisor or Terminal Operator to verify with both Control Room and ship that CCG is notified of the incident.
8. Consider use of RCMP and/or security contractor for crowd control.
9. Monitor situation and assess impact on terminal operations.

### **Vessel Evacuation to Terminal**

If the ship is to evacuate personnel ashore, these personnel are to gather at a muster area located in the parking area behind the jetty security building.

### **General Notes for Jetty Area Fire:**

1. Be aware that any emergency at the discharging platform can easily result in a spill. Assisting personnel have to be prepared to respond to a spill.
2. The vessel's crew will respond to fires on board of the vessel.
3. Routine Medical Response or Life Threatening Medical Emergencies on the ship are activated in the following manner:  
Contact Terminal Supervisor or Terminal Operator who will contact and dispatch Emergency Response Technicians and/or ambulance to your location.

## **9.2 Pollution Precautions**

Under favourable weather and ice conditions an oil boom will be placed around the vessel upon completion of berthing. Northerly winds causing a sea state in excess of 2 to 3 meters may prohibit the deployment of an oil boom around the ship. Final decision will be made by the Marine Terminal Supervisor.

## **9.3 Ship Stability, Stress and Trim**

Vessel's calling at the terminal are expected to operate safely at all times within the prescribed limits of stability, stress and trim as documented in the vessel's cargo operations manual.

## **9.4 Repair and Maintenance**

Before any repair work or maintenance is to be conducted on board the vessel, the Responsible Officer on board must inform the Terminal Supervisor and an agreement will need to be reached taking into account the safety requirements with due regard to the nature of the work or maintenance.

The vessel shall be able to vacate the Terminal jetty at all times under its own power. Immobilization of the vessel alongside the jetty is prohibited. In the event that the vessel must be immobilized whilst alongside the Terminal jetty, permission must be obtained from the Terminal Supervisor and a tug will need to be placed on standby; tug fees will be for the ship owner's account.

## **9.5 Vessel Contractor Insurance**

Vessel's intending to engage the use of outside contractors or service providers whilst alongside the Terminal jetty must first seek permission from the Terminal Supervisor. The vessel shall be liable for the actions of any outside contractors and shall be responsible for their supervision and safety.

# **10.0 GENERAL CARGO INFORMATION**

## **10.1 Allowed Berth Hours**

Under normal circumstances, the maximum time permitted at berth is 36 hrs defined as the time between all-fast and last line let go.

## **10.2 Discharging Rates**

Discharge rates are limited by line pressure measured at the Jetty Control Room. Pressure is not to exceed 860 kPa (125 psi). Discharge is expected to be completed within 30 hrs.

## **11.0 CARGO AND BALLAST OPERATIONS**

### **11.1 The Marine Terminal Supervisor (Loading Master)**

The Marine Terminal Supervisor (Loading Master) shall:

- Be in attendance for vessel berthing, connection of cargo arms, initial discharge operation, disconnection of cargo arms and unberthing of the vessel.
- Instruct dock personnel when to open shore valves.
- Ensure that dock personnel are in radio contact with and know the location of the ship's Cargo Control Room before leaving the dock site
- Discuss with the Pilot and vessel's Captain any concerns regarding weather conditions for vessel unberthing.
- Be on stand-by throughout the cargo discharge.

### **11.2 Cargo Operations**

- Cargo survey to be completed before commencement of discharge.
- Cargo discharge is to start at a reduced rate until receipt of cargo has been confirmed in the shore tank.
- At no time during the discharge operation is the manifold pressure to exceed 125 psi or 860 kpa.
- Dock personnel will stand by the vessel's cargo manifold during start of cargo discharge and will be positioned on the dock throughout the discharge operation.
- Upon completion of cargo discharge, and when all shore valves have been closed, dock personnel in cooperation with vessel's crew, will drain the cargo from the vessel side of the cargo arms into a designated cargo tank on board of the vessel. Draining of the cargo arms is to be done only after the designated cargo tank on board the vessel has been gauged upon completion of discharge.
- The vessel shall give the terminal four (4) hours notice of completion for the bulk discharge and if any internal stripping will follow the completion of bulk discharge.

Tankers using the Terminal shall comply with cargo and ballast handling procedures and precautions as recommended in the latest edition of ISGOTT including, but not limited to, the following:

#### **11.2.1 Pre-Operational Meeting and Inspection**

Before any cargo or ballast operations commence, a pre-operational meeting will take place between the Marine Terminal Supervisor and either the vessel's Master or its officer in charge of cargo and ballast operations.

The purpose of this pre-operational meeting is to:

1. Agree on procedures for ascertaining mutual compliance with the Ship/Shore Safety Checklist.
2. Complete and sign the applicable documentation as contained on pages 29 through 44.
3. Discuss any deficiencies arising from the Ship/Shore Safety Check list and agree on any additional precautions necessary. **Note:** The Terminal reserves the right to refuse to discharge a tanker if any substantive deficiencies remain unresolved.
4. Agree on procedures for taking cargo samples, gauging, slop measurement and, if necessary, ballast samples.
5. Agree on a discharge plan, which shall include:
  - Quantity and type of cargo to be discharged.
  - Discharge rates.
  - Ballasting/de-ballasting procedures and rates.
  - Emergency procedures.
6. Agree on communications to be used during the operation. As a minimum, communication shall be at least every 60 minutes and more often as the situation dictates.
7. Agree on connecting/disconnecting procedures.

#### **11.2.2 Operational Procedures**

The Marine Terminal Supervisor will, occasionally, witness the ship's dips/ullages/water dips/temperatures/samples as appropriate to the operation.



The Terminal is responsible for connecting/disconnecting the loading arms, operating the loading arms and draining the shore section of the loading arms. The ship is responsible for draining the ship section of the loading arms.

### **11.2.3 Discharge Operations**

The following procedures apply to discharging operations:

1. Before discharge can commence, the Terminal shall confirm that the vessel is ready in all respects, that vessel systems are correctly lined up, and that a Terminal representative is stationed on the loading platform and in the Control Room.
2. The ship shall ensure that discharge valves and inert gas supply valves are correctly lined up and that a responsible crewmember is standing-by the manifold if the cargo is under an inert gas blanket.
3. The ship shall advise the Terminal when it has commenced discharging at the slow initial rate (as agreed in the preoperational meeting).
4. The Terminal shall advise the ship when it can confirm that it is receiving cargo.
5. The Terminal shall advise the ship when it is satisfied that the rate can be increased.
6. Throughout the discharge, the ship shall advise the Terminal of fluctuations in the discharge rate, the status of stripping operations, and the status of ballasting operations.
7. The ship shall advise the Terminal of discharge rates and expected time of completion.

### **11.2.4 Conditions to be observed during the Operation**

Representatives of the Terminal and the vessel must check relevant items on the Ship/Shore Safety Checklist at intervals not exceeding that agreed in the declaration. Any unsafe condition must be reported immediately to the other party and operations stopped until it is rectified.

In addition to procedures and precautions as recommended in the latest edition of ISGOTT, the following are required for tankers discharging at the Terminal:

- a) An officer, equipped with an intrinsically safe portable radio, shall be stationed close to the main cargo control station at all times.

- b) Venting of cargo tanks shall only take place through the ship's fixed venting arrangements.
- c) Ullage, sounding and sighting ports must be kept securely closed.
- d) Overboard valves connected to the cargo or bilge system must be sealed on arrival.
- e) Spool pieces for connecting the ballast and cargo systems on SBT tankers must be disconnected and stowed in their proper place.
- f) No tank cleaning, other than stripping, is permitted.
- g) Responsible ship's crew will maintain presence at the ship's manifold at all times during discharge operations.
- h) No dirty ballast is to be discharged over board or sent ashore.
- i) May require ballasting during discharge to manage the discharge arms within normal operating limits.

## **12.0 DOCUMENTATION**

### **List of Applicable Documents to be Completed and Signed prior to Start of Cargo Operations:**

Ship/Shore Safety Checklist letter of Intent  
Holyrood Thermal Generating Station Ship/Shore Safety Checklist  
Acceptance Form For Offloading Fuel Oil Tankers  
Ship/Shore Transfer Communications  
Safety and Security Information  
Security Communication Facility/Vessel

## SHIP/SHORE SAFETY CHECKLIST LETTER OF INTENT

Company: \_\_\_\_\_ Terminal: \_\_\_\_\_

Master's Name: \_\_\_\_\_ Ship: \_\_\_\_\_

Date: \_\_\_\_\_

### **PORT: Holyrood Thermal Generating Station (HTGS)**

Dear Sir / Madam:

Responsibility for the safe conduct of operations whilst your ship is at the HTGS rests jointly with you, as master of the ship, and with the responsible terminal representative. We wish, therefore, before operations start, to seek your full co-operation and understanding on the safety requirements set out in the ship-shore safety checklist, which is based on safe practices widely accepted by the oil and the tanker industries.

We expect you, and all under your command, to adhere strictly to these requirements throughout your ship's stay alongside this terminal and we, for our part, will ensure that our personnel do likewise, and co-operate fully with you in the mutual interest of safe and efficient operations.

Before the start of operations, and from time to time thereafter, for our mutual safety, a member of the terminal staff, where appropriate together with a responsible officer, will make a routine inspection of your ship to ensure that the questions on the ship-shore safety checklist are being managed in an acceptable manner. Where corrective action is needed, we will not agree to operations commencing or, should they have been started, we will require them to be stopped.

Similarly, if you consider safety is being endangered by any action on the part of our staff or by any equipment under our control you should demand immediate cessation of operations.

<p><b>THERE WILL BE NO COMPROMISE WITH PERSONNEL OR ENVIRONMENTAL SAFETY AT THE TERMINAL</b></p>
--

Please acknowledge receipt of this letter by countersigning and returning the attached copy:

Terminal Representative:	Ship's Master:
Name:	Name:
Position/Title:	Ships Name:
Signature:	Signature:
Telephone No:	Telephone No:
UHF/VHF Channel:	UHF/VHF Channel:

Date: \_\_\_\_\_

ime: \_\_\_\_\_

## HOLYROOD THERMAL GENERATING STATION SHIP/SHORE SAFETY CHECKLIST

Ship's Name: \_\_\_\_\_

Date of Arrival: \_\_\_\_\_ Time of arrival: \_\_\_\_\_

### Instructions for completion:

The safety of operations requires that all questions be answered affirmatively by clearly initialling the appropriate box. If an affirmative answer is not possible, the reason should be given and agreement reached upon appropriate precautions to be taken between ship and HTGS. Where any question is considered to be not applicable, then a note to that effect should be inserted in the **Remarks** column.

A box in the columns **Ship** and **Terminal** indicates that checks should be carried out by the party concerned. Shaded boxes in the Ship/Shore Safety Checklist do not require initials.

