

## **1.3 WESTRIDGE MARINE TERMINAL REGULATIONS AND OPERATIONS GUIDE**

### **PART A – OIL POLLUTION PREVENTION PLAN PART B – TERMS OF USE AND OTHER REQUIREMENTS**

Revision 5.2



**Revision Record**

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## WESTRIDGE MARINE TERMINAL CONTACT INFORMATION

Terminal Gate	Westridge Marine Terminal Trans Mountain Corporation 7065 Bayview Drive Burnaby, BC Canada V5A 4T3
Mailing Address	Trans Mountain Corporation Unit 300, 4401 Still Creek Drive. Burnaby, BC Canada V5C 6G9
Westridge Operations Control Room	Tel: 1.604.298.3612
Manager, Marine Logistics	1.604.561.2447
Manager, Burnaby and Westridge Terminal	1.604.268.3040
Trans Mountain Shipper Services (Calgary)	<a href="mailto:Customer_Logistics@transmountain.com">Customer_Logistics@transmountain.com</a>
Marine Interface Supervisor	<a href="mailto:#WestridgeMIS@transmountain.com">#WestridgeMIS@transmountain.com</a>

## TRANSPORTATION TO/FROM WESTRIDGE MARINE TERMINAL

Tymac Launch Service	604.681.8628	VHF Channel 6 VHF Channel 16 (emergency only)
Bonny's Taxi	604.435.6655	Arrangements to be confirmed
Marine and Industrial Maritime Couriers	604.985.2738 604.275.6551	Drivers carry port passes and can pick up and drop off crew members from the terminal (near the dock gate)

## EMERGENCY CONTACT INFORMATION

Contact	Telephone	Other
<b>Incident and Emergency Reporting</b>		
Regional Marine Information Centre (RMIC) pollution line	1.800.889.8852 (toll free)	VHF Channel <b>16</b> , 12 Call "Victoria Traffic"
<i>RMIC will automatically call the Provincial Emergency Program, CCG-MCTS and Environment Canada</i>		
Police, Fire or Medical	Dial 911	Inform Westridge
British Columbia Search and Rescue	1.800.567.5111 1.250.413.8933 Cell: dial #727	<a href="mailto:jrccvictoria@sarnet.dnd.ca">jrccvictoria@sarnet.dnd.ca</a>
Harbour Master, Port of Vancouver	1.604.665.9086  24-hour emergency contact	<a href="mailto:Harbour_master@portvancouver.com">Harbour_master@portvancouver.com</a>  Report all incidents in Port of Vancouver jurisdiction
Western Canada Marine Response Corporation	24-hour spill emergency response line, Vancouver area: 1.855.294.9116 (toll free)	Call immediately after informing RMIC or MCTS
Canadian Coast Guard (CCG) Marine Communication and Traffic Services (MCTS)	VTs offshore: 1.250.627.3081	Must be informed of all safety and environmental incidents within Canadian exclusive economic zone; including sightings of a marine mammal in distress
	Prince Rupert: 1.250.627.3081	
	Victoria: 1.250.363.6333	
	Comox: 1.250.339.3613	
<b>NOTE: THE ABOVE CONTACT INFORMATION MUST BE KEPT AVAILABLE ON THE VESSEL'S BRIDGE AND IN THE CARGO CONTROL ROOM WHILE IN CANADIAN WATERS</b>		

IN CASE OF AN OIL SPILL OR THREAT OF AN OIL SPILL INVOLVING A VESSEL BERTHED AT WESTRIDGE MARINE TERMINAL, TRANS MOUNTAIN SHALL ACTIVATE THE WESTRIDGE EMERGENCY RESPONSE PLAN AND ACT IN THE CAPACITY OF INCIDENT COMMANDER WITHIN AN ICS RESPONSE STRUCTURE AND LEAD THE RESPONSE UNTIL RELIEVED.

ANY SUCH ACTIONS ON THE PART OF TRANS MOUNTAIN DOES NOT REMOVE ANY LIABILITY AND RESPONSIBILITIES UNDER LAW FROM THE VESSEL, THE MASTER, OR THE VESSEL OWNER.

## OTHER CONTACT INFORMATION

Contact	Telephone	Other
<b>Pilots and Tugs</b>		
Pacific Pilotage Authority dispatch office, Vancouver	1.604.666.6776	Fax: 1.604.666.6093
Pacific Pilotage Authority dispatch office, Victoria	1.250.363.3878	Fax: 1.250.363.3293
BC Coast Pilots		To book pilot, call the PPA dispatch office
Seaspan (Tugs)	Harbour Dispatch: 1.604.990.3300  Coastal Dispatch: 1.604.984.1667	<a href="mailto:dispatch_harbour@seaspan.com">dispatch_harbour@seaspan.com</a>
SAAM Towage (Tugs)	Dispatch: 1.604.253.8881	<a href="mailto:dispatch.yvr@saamsmit.com">dispatch.yvr@saamsmit.com</a>
Group Ocean (Tugs)	Dispatch: 1.877.694.1414	<a href="mailto:repqbc@grouppocean.com">repqbc@grouppocean.com</a>
KOTUG Canada (Escort tugs)	Dispatch: 1.902.468.2341	<a href="mailto:dispatch@kotugcanada.ca">dispatch@kotugcanada.ca</a>
<b>Environmental Services</b>		
Canada Food Inspection Agency	1.800.442.2342 (toll free) 1.613.773.2342	To be informed as/if necessary, e.g., Flighted Spongy Moth Complex (previously known as Asian Gypsy Moth) infestation
BC Cetacean Sightings Network (in case of a whale strike)		<a href="http://wildwhales.org/app/">wildwhales.org/app/</a>
Marine Mammal Rescue Centre	604-258-SEAL (7325)	Upon encountering or observing a hurt marine mammal or one in distress, including seals, sea lions, sea otters, sea turtles and small cetaceans like harbour porpoises.

## 1.0 WESTRIDGE MARINE TERMINAL OVERVIEW

Figure 1: Rendering of the Westridge Marine Terminal



The terminal comprises of three Berths. Berth 1 and Berth 2 are side by side of each other sharing the common Loading Platform, and Mooring Dolphins MD1 to MD7, while Berth 3 has its own Loading Platform and Mooring Dolphins MD7 to MD12.

Feature	Description/Value
Berth details, length, and width	<p>Berth 1 and Berth 2 consist of a Loading Platform, four Berthing Dolphins each dock and six Mooring Dolphins, three at each end, constructed of reinforced concrete supported on piles.</p> <p>Access to Berthing Dolphins and Mooring Dolphins from the Loading Platform is via access catwalks.</p> <p>Loading Platform dimensions: 33 m long and 54m wide Mooring and Berthing Dolphins are all: 13m x 13m.</p> <p>Total length of each Berth end to end is 330m.</p> <p>Berth 3 consists of a Loading Platform, four Berthing Dolphins and six Mooring dolphins, three at each end constructed of reinforced concrete supported on piles. Access to Berthing Dolphins and Mooring Dolphins from the Loading Platform is via access catwalks.</p> <p>Loading Platform dimensions: 33 m long and 45 m wide Mooring and Berthing Dolphins are all: 13m x 13m.</p> <p>Total length of the berth end to end is 330m.</p>
Minimum depth alongside	<p>Minimum (controlling) depth at chart datum:</p> <p>Berth1 =15.4m</p> <p>Berth2 = 16.4m and;</p> <p>Berth3 = is 19.2m.</p>