The presence of the letters **A**, **P** or **R** in the **Code** column indicates the following:

- A-** ("Agreement") – This indicates an agreement or procedure that should be identified in the "remarks" column of the checklist or communicated in some other mutually acceptable form.
- P-** ("Permission") In the case of a negative answer to the statements coded "P" operations should not be conducted without the written permission from the appropriate authority.
- R-** ("Re-Check") – This indicates items to be re-checked at appropriate intervals, as agreed between both parties, at periods stated in the declaration.

The joint declaration should not be signed until both parties have checked and accepted their assigned responsibilities and accountabilities.

**NOTE:** Appendix B – Guidelines for completing the Ship/Shore Safety Checklist, commencing on page 49 of the terminal regulations, provides information to assist in the completion of the Ship/Shore Safety Checklist.

## The Ship/Shore Safety Checklist

### Part A – Bulk Liquid General – Physical Checks

No.	General	Ship's Initial	Terminal's Initial	Code	Remarks
1	There is safe access between the ship and shore.			R	
2	The Ship is securely moored.			R	
3	The agreed ship/shore communication system is operative.			A R	
4	Emergency towing-off pennants are correctly rigged and positioned.			R	N/A
5	The ship's fire hoses and fire-fighting equipment are positioned and ready for immediate use.			R	
6	The terminals fire fighting equipment is positioned and ready for immediate use.			R	
7	The ship's cargo and bunker hoses, pipelines and manifolds are in good condition, properly rigged and appropriate for the service intended.				
8	The terminals cargo and bunker hoses or arms are in good condition, properly rigged and appropriate for the service intended				
9	The cargo transfer system is sufficiently isolated and drained to allow safe removal of blank flanges prior to connection.				
10	Scuppers and save-alls on board are effectively plugged and drip trays are in position and empty.			R	
11	Temporarily removed scupper plugs will be constantly monitored.			R	
12	Shore Spill containment and sumps are correctly managed.			R	
13	The Ship's unused cargo and bunker connections are properly secured with blank flanges fully bolted.				
14	The terminals unused cargo and bunker connections are properly secured with blank flanges.				

15	All cargo, ballast and bunker tank lids are closed.				
16	Sea and overboard discharge valves, when not in use, are closed and visibly secured.				
17	All external doors, ports and windows in the accommodation, stores and machinery spaces are closed. Engine room vents may be open.			R	
18	The ship's emergency fire control plans are located externally.				

**If the ship is fitted, or required to be fitted, with an inert gas system (IGS), the following points should be physically checked.**

19	Fixed IGS pressure and oxygen content recorders are working.			R	
20	All cargo tank atmospheres are at positive pressure with oxygen content of 8% or less by volume.			P R	

#### **Part B – Bulk liquid General – Verbal Verification**

No.	Bulk Liquid – General	Ship's Initial	Terminal's Initial	Code	Remarks
21	The ship is ready to move under its own power.			P R	
22	There is an effective deck watch in attendance on board and adequate supervision of operations on the ship and in the terminal.			R	
23	There are sufficient personnel on board and ashore to deal with an emergency.			R	
24	The procedures for cargo and ballast handling have been agreed.			A R	
25	The emergency signal and shutdown procedure to be used by the ship and shore have been explained and understood.			A	
26	Material Safety Data Sheets (MSDS) for the cargo transfer have been exchanged where required.			P R	See Appendix C
27	The hazards associated with toxic substances in the cargo being handled have been identified and understood.				
28	An international shore fire connection has been provided.				

29	The agreed tank venting system will be used.			A R	
30	The requirements for closed operations have been agreed.			R	
31	The operations of the P/V system has been verified.				
32	Where a vapour return line is connected, operating parameters have been agreed.			A R	N/A.
33	Independent high level alarms, if fitted, are operational and have been tested.			A R	
34	Adequate electrical insulating means are in place in the ship/shore connection.			A R	
35	Shore lines are fitted with a non return valve, or procedures to avoid back filling have been discussed.			P R	Shore line not fitted with NRV.
36	Smoking rooms have been identified and smoking requirements are being observed.			A R	
37	Naked light regulations are being observed.			A R	
38	Ship/Shore telephones, mobile phones and pager requirements are being observed.			A R	
39	Hand torches (Flashlights) are of an approved type.				
40	Fixed VHF/UHF transceivers and AIS equipment are on the correct power mode or switched off.				
41	Portable VHF/UHF transceivers are of an approved type.				
42	The ship's main radio transmitter aerials are earthed and radars are switched off.				
43	Electric cables to portable electrical equipment within the hazardous area are disconnected from the power.				
44	Window type air conditioning units are disconnected.				
45	Positive pressure is being maintained inside the accommodation, and air conditioning intakes, which may permit the entry of cargo vapours, are closed.				
46	Measures have been taken to ensure sufficient mechanical ventilation in the pump room.			R	



47	There is provision for an emergency escape.				
48	The maximum wind and swell criteria for operations have been agreed.			A	See section 7.7 Unberth in consultation with master and duty manager.
49	Security protocols have been agreed between the ship security officer and the port facility security officer, if appropriate.			A	
50	Where appropriate, procedures have been agreed for receiving nitrogen supplied from shore, either for inerting, or pumping ship's tanks, or for line clearing into the ship.			A P	Not Available from shore.

**If the ship is fitted, or is required to be fitted, with an inert gas system (IGS) the following statements should be addressed.**

No.	Inert Gas System	Ship's Initial	Terminal's Initial	Code	Remarks
51	The IGS is fully operational and in good working order.			P	
52	Deck seals, or equivalent, are in good working order.			R	
53	Liquid levels in pressure/vacuum breakers are correct.			R	
54	The fixed and portable oxygen analyzers have been calibrated and are working properly.			R	
55	All the individual tank IG valves (if fitted) are correctly set and locked.			R	
56	All personnel in charge of cargo operations are aware that, in the case of failure of the inert gas plant, discharge operations should cease and the terminal be advised.				

**If the ship is planning to tank clean alongside, the following statements should be addressed:**

No.	Tank Cleaning	Ship's Initial	Terminal's Initial	Code	Remarks
59	Tank cleaning operations are planned during the ship's stay alongside the shore installation	Yes/No	Yes/No		
60	If "yes" the procedures and approvals for tank cleaning have been agreed.				
61	Permission has been granted for gas freeing operations.	Yes/No	Yes/No		

**If the ship has an operating cathodic protection system, the following question shall be answered:**

No.	Cathodic Protection	Ship (Check & Initial)	Terminal's Initial	Remarks
-----	---------------------	------------------------	--------------------	---------

62	<b>Does the ship have an operating cathodic protection system?</b>  <b>Yes</b> <input type="checkbox"/>  <b>No</b> <input type="checkbox"/>	<b>If So, What Type?</b>  <b>Active</b> <input type="checkbox"/> <b>Passive</b> <input type="checkbox"/>  <b>Initial:</b> _____	<b>Yes</b>	<b>Unless requested otherwise, ships are to keep their cathodic protection system running while along side of the jetty. See below for additional details on the terminal system.</b>
----	---	--	------------	---

The Terminal does not have an impressed current cathodic protection system. The terminal is protected by sacrificial anode cathodic protection.

## DECLARATION

We the undersigned have checked (where appropriate jointly) the items on this checklist and have satisfied ourselves that the entries we have made are correct to the best of our knowledge.

We have also made arrangements to carry out repetitive checks as necessary and agreed that those terms with the letter R in the column Code should be re-checked at intervals not exceeding 8 hours.

If to our knowledge the status of any item changes, we will immediately inform the other party.

For Ship			Marine Terminal Supervisor	
Name:			Name:	
Rank:			Signature:	
Signature:			Date:	
Date:			Time:	
Time:				

RECORD OF REPETITIVE CHECKS:

Date:			
Time:			
Initials for ship:			
Initials for shore:			

## ACCEPTANCE FORM FOR OFFLOADING FUEL OIL TANKERS

1. The shore facilities at this terminal are not equipped with check valves. If cargo pumps are shut down during discharge of cargo, the ship's manifold valves are to be closed.
2. Every effort must be made to ensure that both cargo arms contain hot cargo at the completion of cargo discharge.
3. Maximum discharge pressure not to exceed 125 psi. (860 Kpa ) at any time. Discharge rates are expected to be sufficient to ensure offloading is completed within 30 hrs.
4. Ship's representative is required to give 4 (four) hours notice of completion of discharge to the Marine Terminal Supervisor.

**Name of Ship:** \_\_\_\_\_

**Chief Officer:** \_\_\_\_\_

**Hydro's Representative:** \_\_\_\_\_

**Date:** \_\_\_\_\_

## SHIP/SHORE TRANSFER COMMUNICATIONS

Vessel's Name: \_\_\_\_\_

Terminal: Holyrood Thermal Generating Station (HTGS)

Date of Arrival: \_\_\_\_\_ Time of Arrival: \_\_\_\_\_

The ship-to-shore communications at the Holyrood Thermal Generating Station will be in English. And, in accordance with the requirements of the Canada Shipping Act (CSA) and the pursuant regulations, namely, the Regulation for the Prevention of Pollution from Ships and From Dangerous Chemicals (SOR/2007-86) paragraph 49(b)(v), the supervisor of a transfer operation on board a ship shall ensure that transfer procedures are established with the concurrence of the supervisor of the transfer operation at the unloading facility with respect to:

The communication signals for the transfer operation, including:

- (A) Stand by to start transfer;
- (B) Start transfer;
- (C) Slow down transfer;
- (D) Stand by to stop transfer;
- (E) Stop transfer;
- (F) Emergency stop of transfer; and
- (G) Emergency shutdown of transfer.

Vessel Supervisor: \_\_\_\_\_

Terminal Supervisor: \_\_\_\_\_

## **SAFETY AND SECURITY INFORMATION**

All visitors must sign the Terminal Entrance Log at the Jetty Security building located at the shores side of the causeway and complete site orientation. Visitors must be accompanied by a HTGS representative when on site and are required to complete site orientation every 2 years. Orientation involves viewing a brief safety video and completing an orientation form. Access to areas other than the Jetty is prohibited unless permission is granted by the Terminal Security Officer. All persons entering the must comply with HTGS's safety, health, environmental and security regulations.

### **Personal Protective Equipment**

All persons entering the facility must wear a hard hat, safety boots, safety glasses and a reflective vest or equivalent. Personal Flotation Devices ("PFD's") are mandatory anywhere on the jetty

### **Speed Limit**

All traffic signs and speed limits must be obeyed. The maximum speed limit on site is 30 km/hr.

### **Safe Work Permit System**

HTGS utilizes a "safe work permit system" on site. All non – operational work requires a safe work permit on terminal property.

### **Vehicles**

All vehicles entering this Terminal are subject to search. Vehicles are not permitted in operational areas without HTGS permission. If permission is granted, vehicles must back into designated parking spaces. Vehicles should be locked when left unattended. On site work vehicles must have functional back up alarms. All vehicles must be in good working condition. For example, there must be no exhaust leaks, no oil leaks, etc. Vehicles must be removed from the dock by the owner before the vessel departs.

### **Prohibitions**

Horseplay, fighting, gambling, stealing and soliciting are prohibited.

### **Smoking Regulations**

Smoking is prohibited at the Terminal. Ship's Master may designate smoking areas on board the vessel.

**Alcohol/Drugs**

Alcohol and illicit drugs are prohibited in the Terminal. Any person found under the influence, or in possession, of either alcohol or illicit drugs will be refused admittance and/or removed from the premises.

**Fire Arms/Knives**

Use or possession of firearms in the Terminal is strictly prohibited for any person other than uniformed officer from enforcement agencies, such as the Royal Canadian Mounted Police and the Canada Border Services Agency. Any knife with a blade over 102mm (four inches) in length is not permitted on site unless permission is granted.

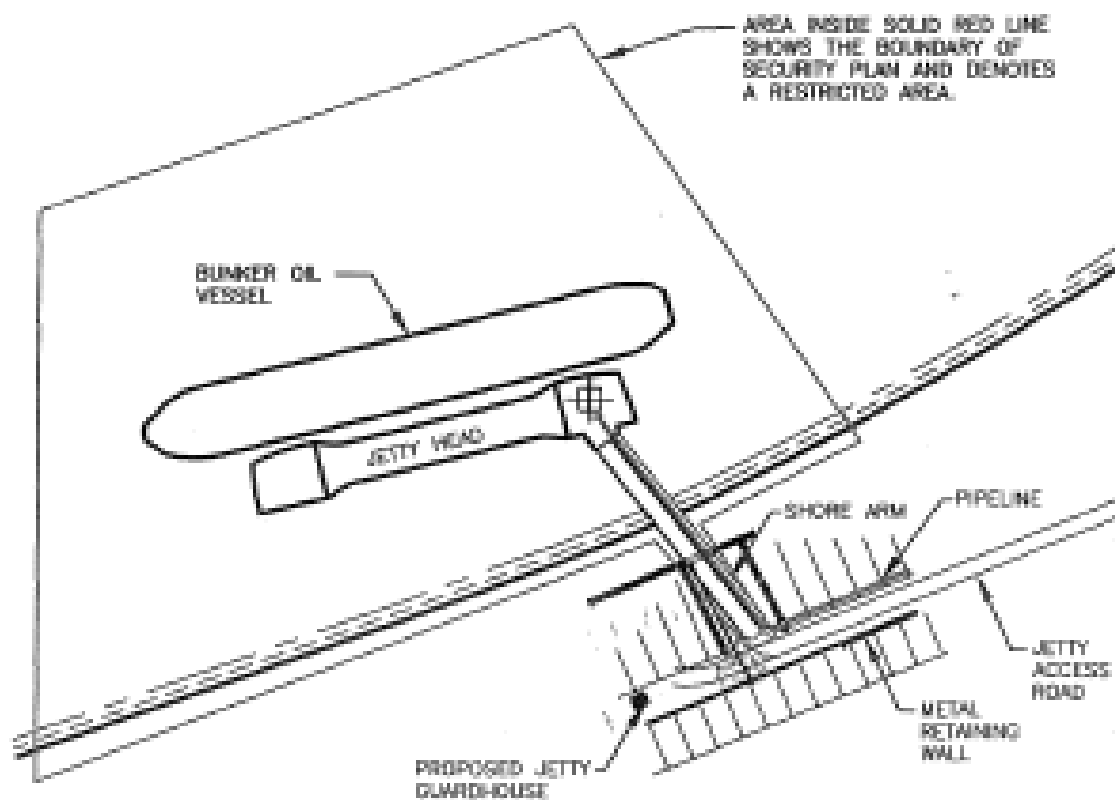
**Material Safety Data Sheets (MSDS)**

Material Safety Data Sheets are available from the Terminal upon request. Please refer to Appendix C.

**Restricted Area**

**Access control procedures have been put in place to attempt to control anyone outside or unauthorized on the jetty from gaining access to a vessel while it is moored to the jetty. The jetty, including all buildings and equipment located on the jetty, are part of the restricted area. The restricted area fencing across the jetty acts as a second line of defence to control a one hundred and forty meter (140m) distance from the vessel location.**





### **Security**

Maritime Security (“MARSEC”) Levels advise the maritime community and the public of the level of risk to the maritime elements of the national transportation system. The MARSEC Level will be designated by Transport Canada and will determine the security level for facilities.

MARSEC Level 1 – Normal operation level for security.

MARSEC Level 2 – heightened risk of a transportation security incident. There is some identified threat but no specific target.

MARSEC Level 3 – A transportation security incident is probable or imminent.

All persons entering the facility are required to have picture identification. All persons must complete the Terminal Entrance Log prior to entering and exiting the terminal.

**Note:** Master must advise any crew members of this Safety and Security Information before allowing them on the Terminal property.

Terminal Representative			Ship's Master	
Name:			Name:	
Position or Title:			Ship's Name:	
Signature:			Signature:	

Date: \_\_\_\_\_

Time: \_\_\_\_\_

## DISCHARGE INFORMATION

Vessel's name: \_\_\_\_\_

Date of arrival: \_\_\_\_\_ Time of arrival: \_\_\_\_\_

Number of loading arms to be used: 2 Size of shore connections: 0.3m (12")

Line size to tanks 0.46m (18")

Shore tanks to be used: \_\_\_\_\_ Ship tanks to be used: \_\_\_\_\_

Total quantity of cargo to be discharged:

\_\_\_\_\_ bbl@60°F (GSV) \_\_\_\_\_ m<sup>3</sup> @15°C (GSV)

The completion of cargo discharge will be a: Ship Stop ☒ Shore Stop ☐

Shore line maximum discharge rate (approximate) : 10,000 bbl/hr 1590 m<sup>3</sup>/hr

Normal operating discharge pressure: 630-700 kPa (90-100 psi)

Maximum operating discharge line pressure: 860 kPa (125 psi)

Temperature of cargo during bulk discharge: \_\_\_\_\_°C

Temperature of cargo during completion/stripping stage of discharge: \_\_\_\_\_°C

Minimum closing time of: Ship ESD Valves: \_\_\_\_\_seconds Shore ESD Valves: 15 seconds

**Shore Tank Farm Information:**

	Shell Capacity (bbl)	Operating Max (m)	Operating Min (m)	Elevation (m)	Elevation Top of Tank (m)
Tank 1	216508	14.3	0.9	15.95	30.55
Tank 2	216117	14.3	0.9	15.95	30.65
Tank 3	216317	14.3	0.9	16.04	30.64
Tank 4	216162	14.3	0.9	16.05	30.65

Discharge line elevation for each tank is 1.7m (5'6").

Distance from loading line to ESD valve 133.2m (437') and contains 21.86 m<sup>3</sup> (137.54 bbl)

Distance from ESD valve to shore tanks 836.7m (2745') and contains 137.35 m<sup>3</sup> (863.97 bbl)

Total discharge line length 969.9m (3182') and contains 159.22 m<sup>3</sup> (1001.51 bbl)

## SECURITY COMMUNICATION FACILITY/VESSEL

		Vessel	Terminal
		Yes/No or complete appropriate fields	
1	MARSEC Level of Operation (1, 2 or 3)  If Vessel is operating at MARSEC 2 or 3 the MFSO or Duty Manager must be contacted.		
		N/A	
2	Vessel/Facility Security Certificate Number  Expiry Date  Issuing Body		
			Transport Canada
3	Means of raising an alarm (UHF Channel )		Yes
4	Vessel Security Alert System		N/A
5	Vessel/Facility to immediately communicate any noted security non-conformities/breaches/etc.		Yes
6	Procedures for identification and screening of the following:  (A) Passengers  (B) Crew  (C) Visitor  (D) Luggage  (E) Vessel Stores  (F) Vehicles		N/A
			Yes
			Yes
			Yes
			Yes
			Yes
		N/A	Yes
7	Is there a requirement for a Declaration of Security? If yes, contact Duty Manager or MFSO. If DoS is required, state reason:		
8	Are Security Emergency procedures documented?		Yes
<b>Terminal Representative</b>		<b>Ship Security Officer or Designate</b>	
Name:		Name (Print):	
Position:		Signature:	
Facility Name:	Holyrood Thermal Generating Station	Vessel Name:	
Date:		Date:	

## 13.0 APPENDICIES

## APPENDIX A: ST. JOHN'S MARINE COMMUNICATIONS AND TRAFFIC SERVICES CENTRE

The following information was extracted from Radio Aids To Marine Navigation (Atlantic, St. Lawrence, Great Lakes, Lake Winnipeg and Eastern Arctic), Canadian Coast Guard, Marine Communications and Traffic Services, Annual Edition 2010. Important, this publication is revised on a monthly basis (when required) through Notices to Mariners Part III.

Important: Mariners navigating in Canadian waters should make use of appropriate and updated CHS charts and nautical publications (ex. Annual Edition of Notice to Mariners, Radio Aids to Marine Navigation and Sailing Directions). Additional information concerning Marine Communications and Traffic Services can be obtained from the following link: [http://www.ccg-gcc.gc.ca/eng/CCG/MCTS\\_Home](http://www.ccg-gcc.gc.ca/eng/CCG/MCTS_Home).