Feature	Description/Value
Maximum vessel draft while at berth	<p>The maximum draft alongside each berth is based on the controlling depth plus height of tide with 5% static UKC and if the vessel is arriving departing 10% UKC is applicable.</p> <p>However, the draft of departing vessels must meet all current VFPA rules for TCZ2 Transit Window, which restricts maximum draft of transit through the TCZ2 at 13.5m.</p>
Maximum draft (within the Traffic Control Zone)	13.5 m even keel; subject to other Second Narrows TZC2 (Traffic Control Zone 2) rule restrictions.
Maximum vessel length overall	Aframax - About 250 m (+/- 10 m) subject to any applicable VFPA permission required for vessels over 250 m in length.
Maximum vessel beam	Aframax - 45 m
Maximum vessel deadweight	Aframax (about 120,000 M/T)
Maximum vessel displacement	Fully loaded Aframax (about 150,000 M/T)
Utility Dock	64 m long with total moorage of 128 m and 6.5 m available depth of water at chart datum.
Salinity	Average dock water density is 1.017 g/cm <sup>3</sup> subject to tides.
Geodetic datum	3.1m above CD (Chart Datum)
Mooring equipment	<p>Total of 27 mooring hooks per individual berth. Mooring Dolphins (MD) and Berthing Dolphins (BD) are equipped with sets of Trelleborg double, triple, or quadruple Quick Release Mooring Hooks (QRMH), each set has one electrically powered capstan drive unit for hauling in the vessel's mooring lines. The capstan's capacity is 3 tonnes and speed of 25-30 meters per minute.</p> <p>QRMH fitted on Mooring Dolphins are designed for safe working load of 100 metric tonnes each and QRMH fitted on Berthing Dolphins are designed for safe working load of 80 metric tonnes each. Each hook can accommodate two mooring lines each of up to 100 mm in diameter.</p> <p>Placing of more than one mooring line on a single hook is discouraged.</p>
Berthing Fenders	<p>Each Berthing Dolphin is outfitted with Trelleborg face fenders for a total of four fenders per each dock with total distance of 98.9 m between extremities of outer fenders. Each fender has an area of 61 m<sup>2</sup> for a total area of 244 m<sup>2</sup>.</p> <p>All 12 fender panels have two vertical pipe tie-up rails on their outer edges for accepting barge mooring lines designed to accommodate a safe working load of 50 tonnes.</p>

Feature	Description/Value
Mooring Equipment Monitoring and Remote Release System	<p>Each Quick-Release Mooring Hook (QRMH) is equipped with a load monitoring cell and the actual loads are displayed on the Central Load Monitoring System at the Westridge Control Centre.</p> <p>In addition to manual release of individual QRMH, an electronic remote release system is provided. The system allows QRMHs to be released individually as well as simultaneously from a remote console located in the Westridge Marine Terminal Control Centre.</p> <p>Marine Interface Supervisors attending vessels throughout their stay at Berth will also have portable electronic display for overview of QRMH Load Monitoring System, however no electronic remote release system is provided on portable electronic display.</p>
Docking Aid System	<p>Each Berth is fitted with Docking Aid System (DAS) that provides information on a vessel's approach over the last 200 meters until the contact is made with the jetty and the vessel comes to rest against fenders including vessel track the speed, distance, and angle of approach.</p> <p>Once safely moored alongside, the system is switched to "Drift Mode", in order to monitor the position of the vessel in terms of transverse drift from the fender face or as compression on the fenders.</p>
Containment boom	<p>Each Berth has a section (approximately 330 meters in length) of permanently fitted floating oil spill containment boom running along the Mooring Dolphins, Berthing Dolphins and under the Loading Dock terminating in a staging float at each end. Upon berthing, each vessel is then encircled with an "operational" oil spill containment boom with three anchor points and each end attached to the two staging floats for a full encirclement of the vessel.</p> <p>Boom Draft/free board: 0.56 m / 0.36 m</p> <p>Weight: 14.1 kg/m</p>
Berth crane	<p>There is no permanently fitted crane on any of the docks. On a case-by-case basis and without interfering with dock operations it may be possible for limited use of a vessel's midship crane to lift essential stores/equipment from the loading dock. Agreement has to be reached with the Terminal for this purpose and the Marine Interface Supervisor would supervise the operation.</p>
Marine Loading Arms	<p>Each berth is provided with two 405mm (16") Emco Wheaton articulated Marine Loading Arms (MLA) equipped with Hydraulic QCDC (Quick Connect Disconnect Coupler) and 405mm (16") ASME 150 ANSI flanges.</p> <p>Berth 1 is also provided with one 203mm (08") flexible Marine Master composite hose rated at 250PSI for Jet Fuel transfer. Jet Fuel hose is not fitted with QCDC but a bolted flange connection to the ship's manifold is used.</p>
Vapour Return Arm	<p>Each berth is provided with one 300mm (12") Emco Wheaton articulated Marine Loading Arm (MLA) for Vapour return equipped with Hydraulic QCDC and 300mm (12") ASME 150 ANSI flanges.</p>