**NMSI: 00 316 0020                      Call Sign: VON**  
**Hours: H24**  
**For Radio Services call St. John's Coast Guard Radio.**  
**For Vessel Traffic Services call St. John's Traffic.**

**Call Sign: VON**

Hours: H24

**For Radio Services call St. John's Coast Guard Radio.**

**For Vessel Traffic Services call St. John's Traffic.**

**Telephone Numbers: 709-772-2106 or 709-772-2083**

709-772-5149

## MCTS Operations

Officer-in-Charge

**Facsimile:** 709-722-5369

**Telex:** 016-4530

CCGTC SNF

**Electronic Mail:** [ECAREGSNF@INNAV.GC.CA](mailto:ECAREGSNF@INNAV.GC.CA)

## MCTS St. John's / VON – Ship/Shore Communications

Communications Sites Located at:	Channel	Transmit	Receive
		Frequencies	Frequencies
St. John's 47°36'40"N 52°40'01"W	Ch11 Ch12 Ch16 Ch26* Ch70		
		2182J3E 2514J3E 2582J3E	<b>2182</b> 2118* 2206*
Cape Bonavista 48°41'48"N 53°05'18"W	Ch16 Ch26* Ch70		
Victoria	Ch16		

47°49'54"N 53°18'05"W	<b>Ch24*</b> <b>Ch70</b>		
Lumsden 49°17'14"N 53°35'05"W	<b>Ch16</b> <b>Ch26*</b> <b>Ch70</b>		

#### MCTS St. John's / VON – Broadcasts

Time UTC	Frequency	Contents
0007	2598J3E	<b>RADIOTELEPHONY:</b> <ul style="list-style-type: none"> <li>• Technical synopsis, forecasts and wave height forecasts for marine areas 232, 233, 234, 235, 236, 237 and 238.</li> <li>• Ice Edge and Conditions East Newfoundland Coast south of Strait of Belle Isle and approaches.</li> </ul>
0220	5181F1B	<b>NAVTEX: (O)</b> <ul style="list-style-type: none"> <li>• Weather.</li> </ul>
0620	5181F1B	<b>NAVTEX: (O)</b> <ul style="list-style-type: none"> <li>• Weather (Notices to Shipping only in winter)</li> </ul>
0837	2598J3E	<b>RADIOTELEPHONY:</b> <ul style="list-style-type: none"> <li>• Technical synopsis and forecasts for marine areas 232, 233, 234, 235, 236, 237 and 238.</li> <li>• Ice Edge and Conditions East Newfoundland Coast south of Strait of Belle Isle and approaches.</li> <li>• Notices to Fish Harvesters (when available)</li> </ul>
1020	5181F1B	<b>NAVTEX: (O)</b> <ul style="list-style-type: none"> <li>• Weather (Notices to Shipping only in summer)</li> </ul>
1307	2598J3E	<b>RADIOTELEPHONY:</b> <ul style="list-style-type: none"> <li>• Notice to Shipping <ul style="list-style-type: none"> <li>○ Nearshore - Cape Pine to Twillingate.</li> <li>○ Offshore – North Atlantic to Cape Bauld.</li> </ul> </li> <li>• Loran C Notices to Shipping for chains 5930 and 7270.</li> <li>• Notices to shipping revising the position of every reported offshore exploration and exploitation vessel.</li> </ul>
1420	5181F1B	<b>NAVTEX: (O)</b> <ul style="list-style-type: none"> <li>• Weather.</li> </ul>
1637	2598J3E	<b>RADIOTELEPHONY:</b> <ul style="list-style-type: none"> <li>• Technical synopsis, forecasts and wave height forecasts for marine areas 232, 233, 234, 235, 236, 237 and 238.</li> <li>• Ice Edge and Conditions East Newfoundland Coast south of Strait of Belle Isle and approaches.</li> </ul>
1820	5181F1B	<b>NAVTEX: (O)</b> <ul style="list-style-type: none"> <li>• Weather (summer) Ice (winter)</li> </ul>



2007	2598J3E	<b>RADIOTELEPHONY:</b> <ul style="list-style-type: none"> <li>• Technical synopsis and forecasts for marine areas 232, 233, 234, 235, 236, 237 and 238.</li> <li>• Ice Edge and Conditions East Newfoundland Coast south of Strait of Belle Isle and approaches.</li> </ul>
2207	2598J3E	<b>RADIOTELEPHONY:</b> <ul style="list-style-type: none"> <li>• Notice to Shipping <ul style="list-style-type: none"> <li>○ Nearshore - Cape Pine to Twillingate.</li> <li>○ Offshore – North Atlantic to Cape Bauld.</li> </ul> </li> <li>• Loran C Notices to Shipping for chains 5930 and 7270.</li> <li>• Notices to shipping revising the position of every reported offshore exploration and exploitation vessel.</li> <li>• Notices to Fish Harvesters (when available).</li> </ul>
2220	5181F1B	<b>NAVTEX: (O)</b> <ul style="list-style-type: none"> <li>• Weather (winter) Notices to Shipping/Ice (summer).</li> </ul>
Continuous	Ch21B St. John's Cape Bonavista  Ch83B Victoria  Ch28B Lumsden	<b>RADIOTELEPHONY:</b> <ul style="list-style-type: none"> <li>• Technical synopsis, forecasts and wave height forecasts for marine areas 232, 233, 234, 235, 236, 237 and 238.</li> <li>• Actual weather observations (when available) for the following sites: <ul style="list-style-type: none"> <li>○ Pool's Island</li> <li>○ Bonavista</li> <li>○ Grates Cove</li> <li>○ St. John's</li> <li>○ Cape Race</li> <li>○ Argentia</li> </ul> </li> <li>• Ice Edge and Conditions East Newfoundland Coast south of Strait of Belle Isle and approaches.</li> <li>• Notice to Shipping Cape Pine to Twillingate.</li> <li>• Notices to shipping revising the position of every reported offshore exploration and exploitation vessel.</li> <li>• Notices to Fish Harvesters (when available).</li> <li>• Loran C Notices to Shipping for chains 5930 and 7270.</li> </ul>

### ST JOHN'S VTS ZONE

### SECTOR AND BOUNDARIES

St. John's Vessel Traffic Services Zones comprise all Canadian waters between a line bearing 090° True from Cape St. Francis Light, 47°48'32"N 52°47'09.6"W, and a line bearing 090° True from Bull Head Light 47°18'39"N 52°44'52"W, including the Port of St. John's.

Note: Latitude and longitude positions given for the St. John's VTS Zone are in NAD 83

Sector	Boundaries
1	A line from Cape St. Francis, 47°48'31.5"N 52°47'09.6"W easterly to the Territorial Sea boundary at position 47°48'29.5"N 52°25'30.1"W; thence along the Territorial Sea boundary to position 47°18'36.3"N 52°25'14.8"W, thence, westerly to North Head, 47°18'38"N 52°44'46"W.

### IDENTIFICATION AND FREQUENCIES

Sector	Identifier	Channel	Frequency (MHz)
1	"St. John's Traffic"	11	156.55

### CALLING-IN-POINTS

Number	Sector	Name	Geographic Description
1N	1	Cape St. Francis	A line from 47°48'31.5"N 52°47'09.6"W, to the limit of Canadian territorial waters at 47°48'29.5"N 52°25'30.1"W.
1E	1	Eastern Zone Limit	A line following the Canadian Territorial Sea Boundary from 47°48'29.5"N 52°25'30.1"W, to 47°18'36.3"N 52°25'14.8"W.
1S	1	North Head	A line from 47°18'38"N 52°44'46"W, to the limit of Canadian territorial waters at 47°18'36.3"N 52°25'14.8"W.
2N	1	Torbay Point	A line from 47°39'56.2"N 52°40'05"W, to the limit of Canadian territorial waters at 47°39'54.8"N 52°21'46.3"W.
2S	1	Motion Head	A line from 47°26'11"N 52°39'33.2"W, to the limit of Canadian territorial waters at 47°26'09.5"N 52°20'50.9"W.
3	1	2 NM off St. John's	An arc centred on Fort Amherst light, 47°33'47.9"N 52°40'49.6"W, and connecting points at 47°35'39.8"N 52°39'45.2"W; 47°33'35.4"N 52°37'53.2"W; and, 47°31'49.5"N 52°40'20.3"W.
4	1	Fort Amherst	A point on the range line at 47°33'56.2"N 52°40'48.2"W, abeam Fort Amherst light at 47°33'47.9"N 52°40'49.6"W.

All times shall be given in Newfoundland Standard Time or Newfoundland Daylight Saving Time, whichever is in effect.

## **APPENDIX B: GUIDELINES FOR COMPLETING THE SHIP-SHORE SAFETY CHECKLIST**

### **Part 'A' – Bulk Liquid General – Physical Checks**

#### **1. There is safe access between the ship and shore.**

The access should be positioned as far away from the manifolds as practicable.

The means of access to the ship should be safe and may consist of an appropriate gangway or accommodation ladder with a properly secured safety net fitted to it.

Particular attention to safe access should be given where the difference in level between the point of access on the ship and the jetty or quay is large, or is likely to become large.

When terminal access facilities are not available and a ship's gangway is used, there should be an adequate landing area on the berth so as to provide the gangway with a sufficient clear run of space and so maintain safe and convenient access to the ship at all states of tide and changes in the ship's freeboard.

Near the access ashore, appropriate life-saving equipment should be provided by the terminal. A lifebuoy should be available on board the ship near the gangway or accommodation ladder.

The access should be safely and properly illuminated during darkness.

Persons who have no legitimate business on board, or who do not have the Master's permission, should be refused access to the ship.

The terminal should control access to the jetty or berth in agreement with the ship.

#### **2. The ship is securely moored.**

When considering this item, due regard should be given to the need for adequate fendering arrangements.

Ships should remain adequately secured in their moorings. Alongside piers or quays, ranging of the ship should be prevented by keeping all mooring lines taut. Attention should be given to the movement of the ship caused by wind, currents, tides or passing ships and the operation in progress.

Wire ropes and fibre ropes should not be used together in the same direction (i.e. as breast lines, spring lines, head or stern lines) because of the difference in their elastic properties.

Once moored, ships fitted with automatic tension winches should not use such winches in the automatic mode.

Means should be provided to enable quick and safe release of the ship in case of an emergency. In ports where anchors are required to be used, special consideration should be given to this matter.

Irrespective of the mooring method used, the emergency release operation should be agreed, taking into account the possible risks involved.

Anchors not in use should be properly secured.

**3. The agreed ship/shore communication system is operative.**

Communication should be maintained in the most efficient way between the Responsible Officer on duty on the ship and the Terminal Representative.

When telephones are used, the telephone both on board and ashore should be continuously manned by a person who can immediately contact his respective supervisor. Additionally, the supervisor should have a facility to override all calls. When radio systems are used, the units should preferably be portable and carried by the supervisor or a person who can get in touch with his respective supervisor immediately. Where fixed systems are used, the guidelines for telephones should apply.

The selected primary and back-up systems of communication should be recorded on the check-list and necessary information on telephone numbers and/or channels to be used should be exchanged and recorded.

The telephone and portable radio systems should comply with the appropriate safety requirements.

**4. Emergency towing-off pennants are correctly rigged and positioned.**

Unless the terminal specifically advises to the contrary, emergency towing-off pennants (fire wires) should be positioned on both the off-shore bow and quarter of the ship. At a buoy mooring, emergency towing-off pennants should be positioned on the side opposite to the hose string.

There are various methods for rigging emergency towing-off pennants currently in use. Some terminals may require a particular method to be used and the ship should be advised accordingly.

**5. The ship's fire hoses and fire-fighting equipment are positioned and ready for immediate use.**

See Question 6 below.

**6. The terminal's fire-fighting equipment is positioned and ready for immediate use.**

Fire-fighting equipment on board and on the jetty should be correctly positioned and ready for immediate use.

Adequate units of fixed or portable equipment should be stationed to cover the ship's cargo deck and the jetty area, having due regard to the presence of both the ship and nearby shore tanks. The shore and ship's fire-main systems should be pressurised or be capable of being pressurised at short notice.

Both ship and shore should ensure that their fire-main systems can be inter-connected in a quick and easy way utilising, if necessary, the International Shore Fire Connection (see Question 28).

**7. The ship's cargo and bunker hoses, pipelines and manifolds are in good condition, properly rigged and appropriate for the service intended.**

See Question 8 below.

**8. The terminal's cargo and bunker hoses or arms are in good condition, properly rigged and appropriate for the service intended.**

Hoses should be in a good condition and properly fitted and rigged so as to prevent strain and stress beyond design limitations.

All flange connections should be fully bolted and any other types of connections should be properly secured.

Hoses and pipelines and metal arms should be constructed of a material suitable for the substance to be handled, taking into account its temperature and the maximum operating pressure.

Cargo hoses should be indelibly marked so as to allow the identification of the products for which they are suitable, specified maximum working pressure, the test pressure and last date of testing at this pressure. If to be used at temperatures other than ambient, maximum and minimum service temperatures should be marked.

**9. The cargo transfer system is sufficiently isolated and drained to allow safe removal of blank flanges prior to connection.**

A positive means of confirming that both ship and shore cargo systems are isolated and drained should be in place and used to confirm that it is safe to remove blank flanges prior to connection. The means should provide protection against pollution due to unexpected and uncontrolled release of product from the cargo system and injury to personnel due to pressure in the system suddenly being released in an uncontrolled manner.

**10. Scuppers and save-alls on board are effectively plugged and drip trays are in position and empty.**

Where applicable, all scuppers on board should be properly plugged during the operations. Accumulation of water should be drained off periodically.

The ship's manifolds should ideally be provided with fixed drip trays in accordance with OCIMF recommendations, where applicable. In the absence of fixed containment, portable drip trays should be used.

All drip trays should be emptied in an appropriate manner whenever necessary but always after completion of the specific operation.

When only corrosive liquids or refrigerated gases are being handled, the scuppers may be kept open, provided that an ample supply of water is available at all times in the vicinity of the manifolds.

**11. Temporarily removed scupper plugs will be constantly monitored.**

Scuppers that are temporarily unplugged, in order to drain clean rainwater from the cargo deck for example, must be constantly and closely monitored. The scupper must be re-sealed immediately in the event of a deck oil spill or any other incident that has the potential to cause pollution.

**12. Shore spill containment and sumps are correctly managed.**

Shore containment facilities, such as bund walls, drip trays and sump tanks, should be properly maintained, having been sized for an appropriate containment volume following a realistic risk assessment.

Jetty manifolds should ideally be provided with fixed drip trays; in their absence, portable drip trays should be used.

Spill or slop transfer facilities should be well maintained and, if not an automatic system, should be readily available to deal with spilled product or rainwater.

- 13. The ship's unused cargo and bunker connections are properly secured with blank flanges fully bolted.**

See Question 14 below.

- 14. The terminal's unused cargo and bunker connections are properly secured with blank flanges fully bolted.**

Unused cargo and bunker connections should be closed and blanked. Blank flanges should be fully bolted and other types of fittings, if used, properly secured.

- 15. All cargo, ballast and bunker tank lids are closed.**

Apart from the openings in use for tank venting (see Question 29), all openings to cargo, ballast and bunker tanks should be closed and gas tight.

Except on gas tankers, ullaging and sampling points may be opened for the short periods necessary for ullaging and sampling, which activities should be conducted taking account of the controls necessary to avoid electrostatic discharge.

Closed ullaging and sampling systems should be used where required by international, national or local regulations and agreements.

- 16. Sea and overboard discharge valves, when not in use, are closed and visibly secured.**

Experience shows the importance of this item in pollution avoidance on ships where cargo lines and ballast systems are interconnected. Remote operating controls for such valves should be identified in order to avoid inadvertent opening.

If appropriate, the security of the valves in question should be checked visually.

- 17. All external doors, ports and windows in the accommodation, stores and machinery spaces are closed. Engine room vents may be open.**

External doors, windows and portholes in the accommodation should be closed during cargo operations. These doors should be clearly marked as being required to be closed during such operations, but at no time should they be locked.

This requirement does not prevent reasonable access to spaces during operations, but doors should not be left open when unattended.

Engine room vents may be left open. However, consideration should be given to closing them where such action would not adversely affect the safe and efficient operation of the engine room spaces served.



**18. The ship's emergency fire control plans are located externally.**

A set of fire control plans should be permanently stored in a prominently marked weather-tight enclosure outside the accommodation block for the assistance of shore side fire-fighting personnel. A crew list should also be included in this enclosure.

**If the ship is fitted, or is required to be fitted, with an inert gas system (IGS), the following points should be physically checked:**

**19. Fixed IGS pressure and oxygen content recorders are working.**

All recording equipment should be switched on, tested as per manufacturer's instructions and operating correctly.

**20. All cargo tank atmospheres are at positive pressure with oxygen content of 8% or less by volume.**

Prior to commencement of cargo operations, each cargo tank atmosphere should be checked to verify an oxygen content of 8% or less by volume. Inerted cargo tanks should be kept at a positive pressure at all times.

**Part 'B' – Bulk Liquid General – Verbal Verification**

**21. The ship is ready to move under its own power.**

The ship should be able to move under its own power at short notice, unless permission to immobilise the ship has been granted by the port authority and the Terminal Representative.

Certain conditions may have to be met for permission to be granted.

**22. There is an effective deck watch in attendance on board and adequate supervision of operations on the ship and in the terminal.**

The operation should be under constant control and supervision on the ship and in the terminal.

Supervision should be aimed at preventing the development of hazardous situations. However, if such a situation arises, the controlling personnel should have adequate knowledge and the means available to take corrective action.

The controlling personnel on the ship and in the terminal should maintain effective communications with their respective supervisors.

All personnel connected with the operations should be familiar with the dangers of the substances handled and should wear appropriate protective clothing and equipment.

**23. There are sufficient personnel on board and ashore to deal with an emergency.**

At all times during the ship's stay at the terminal, a sufficient number of personnel should be present on board the ship and in the shore installation to deal with an emergency.

**24. The procedures for cargo, bunker and ballast handling have been agreed.**

The procedures for the intended operation should be pre-planned. They should be discussed and agreed upon by the Responsible Officer and Terminal Representative prior to the start of the operations. Agreed arrangements should be formally recorded and signed by both the Responsible Officer and Terminal Representative. Any change in the agreed procedure that could affect the operation should be discussed by both parties and agreed upon. After both parties have reached agreement, substantial changes should be laid down in writing as soon as possible and in sufficient time before the change in procedure takes place. In any case, the change should be laid down in writing within the working period of those supervisors on board and ashore in whose working period agreement on the change was reached.

The operations should be suspended and all deck and vent openings closed on the approach of an electrical storm.

The properties of the substances handled, the equipment of ship and shore installation, and the ability of the ship's crew and shore personnel to execute the necessary operations and to sufficiently control the operations are factors which should be taken into account when ascertaining the possibility of handling a number of substances concurrently.

The manifold areas, both on board and ashore, should be safely and properly illuminated during darkness.

The initial and maximum loading rates, topping-off rates and normal stopping times should be agreed, having regard to:

- The nature of the cargo to be handled.
- The arrangement and capacity of the ship's cargo lines and gas venting systems.
- The maximum allowable pressure and flow rate in the ship/shore hoses and loading arms.
- Precautions to avoid accumulation of static electricity.
- Any other flow control limitations.

A record to this effect should be formally made as above.

**25. The emergency signal and shutdown procedure to be used by the ship and shore have been explained and understood.**

The agreed signal to be used in the event of an emergency arising ashore or on board should be clearly understood by shore and ship personnel.

An emergency shutdown procedure should be agreed between ship and shore, formally recorded and signed by both the Responsible Officer and Terminal Representative.

The agreement should state the circumstances in which operations have to be stopped immediately.

Due regard should be given to the possible introduction of dangers associated with the emergency shutdown procedure.

**26. Material Safety Data Sheets (MSDS) for the cargo transfer have been exchanged where requested.**

An MSDS should be available on request to the receiver from the terminal or ship supplying the product.

As a minimum, such information sheets should provide the constituents of the product by chemical name; name in common usage, UN number and the maximum concentration of any toxic components, expressed as a percentage by volume or as ppm.

**27. The hazards associated with toxic substances in the cargo being handled have been identified and understood.**

Many tanker cargoes contain components that are known to be hazardous to human health. In order to minimise the impact on personnel, information on cargo constituents should be available during the cargo transfer to enable the adoption of proper precautions. In addition, some port states require such information to be readily available during cargo transfer and in the event of an accidental spill. This is particularly relevant to cargoes that could contain H<sub>2</sub>S, benzene or lead additives.

**28. An International Shore Fire Connection has been provided.**

The connection must meet the standard requirements and, if not actually connected prior to commencement of operations, should be readily available for use in an emergency.

**29. The agreed tank venting system will be used.**

Agreement should be reached and recorded as to the venting system to be used for the operation, taking into account the nature of the cargo and international, national or local regulations and agreements.

There are three basic systems for venting tanks:

1. Open to atmosphere via open ullage ports, protected by suitable flame screens.
2. Fixed venting systems which includes inert gas systems.
3. To shore through a vapour collection system (see Question 32 below).

**30. The requirements for closed operations have been agreed.**

It is a requirement of many terminals that, when the ship is ballasting into cargo tanks, loading or discharging, it operates without recourse to opening ullage and sighting ports. In these cases, ships will require the means to enable closed monitoring of tank contents, either by a fixed gauging system or by using portable equipment passed through a vapour lock, and preferably backed up by an independent overfill alarm system.

**31. The operation of the P/V system has been verified.**

The operation of the P/V valves and/or high velocity vents should be checked using the testing facility provided by the manufacturer. Furthermore, it is imperative that an adequate check is made, visually or otherwise, to ensure that the checklift is actually operating the valve. On occasion, a seized or stiff vent has caused the checklift drive pin to shear and the ship's personnel to assume, with disastrous consequences, that the vent was operational.

**32. Where a vapour return line is connected, operating parameters have been agreed.**

Where required, a vapour return line will be used to return flammable vapour from the cargo tanks to shore.

The maximum and minimum operating pressures and any other constraints associated with the operation of the vapour return system should be discussed and agreed by ship and shore personnel.