## 2.0 INTRODUCTION

### 2.1 Scope

2.1.1 The Westridge Marine Terminal (WMT) is a designated Class 4 Oil Handling Facility (OHF) under the Canada Shipping Act 2001 (CSA 2001).

2.1.2 CSA 2001 requires the Terminal operator to submit to Transport Canada an Oil Pollution Prevention Plan and an Oil Pollution Emergency Plan review for approval, and to resubmit up-to-date plans when any plans are amended. CSA 2001 also stipulates that the Facility shall not begin operations relating to the loading or unloading of oil to or from vessels unless the submitted plans meet the requirements set out in the regulations.

2.1.3 To avoid endangering the Terminal, Terminal operations, the environment, or the health or safety of individuals all vessels calling at the facility are responsible to exercise good navigation and seamanship, comply with all applicable laws, follow Trans Mountain's policies and requirements, and apply standard industry practices, including oil pollution prevention practices.

2.1.4 The objectives of the Westridge Marine Terminal Regulations and Operations Guide are twofold:

2.1.5 **PART A** – As an approved Oil Pollution Prevention Plan (WMT OPPP), it is designed to help the OHF prevent discharges into the marine environment when loading and unloading oil to or from a vessel.

2.1.6 **PART B** – Provide additional information in support of the WMT OPPP as well as assist calling vessels prepare for arrival and undertake a safe and smooth turnaround at the marine terminal, always complying with local and terminal rules and regulations.

2.1.7 The Westridge Marine Terminal Oil Pollution Prevention Plan (OPPP) has been reviewed and accepted by Transport Canada.

2.1.8 The information in this guide does not affect or diminish the responsibility of a vessel's Master, owner, or operator to ensure the safety of vessel, crew, cargo, or environment, including implementing all oil pollution prevention measures required by international or national maritime regulations.

### 2.2 Regulatory Jurisdiction

2.2.1 As part of the Trans Mountain pipeline system, the Westridge Marine Terminal falls within the jurisdiction of The Canadian Energy Regulator Onshore Pipeline Regulations.

2.2.2 The moving, mooring, securing, and unmooring of all vessels is governed by rules and regulations of Transport Canada, the Vancouver Fraser Port Authority (i.e., Port of Vancouver), the Pacific Pilotage Authority and the Canadian Coast Guard.

2.2.3 Oil transfers to or from a marine Oil Handling Facility and vessel are regulated under the CSA 2001 and regulated by Transport Canada. Trans Mountain must follow measures stipulated by the Minister, when the Minister considers it necessary to direct the operator of the Oil Handling Facility to repair, remedy, minimize or prevent pollution damage from the Oil Handling Facility, including to stop loading or unloading oil to or from vessels.

## 2.3 Definitions

2.3.1 “Acceptable Classification Society” (or “Class”) means a non-governmental organization that is a member of the International Association of Classification Societies and recognized by the Flag State of a Vessel, which certifies that a Vessel complies with certain standards and specifications, and which ensures ongoing compliance with such standards and specifications.

2.3.2 “Applicable Laws” means (i) any domestic or foreign statute, treaty, code, ordinance, rule, regulation, restriction, or bylaw; (ii) any judgment, order, writ, injunction, decision, ruling, decree, or award; (iii) any regulatory policy, practice, request, guideline, or directive; or (iv) any applicable regulatory approval, permit, license, directive, or authorization; of any Governmental Authority, or any rule or requirement of any applicable Acceptable Vessel Classification Society.