**33. Independent high level alarms, if fitted, are operational and have been tested.**

Owing to the increasing reliance placed on gauging systems for closed cargo operations, it is important that such systems are fully operational and that backup is provided in the

form of an independent overfill alarm arrangement. The alarm should provide audible and visual indication and should be set at a level that will enable operations to be shutdown prior to the tank being overfilled. Under normal operations, the cargo tank should not be filled higher than the level at which the overfill alarm is set.

Individual overfill alarms should be tested at the tank to ensure their proper operation prior to commencing loading unless the system is provided with an electronic self-testing capability which monitors the condition of the alarm circuitry and sensor and confirms the instrument set point.

**34. Adequate electrical insulating means are in place in the ship/shore connection.**

Unless measures are taken to break the continuous electrical path between ship and shore pipework provided by the ship/shore hoses or metallic arms, stray electric currents, mainly from corrosion prevention systems, can cause electric sparks at the flange faces when hoses are being connected and disconnected.

The passage of these currents is usually prevented by an insulating flange inserted at each jetty manifold outlet or incorporated in the construction of metallic arms. Alternatively, the electrical discontinuity may be provided by the inclusion of one length of electrically discontinuous hose in each hose string.

It should be ascertained that the means of electrical discontinuity is in place, that it is in good condition and is not being by-passed by contact with an electrically conductive material.

**35. Shore lines are fitted with a non-return valve, or procedures to avoid back filling have been discussed.**

In order to avoid cargo running back when discharge from a ship is stopped, either due to operational needs or excessive back pressure, the terminal should confirm that it has a positive system that will prevent unintended flow from the shore facility onto the ship. Alternatively, a procedure should be agreed that will protect the ship.

**36. Smoking rooms have been identified and smoking requirements are being observed.**

Smoking on board the ship may only take place in areas specified by the Master in consultation with the Terminal Representative.

No smoking is allowed on the jetty and the adjacent area, except in buildings and places specified by the Terminal Representative in consultation with the Master.

Places that are directly accessible from the outside should not be designated as places where smoking is permitted. Buildings, places and rooms designated as areas where smoking is permitted should be clearly marked as such.

**37. Naked light regulations are being observed.**

A naked light or open fire comprises the following: flame, spark formation, naked electric light or any surface with a temperature that is equal to or higher than the auto-ignition temperature of the products handled in the operation.

The use of naked lights or open fires on board the ship, and within a distance of 25 metres of the ship, should be prohibited, unless all applicable regulations have been met and agreement reached by the port authority, Terminal Representative and the Master. This distance may have to be extended for ships of a specialised nature such as gas tankers.

**38. Ship/shore telephones, mobile phones and pager requirements are being observed.**

Ship/shore telephones should comply with the requirements for explosion-proof construction, except when placed and used in a safe space in the accommodation.

Mobile telephones and pagers should not be used in hazardous areas unless approved for such use by a competent authority.

**39. Hand torches (flashlights) are of an approved type.**

Battery operated hand torches (flashlights) should be of a safe type, approved by a competent authority. Damaged units, even though they may be capable of operation, should not be used.

**40. Fixed VHF/UHF transceivers and AIS equipment are on the correct power mode or switched off.**

Fixed VHF/UHF and AIS equipment should be switched off or on low power (1 watt or less) unless the Master, in consultation with the Terminal Representative, has established the conditions under which the installation may be used safely.

**41. Portable VHF/UHF transceivers are of an approved type.**

Portable VHF/UHF sets should be of a safe type, approved by a competent authority.

VHF radio telephone sets may only operate in the internationally agreed wave bands.

Equipment should be well maintained. Damaged units, even though they may be capable of operation, should not be used.

**42. The ship's main radio transmitter aerials are earthed and radars are switched off.**

The ship's main radio station should not be used during the ship's stay in port, except for receiving purposes. The main transmitting aerials should be disconnected and earthed.

Satellite communications equipment may be used normally, unless advised otherwise.

The ship's radar installation should not be used unless the Master, in consultation with the Terminal Representative, has established the conditions under which the installation may be used safely.

**43. Electric cables to portable electrical equipment within the hazardous area are disconnected from power.**

The use of portable electrical equipment on wandering leads should be prohibited in hazardous zones during cargo operations, and the equipment preferably removed from the hazardous zone.

Telephone cables in use in the ship/shore communication system should preferably be routed outside the hazardous zone. Wherever this is not feasible, the cable should be so positioned and protected that no danger arises from its use.

**44. Window type air conditioning units are disconnected.**

Window type air conditioning units should be disconnected from their power supply.

**45. Positive pressure is being maintained inside the accommodation, and air conditioning intakes, which may permit the entry of cargo vapours, are closed.**

A positive pressure should, when possible, be maintained inside the accommodation, and procedures or systems should be in place to prevent flammable or toxic vapours from entering accommodation spaces. This can be achieved by air conditioning or similar systems, which draw clean air from non-hazardous locations.

Air conditioning systems should not be operated on 100% recirculation.

**46. Measures have been taken to ensure sufficient mechanical ventilation in the Pump room.**

Pump rooms should be mechanically ventilated and the ventilation system, which should maintain a safe atmosphere throughout the pump room, should be kept running

throughout cargo handling operations. The gas detection system, if fitted, should be functioning correctly.

**47. There is provision for an emergency escape.**

In addition to the means of access referred to in Question 1, a safe and quick emergency escape route should be available both on board and ashore. On board the ship, it may consist of a lifeboat ready for immediate use, preferably at the after end of the ship, and clear of the moorings.

**48. The maximum wind and swell criteria for operations have been agreed.**

There are numerous factors which will help determine whether cargo or ballast operations should be discontinued. Discussion between the terminal and the ship should identify limiting factors, which could include:

- Wind speed and direction and the effect on hard arms.
- Wind speed and direction and the effect on mooring integrity.
- Wind speed and direction and the effect on gangways.
- At exposed terminals, swell effects on moorings or gangway safety.

Such limitations should be clearly understood by both parties. The criteria for stopping cargo, disconnecting hoses or arms and vacating the berth should be written in the 'Remarks' column of the check-list.

**49. Security protocols have been agreed between the Ship Security Officer and the Port Facility Security Officer, if appropriate.**

In states that are signatories to SOLAS, the ISPS Code requires that the Ship Security Officer and the Port Facility Security Officer co-ordinate the implementation of their respective security plans with each other.

**50. Where appropriate, procedures have been agreed for receiving nitrogen supplied from shore, either for inerting or purging ship's tanks, or for line clearing into the ship.**

Ship and shore should agree in writing on the inert gas supply, specifying the volume required, and the flow rate in cubic metres per minute. The sequence of opening valves before beginning the operation and after completion should be agreed, so that the ship remains in control of the flow. Attention should be given to the adequacy of open vents on a tank in order to avoid the possibility of over-pressurisation.

The tank pressure should be closely monitored throughout the operation.



The ship's agreement should be sought when the terminal wishes to use compressed nitrogen (or air) as a propellant, either for pigging to clear shore lines into the ship or to press cargo out of shore containment. The ship should be informed of the pressure to be used and the possibility of receiving gas into a cargo tank.

**If the ship is fitted, or is required to be fitted, with an inert gas system (IGS) the following statements should be addressed:**

**51. The IGS is fully operational and in good working order.**

The inert gas system should be in safe working condition with particular reference to all interlocking trips and associated alarms, deck seal, non-return valve, pressure regulating control system, main deck IG line pressure indicator, individual tank IG valves (when fitted) and deck P/V breaker.

Individual tank IG valves (if fitted) should have easily identified and fully functioning open/close position indicators.

**52. Deck seals, or equivalent, are in good working order.**

It is essential that the deck seal arrangements are in a safe condition. In particular, the water supply arrangements to the seal and the proper functioning of associated alarms should be checked.

**53. Liquid levels in pressure/vacuum breakers are correct.**

Checks should be made to ensure that the liquid level in the P/V breaker complies with manufacturer's recommendations.

**54. The fixed and portable oxygen analysers have been calibrated and are working properly.**

All fixed and portable oxygen analysers should be tested and checked as required by the Company and/or manufacturer's instructions and should be operating correctly.

The in-line oxygen analyser/recorder and sufficient portable oxygen analysers should be working properly.

The calibration certificate should show that its validity is as required by the ship's SMS.

**55. All the individual tank IG valves (if fitted) are correctly set and locked.**

For both loading and discharge operations, it is normal and safe to keep all individual tank IG supply valves (if fitted) open in order to prevent inadvertent under or over-pressurisation. In this mode of operation, each tank pressure will be the same as the deck main IG pressure and thus the P/V breaker will act as a safety valve in case of excessive over or under-pressure. If individual tank IG supply valves are closed for reasons of potential vapour contamination or de-pressurisation for gauging etc, then the status of the valve should be clearly indicated to all those involved in cargo operations. Each individual tank IG valve should be fitted with a locking device under the control of a Responsible Officer.

**56. All personnel in charge of cargo operations are aware that, in the case of failure of the inert gas plant, discharge operations should cease and the terminal be advised.**

In the case of failure of the IG plant, the cargo discharge, de-ballasting and tank cleaning operations should cease and the terminal be advised.

Under no circumstances should the ship's officers allow the atmosphere in any tank to fall below atmospheric pressure.

**If the ship is planning to tank clean alongside, the following statements should be addressed:**

**57. Tank cleaning operations are planned during the ship's stay alongside the store installation.**

During the pre-transfer discussion between the Responsible Officer and Terminal Representative, it should be established whether any tank cleaning operations are planned while the ship is alongside and the check-list should be annotated accordingly.

**58. If 'yes', the procedures and approvals for tank cleaning have been agreed.**

It should be confirmed that all necessary approvals that may be required to enable tank cleaning to be undertaken alongside have been obtained from relevant authorities. The method of tank cleaning to be used should be agreed, together with the scope of the operation.

**59. Permission has been granted for gas freeing operations.**

It should be confirmed that all necessary approvals that may be required to enable gas freeing to be undertaken alongside have been obtained from the relevant authorities.

## APPENDIX C: MATERIAL SAFETY DATA SHEET

Transition SDS: Product is now manufactured by Phillips 66 Company.  
Emergency, Customer Service and Technical phone numbers have NOT changed.  
For SDS information please email SDS@P66.com or visit www.Phillips66.com.



### No. 6 Fuel Oil

#### Safety Data Sheet

#### Section 1: Identification of the substance or mixture and of the supplier

**Product Name:** No. 6 Fuel Oil  
**SDS Number:** 724140

**MARPOL Annex I Category:** Fuel and Residual Oils, including Ship's Bunkers  
**Intended Use:** Fuel

**Manufacturer:** ConocoPhillips  
600 N. Dairy Ashford  
Houston, Texas 77079-1175

**Emergency Health and Safety Number:** Chemtrec: 800-424-9300 (24 Hours)

**SDS Information:** Phone: 800-762-0942  
Email: MSDS@conocophillips.com  
URL: www.conocophillips.com

#### Section 2: Hazard(s) Identification

##### DANGER

**Combustible Liquid (H227)\***

**May cause damage to organs through prolonged or repeated exposure. (H373)\***

**May contain or release poisonous hydrogen sulfide gas**

**Harmful if inhaled. (H332)\***

**May cause cancer. (H350)\***

**Suspected of damaging fertility or the unborn child. (H361)\***

**Very toxic to aquatic life with long lasting effects. (H410)\***



##### Precautionary Statement(s):

Obtain special instructions before use. (P201)\*

Do not breathe dust/fume/gas/mist/vapours/spray. (P260)\*

Use personal protective equipment as required. (P281)\*

If exposed or concerned: Get medical advice/attention. (P308+P313)\*

Avoid release to the environment. (P273)\*

Dispose of contents/container to approved disposal facility. (P501)\*

\* (Applicable GHS hazard code.)

#### Section 3: Composition / Information on Ingredients

Component	CASRN	Concentration *
Fuel oil, no. 6	68553-00-4	100
Hydrogen Sulfide	7783-06-4	Variable (<1)
<b>Total Sulfur:</b> < 4.5 wt %		

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

#### Section 4: First Aid Measures

**Eye Contact:** If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

**Skin Contact:** Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops and persists, seek medical attention.

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**Inhalation (Breathing):** If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

**Ingestion (Swallowing):** First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

**Notes to Physician:** At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Animal studies suggest that nitrites are a useful antidote, however, documentation of the efficacy of nitrites in humans is lacking. If the diagnosis of hydrogen sulfide poisoning is confirmed and if the patient does not respond rapidly to supportive care, the use of nitrites may be an effective antidote if delivered within the first few minutes of exposure. For adults the dose is 10 mL of a 3% NaNO<sub>2</sub> solution (0.5 gm NaNO<sub>2</sub> in 15 mL water) I.V. over 2-4 minutes. The dosage should be adjusted in children or in the presence of anemia, and methemoglobin levels, arterial blood gases, and electrolytes should be monitored closely.

**Medical Conditions Aggravated by Exposure:** Conditions which may be aggravated by exposure include skin disorders, respiratory (asthma-like) disorders, blood disorders, liver disorders, immune system disorders and pregnancy.

**Other Comments:** Before attempting rescue, first responders should be alert to the possible presence of hydrogen sulfide, a poisonous gas with the smell of rotten eggs, and should consider the need for respiratory protection (see Section 8). Remove casualty to fresh air as quickly as possible. Immediately begin artificial respiration if breathing has ceased. Consider whether oxygen administration is needed. Obtain medical advice for further treatment.

## Section 5: Fire-Fighting Measures

### NFPA 704 Hazard Class

Health: 2 Flammability: 2 Instability: 0 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

**Unusual Fire & Explosion Hazards:** Combustible. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment). May create vapor/air explosion hazard if heated. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire. Hazardous combustion/decomposition products, including hydrogen sulfide, may be released by this material when exposed to heat or fire. Use caution and wear protective clothing, including respiratory protection.

**Extinguishing Media:** Dry chemical, carbon dioxide, foam, or water spray is recommended. Water or foam may cause frothing of materials heated above 212°F / 100°C. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

**Fire Fighting Instructions:** For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

**Hazardous Combustion Products:** Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Hydrogen sulfide and oxides of nitrogen and sulfur may also be formed.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

## Section 6: Accidental Release Measures



**Personal Precautions:** Combustible. Keep all sources of ignition away from spill/release. The use of explosion-proof electrical equipment is recommended. May contain or release poisonous hydrogen sulfide gas. If the presence of dangerous amounts of H<sub>2</sub>S around the spilled product is suspected, additional or special actions may be warranted, including access restrictions and use of protective equipment. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

**Environmental Precautions:** Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, or the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

**Methods for Containment and Clean-Up:** Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

## Section 7: Handling and Storage

**Precautions for safe handling:** Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Nonsparking tools should be used. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors or mists. May contain or release dangerous levels of hydrogen sulfide. Use only outdoors or in well-ventilated area. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Open container slowly to relieve any pressure. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

**Conditions for safe storage:** Keep container(s) tightly closed and properly labeled. This material may contain or release poisonous hydrogen sulfide gas. In a tank, barge, or other closed container, the vapor space above this material may accumulate hazardous concentrations of hydrogen sulfide. Check atmosphere for oxygen content, H<sub>2</sub>S, and flammability prior to entry. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

## Section 8: Exposure Controls / Personal Protection

Component	ACGIH	OSHA	Other
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Transition SDS: Product is now manufactured by Phillips 66 Company.  
Emergency, Customer Service and Technical phone numbers have NOT changed.  
For SDS information please email SDS@P66.com or visit www.Phillips66.com.  
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Fuel oil, no. 6	TWA: 0.2 mg/m <sup>3</sup> As Coal Tar Pitch Volatiles (as Benzene Solubles)  TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup> As Oil Mist, If Generated  TWA: 0.5 mg/m <sup>3</sup> (as benzene soluble aerosol)	TWA: 0.2 mg/m <sup>3</sup> as Coal Tar Pitch Volatiles as Benzene Solubles  TWA: 5 mg/m <sup>3</sup>	---
Hydrogen Sulfide	STEL: 5 ppm TWA: 1 ppm	Ceiling: 20 ppm	TWA: 5 ppm 8hr TWA: 2.5 ppm 12hr STEL: 15 ppm (ConocoPhillips Guidelines)

**Note:** State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

**Engineering controls:** If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

**Eye/Face Protection:** The use of eye protection that meets or exceeds ANSI Z.87.1 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, a face shield may be necessary.

**Skin/Hand Protection:** The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Suggested protective materials: Nitrile

**Respiratory Protection:** Where there is potential for airborne exposure to hydrogen sulfide (H<sub>2</sub>S) above exposure limits, a NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used. Under conditions where hydrogen sulfide (H<sub>2</sub>S) is NOT detected, a NIOSH certified air purifying respirator equipped with organic vapor cartridges/canisters with R or P95 filters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

## Section 9: Physical and Chemical Properties

**Note:** Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

<b>Appearance:</b>	Dark and viscous
<b>Physical Form:</b>	Liquid
<b>Odor:</b>	Petroleum
<b>Odor Threshold:</b>	No data
<b>pH:</b>	Not applicable
<b>Vapor Density (air=1):</b>	>1
<b>Initial Boiling Point/Range:</b>	>350 °F / >177 °C
<b>Melting/Freezing Point:</b>	No data
<b>Solubility in Water:</b>	Negligible
<b>Partition Coefficient (n-octanol/water) (Kow):</b>	No data
<b>Specific Gravity (water=1):</b>	0.99 @ 60°F (15.6°C)
<b>Bulk Density:</b>	8.25 lbs/gal
<b>Viscosity:</b>	205 SUS @ 122°F
<b>Evaporation Rate (nBuAc=1):</b>	No data
<b>Flash Point:</b>	151 °F / 66 °C
<b>Test Method:</b>	Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010
<b>Lower Explosive Limits (vol % in air):</b>	0.5



Upper Explosive Limits (vol % in air): 7.0  
Auto-ignition Temperature: 450 °F / 232 °C

## Section 10: Stability and Reactivity

**Stability:** Stable under normal ambient and anticipated conditions of use.

**Conditions to Avoid:** Avoid all possible sources of ignition.

**Materials to Avoid (Incompatible Materials):** Avoid contact with strong oxidizing agents and strong reducing agents.

**Hazardous Decomposition Products:** Not anticipated under normal conditions of use.

**Hazardous Polymerization:** Not known to occur.

## Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Harmful if inhaled	May contain or release poisonous hydrogen sulfide gas - see Other Comments.	4 mg/L (mist)
Skin Absorption	Unlikely to be harmful		> 2 g/kg
Ingestion (Swallowing)	Unlikely to be harmful		> 5 g/kg

**Aspiration Hazard:** Not an aspiration hazard.

**Skin Corrosion/Irritation:** Causes mild skin irritation. Repeated exposure may cause skin dryness or cracking.

**Serious Eye Damage/Irritation:** Causes mild eye irritation.

**Signs and Symptoms:** While significant vapor concentrations are not likely, exposure can cause minor respiratory irritation, headache, dizziness and nausea. Ingestion can cause irritation of the digestive tract, nausea and vomiting.

**Skin Sensitization:** Not expected to be a skin sensitizer.

**Respiratory Sensitization:** Not expected to be a respiratory sensitizer.

**Specific Target Organ Toxicity (Single Exposure):** Not expected to cause organ effects from single exposure.

**Specific Target Organ Toxicity (Repeated Exposure):** May cause damage to organs through prolonged or repeated exposure. Application of various heavy fuel oils to mouse and rat skin, five times a week for 10 - 13 weeks or by gavage at 1000 mg/kg/day for 10 weeks, resulted in treatment-related effects in the liver (necrosis), bone marrow (erythroid hypoplasia and anemia), and thymus (atrophy). Limited evidence of toxicity was seen in the lymph nodes (reactive hyperplasia), and kidney (tubular degeneration).

**Carcinogenicity:** May cause cancer. Repeated application of heavy fuel oils containing high polycyclic aromatic hydrocarbon content has been shown to cause an increased incidence of skin tumors in mice.

**Germ Cell Mutagenicity:** Inadequate information available.

**Reproductive Toxicity:** Suspected of damaging the unborn child. Repeated dermal application of various heavy fuel oils with high polycyclic aromatic hydrocarbon content fuel oils to pregnant rats demonstrated maternal toxicity, decreased fetal body weights and decreased fetal survival. Some fetal abnormalities and decreased sperm count were also observed in some of the studies.

**Other Comments:** This material may contain or liberate hydrogen sulfide, a poisonous gas with the smell of rotten eggs. The smell disappears rapidly because of olfactory fatigue so odor may not be a reliable indicator of exposure. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract, blurred vision, photophobia (sensitivity to light), and pulmonary edema (fluid accumulation in the lungs). Severe exposures can result in nausea, vomiting, muscle weakness or cramps, headache, disorientation and other signs of nervous system depression, irregular heartbeats, convulsions, respiratory failure, and death.

This material may contain varying concentrations of polycyclic aromatic hydrocarbons (PAHs) which have been known to produce a phototoxic reaction when contaminated skin is exposed to sunlight. The effect is similar in appearance to an exaggerated sunburn, and is temporary in duration if exposure is discontinued. Continued exposure to sunlight can result in more serious skin problems including pigmentation (discoloration), skin eruptions (pimples), and possible skin cancers.