2.3.3 “Company Policies” means those policies and procedures adopted by Trans Mountain, including Trans Mountain’s Environment, Health and Safety Policy, those that assist Trans Mountain meet Project Conditions, and applicable to Shippers at Westridge Terminal, namely, the Vessel Acceptance Standard, the Trans Mountain ULC Petroleum Tariff Rules and Regulations Governing the Transportation of Petroleum, the Westridge Marine Terminal Oil Pollution Prevention Plan, the Westridge Marine Terminal Regulations and Operations Guide the Westridge Marine Terminal Emergency Response Plan, and Trans Mountain’s Marine Mammal Protection Program (these documents are available online at [www.Transmountain.com](http://www.Transmountain.com))

2.3.4 “Governmental Authority” means the Government of Canada or any other nation or any of its political subdivisions, whether provincial, state, or local, and any agency, authority, instrumentality, regulatory body, court, central bank, or other entity exercising executive, legislative, judicial, taxing, regulatory, or administrative powers or functions of or pertaining to government, including any supra-national bodies, including: any maritime and other applicable authorities of the country of the Vessel’s Flag State or registry, including Transport Canada; (ii) the Coast Guard of Canada; (iii) the International Maritime Organization; and (iv) any other maritime, port, terminal or other applicable authority having jurisdiction over terminal services to be provided by Trans Mountain.

2.3.5 “Gross Standard Volume” (“GSV”) means the total volume of all Petroleum liquids and sediment and water, excluding free water, corrected to a standard temperature of 15°C.

2.3.6 “Marine Spill Response Services” means marine spill response services, including supply of equipment, personnel, and operational management, for the containment, recovery, and clean-up (including preventative measures) of any oil spilled on or into waters or spilled on waters through any means in connection with a ship-source oil spill including the loading or unloading of ships.

2.3.7 “Oil Company International Marine Forum” (or “OCIMF”) means the voluntary association of oil companies with an interest in the safe shipment and terminalling of crude oil, oil products, petrochemicals, and gas.

2.3.8 “Oil Handling Facility” (an “OHF”) means a marine facility that undertakes the transfer of Petroleum and is required to operate in accordance with Transport Canada’s Oil Handling Facilities Standards.

2.3.9 "Petroleum" means Crude Petroleum, Refined Petroleum and any other Petroleum product approved for transportation.

2.3.10 "Standard Industry Practice for Vessels" means the exercise of that degree of skill, diligence and prudence which would reasonably and ordinarily be expected from a skilled and experienced Master or operator engaged in the operation of a vessel, which includes the application of good seamanship and adherence to recommendations of the OCIMF such as those contained in the International Safety Guide for Oil Tankers and Terminals (ISGOTT).

2.3.11 "Vessel" means a seagoing ship or barge capable of transporting Petroleum and intending to conduct the transfer of Petroleum products at Westridge Terminal. "

2.3.12 "Vessel Acceptance Standard" (the "Standard") means the Trans Mountain documents that sets out the criteria and requirements that must be met by any Vessel planning to conduct the transfer of Petroleum products at Westridge Terminal. The Standard applies to all Vessels intending to call on Westridge Marine Terminal to transfer Petroleum products, including (without limitation) tankers, ocean-going barges, and articulated tug-barges ("ATBs").

2.3.13 "Response Organization" (the "RO") means the organization certified by Transport Canada as capable of conducting oil spill response in accordance with Response Organizations Standards set out by Transport Canada as required under the Canada Shipping Act.

2.3.14 "Westridge Marine Terminal" ("WMT," "Westridge," or the "Terminal") means the OHF operated by Trans Mountain within the jurisdiction of the Vancouver Fraser Port Authority in compliance with all Applicable Laws, Project Conditions, Company Policies, and recognized standard industry practices.

2.3.15 "WCMRC" means the Western Canada Marine Response Corporation, which is a certified RO and capable of providing Marine Spill Response Services.

## 2.4 General Requirements

2.4.1 All Vessels must meet Applicable Laws, Company Policies, and be operated as per Standard Industry Practice for Vessels. Trans Mountain reserves the right to reject any Vessel that does not meet all the criteria and requirements of the Vessel Acceptance Standard.