## Section 12: Ecological Information

**Toxicity:** Acute aquatic toxicity studies on samples of heavy fuel oil components show acute toxicity values less than 1 mg/L. These tests were carried out on water accommodated fractions. Results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon composition. Heavy fuel oils components should be regarded as very toxic to aquatic organisms with long lasting effects. Classification: H410; Chronic Cat 1.

**Persistence and Degradability:** The hydrocarbons in this material are not readily biodegradable but are regarded as inherently biodegradable since their hydrocarbon components can be degraded by microorganisms.

**Persistence per IOPC Fund definition:** Persistent

**Bioaccumulative Potential:** Log Kow values measured for the hydrocarbon components of this material are between 2.7 and 6 and therefore would be regarded as having the potential to bioaccumulate. In practice, metabolic processes may reduce bioconcentration.

**Mobility in Soil:** Releases to water will result in films of hydrocarbons floating and spreading on the surface, although some components may be heavier than water. Dissolution in water will be limited, but losses through sediment adsorption will be significant. For the lighter components, volatilization is an important loss process and reduces the hazard to aquatic organisms. In air, the hydrocarbon vapors react readily with hydroxyl radicals with half lives of less than one day.

**Other Adverse Effects:** None anticipated.

## Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard.

## Section 14: Transport Information

### U.S. Department of Transportation (DOT)

#### Shipping Description:

*Aquatic toxicity studies indicate this material may be classified as a Marine Pollutant under IMDG Code. It is not currently regulated as a marine pollutant by the USDOT. If there is not a Shipping Description or other DOT marking, labeling, placarding and packaging references shown in this section, it is not regulated as a hazardous material by the USDOT.*

#### Non-Bulk Package Marking:

NA1993, Fuel oil, Combustible liquid, III

#### Non-Bulk Package Labeling:

None

#### Bulk Package/Placard Marking:

Combustible / 1993

#### Packaging - References:

49 CFR 173.150; 173.203; 173.241  
(Exceptions; Non-bulk; Bulk)

#### Hazardous Substance:

See Section 15 for RQ's



Transition SDS: Product is now manufactured by Phillips 66 Company.  
 Emergency, Customer Service and Technical phone numbers have NOT changed.  
 For SDS information please email SDS@P66.com or visit www.Phillips66.com.  
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Emergency Response Guide: 128  
 Note: Container(s) greater than 5 liters (liquids) or 5 kilograms (solids), shipped by water mode and ALL bulk shipments may require the shipping description to contain the "Marine Pollutant" notation [49 CFR 172.203(l)] and the container(s) to display the [Marine Pollutant Mark] [49 CFR 172.322].

The following alternate shipping description order may be used until January 1, 2013:  
 Proper Shipping name, Hazard Class or Division, (Subsidiary Hazard if any), UN or NA number, Packing Group  
 Other shipping description elements may be required for DOT compliance.

#### International Maritime Dangerous Goods (IMDG)

Shipping Description: UN3082, Environmentally hazardous substance, liquid, n.o.s., ( Petroleum distillates ), 9, Marine Pollutant  
 Non-Bulk Package Marking: Environmentally hazardous substance, liquid, n.o.s., (Petroleum distillates), UN3082, [Marine Pollutant] \*  
 Labels: Class 9  
 Placards/Marking (Bulk): Class 9 / 3082  
 Packaging - Non-Bulk: P001, LP01  
 EMS: F-A, S-F  
 Note: If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I.  
 \* Note: Marine Pollutant Mark not required if container is < 5 L or 5 kg  
 U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25.

#### International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

UN/ID #: UN3082  
 Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Petroleum distillates)  
 Hazard Class/Division: 9  
 Packing Group: III  
 Non-Bulk Package Marking: Environmentally hazardous substance, liquid, n.o.s. (Petroleum distillates), UN3082, [Environmentally Hazardous Substance Mark] (if > 5L container)  
 Labels: Class 9  
 ERG Code: 9L  
 Note: Note: Environmentally Hazardous Substance Mark not required if container is < 5 L or 5 kg  
 U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 24.

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	Y964	964	964
Max. Net Qty. Per Package:	30 kg	450 L	450 L

### Section 15: Regulatory Information

#### CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material contains the following chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372:

Component	TPQ	EPCRA RQ
Hydrogen Sulfide	500 lb	100 lb

#### CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health: Yes  
 Chronic Health: Yes  
 Fire Hazard: Yes  
 Pressure Hazard: No  
 Reactive Hazard: No

#### CERCLA/SARA - Section 313 and 40 CFR 372:

This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

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**EPA (CERCLA) Reportable Quantity (in pounds):**

EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

**California Proposition 65:**

Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Type of Toxicity
Toluene	Developmental Toxicant Female Reproductive Toxicant
Residual Fuel Oils	Skin Cancer
Benzene	Cancer Developmental Toxicant Male Reproductive Toxicant
Naphthalene	Cancer

**International Hazard Classification**

**GHS Classification**

H227 -- Flammable liquids -- Category 4  
H332 -- Acute toxicity, Inhalation -- Category 4  
H373 -- Specific target organ toxicity (repeated exposure) -- Category 2  
H350 -- Carcinogenicity -- Category 1B  
H361D -- Reproductive toxicity -- Category 2  
H410 -- Hazardous to the aquatic environment, chronic toxicity -- Category 1

**Canada:**

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

**WHMIS Hazard Class:**

B3 - Combustible Liquids  
D1B  
D2A  
D2B

**National Chemical Inventories**

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.  
All components are either on the DSL, or are exempt from DSL listing requirements

U.S. Export Control Classification Number: EAR99

**Section 16: Other Information**

Date of Issue:	08-Mar-2012
Status:	FINAL
Previous Issue Date:	21-Dec-2010
Revised Sections or Basis for Revision:	Shipping information (Section 14)
SDS Number:	724140

**Guide to Abbreviations:**

ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Transition SDS: Product is now manufactured by Phillips 66 Company.  
Emergency, Customer Service and Technical phone numbers have NOT changed.  
For SDS information please email [SDS@P66.com](mailto:SDS@P66.com) or visit [www.Phillips66.com](http://www.Phillips66.com).

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**Disclaimer of Expressed and implied Warranties:**

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## REQUIRED BOARDING ARRANGEMENTS FOR PILOT

In accordance with I.M.O. requirements and I.M.P.A. recommendations  
INTERNATIONAL MARITIME PILOTS' ASSOCIATION

H.Q.S "Wellington"; Temple Stairs, Victoria Embankment, London WC2R 2PN Tel: +44 20 7240 3973 Fax: +44 20 7240 3518



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## **APPENDIX E: CANADA SHIPPING ACT REGULATIONS FOR THE PREVENTION OF POLLUTION FROM SHIPS AND FROM DANGEROUS CHEMICALS (SOR/2007-86)**

### *Communications*

**44.** A ship and an owner or operator of a loading facility or an unloading facility engaged in a transfer operation shall, before and during the transfer operation, have the means for two-way voice communication on a continuing basis that enables the supervisor on board the ship and the supervisor at the loading facility or the unloading facility or on board the other ship

- (a) to communicate immediately as the need arises; and
- (b) to direct the immediate shutdown of the transfer operation in case of an emergency.

### *Requirements for Supervisor of Transfer Operations on Board Ships*

**48.** The owner of a ship shall ensure that a transfer operation carried out for the ship is supervised by the holder of

- (a) a certificate that meets the requirements of the Act for that type of ship.

### *Duties of Transfer Operations Supervisor on Board Ships*

**49.** The supervisor of a transfer operation on board a ship shall ensure that

- (a) the ship is secured, having regard to the weather and the tidal and current conditions, and that the mooring lines are tended so that the movement of the ship does not damage the transfer conduit or its connections;
- (b) transfer procedures are established with the concurrence of the supervisor of the transfer operation at the loading facility or the unloading facility or on board the other ship, as the case may be, with respect to
  - (i) the rates of flow and pressures for the transferred liquid,
  - (ii) the reduction of rates of flow and pressures, where required to avoid an overflow of the tanks,
  - (iii) the time required to stop the transfer operation under normal conditions,
  - (iv) the time required to shut down the transfer operation under emergency conditions, and
  - (v) the communication signals for the transfer operation, including
    - (A) stand by to start transfer,

- (B) start transfer,
- (C) slow down transfer,
- (D) stand by to stop transfer,
- (E) stop transfer,
- (F) emergency stop of transfer, and
- (G) emergency shutdown of transfer;

(c) the supervisor of the transfer operation at the loading facility or the unloading facility or on board the other ship, as the case may be, has reported readiness for the commencement of the transfer operation;

(d) the person who is on duty on the ship in respect of the transfer operation is fully conversant with the communication signals, maintains watch over the ship's tanks to ensure that they do not overflow and maintains continuous communication with that person's counterpart at the loading facility or the unloading facility or on board the other ship, as the case may be;

(e) the manifold valves and tank valves on the ship are not closed until the relevant pumps are stopped if the closing of the valves would cause dangerous over-pressurization of the pumping system;

(f) the rate of flow is reduced when topping off the tanks;

(g) the supervisor of the transfer operation at the loading facility or the unloading facility or on board the other ship is given sufficient notice of the stopping of the transfer operation to permit them to take the necessary action to reduce the rate of flow or pressure in a safe and efficient manner;

(h) the following measures are taken to prevent the discharge of oil

- (i) all cargo and bunker manifold connections that are not being used in the transfer operation are securely closed and fitted with blank flanges or other equivalent means of closure,

- (ii) all overboard discharge valves are securely closed and marked to indicate that they are not to be opened during the transfer operation, and

- (iii) all scuppers are plugged;

(i) a supply of peat moss or other absorbent material is readily available near every transfer conduit to facilitate the clean-up of any minor spillage of oil that may occur on the ship or on the shore;

(j) all transfer conduits that are used in the transfer operation are supported to prevent the conduits and their connections from being subjected to any strain that might cause damage to them or cause the conduits to become disconnected;

- (k) all reasonable precautions are taken to avoid the discharge of oil into the water;
- (l) the supervisor at the loading facility or the unloading facility or on board the other ship is competent in transfer operations; and
- (m) a sufficient number of persons are on duty at the loading facility or the unloading facility or on board the other ship during the transfer operation.

### *Emergency*

**50.** In the event of an emergency during a transfer operation, the master of a ship or the supervisor on board the ship shall take all necessary measures to rectify or minimize the effects of the emergency.

Note: The complete regulation may be found at the following link:  
<http://www.tc.gc.ca/eng/acts-regulations/acts-2001c26.htm> or at <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2007-86/>

## APPENDIX F: MOORING ARRANGEMENT