2.4.2 In addition Trans Mountain may deny berth access to any vessel, suspend operations and demand the removal of any vessel from WMT, or at its sole discretion, withdraw or restrict the Vessel's transfer privileges because of any breach of, default under the Standard, or the vessel due to a Deficiency or other Vessel-related issue, that in the reasonable belief of Trans Mountain, would endanger the Terminal, Terminal operations, the environment, or the health or safety of individuals, or has potential to adversely affect the operational efficiency or capability of the Terminal.

2.4.3 Berthing and transfer operations shall cease immediately, when, in the reasonable opinion of Trans Mountain, weather conditions impair or may impair the safe conduct of operations.

## 2.5 Use of Personal Protection Equipment (PPE)

2.5.1 Workers in the WMT must use appropriate PPE for head, face and eyes, hearing protection (where exposure to loud noises is expected), hand and foot protection, and wear flame-resistant clothing (FRC) if required. Portable personal gas monitors that detect hydrogen sulfide (H<sub>2</sub>S) or other gases should be worn by Trans Mountain employees on the deck of a vessel during oil transfer operations and when working in enclosed or confined spaces of the vessel. Vessel crew operating on the deck of a vessel should use appropriate PPE and the use of Portable personal gas monitors is encouraged.

2.5.2 Visitors to the terminal must, as a minimum, wear clothing that cover their arms and legs, covered shoes with no exposed toes, head and eye protection. Donning of high visibility jacket or vest is highly recommended.

## 2.6 Detained Vessel

2.6.1 A vessel whose movements have been restricted by order of an official under the Canada Shipping Act shall not be moved without permission of Transport Canada. Contravention is deemed an offence and liable to a substantial penalty.

## 2.7 Response Readiness

2.7.1 The Canada Shipping Act requires every vessel to have an arrangement with a Response Organization in respect of a quantity of oil that is at least equal to the total amount of oil that the vessel carries, both as cargo and as fuel, to a prescribed maximum quantity, and have on board a declaration identifying the name and address of the vessel's insurer or, in the case of a subscription policy, the name and address of the lead insurer who provides pollution insurance coverage in respect of the vessel.

2.7.2 This requirement would be met by confirmation of the vessel having been entered as a member to the Western Canada Marine Response Organization (WCMRC) with the vessel's Master being authorized to initiate WCMRC service in case of an oil spill from the vessel.

2.7.3 With respect to the WMT, Trans Mountain ensures response planning and readiness in accordance with the Westridge Marine Terminal Emergency Response Plan as part of which has an Oil Handling Facility Membership Agreement with WCMRC to provide Marine Spill Response Services

2.7.4 Trans Mountain shall submit written report to the Minister describing any exercises as part of the oil pollution incident exercise program.

## 2.8 Updates and Revisions

2.8.1 This document is reviewed at least once each year and changes are subject to a formal review and approval process. Updates to the OPPP are provided to Transport Canada as and when changes have been made.

2.8.2 In addition, the OPPP will be reviewed and updated in case of the following:

- 2.8.2.1 Any change in the Applicable Law or in environmental factors that could affect the loading or unloading of oil to or from a vessel.
  - 2.8.2.2 Any change in personnel involved in the loading or unloading of oil to or from a vessel.
  - 2.8.2.3 The identification of a gap in either of the plans after an oil pollution incident or exercise; and Any change in the business practices, policies or operational procedures of the facility that could affect the loading or unloading of oil to or from a vessel.
- 2.8.3 Trans Mountain must notify the Minister of any of the following changes:
- 2.8.3.1 A change in the Oil Handling Facility's transfer rate, if the change would result in the Oil Handling Facility becoming part of a different class established by the regulations.
  - 2.8.3.2 A change in the design of the Oil Handling Facility, or a change in the Oil Handling Facility's equipment or a change in the type or composition of oil that is loaded or unloaded to or from vessels.
- 2.8.4 No operations relating to the loading or unloading of oil to or from vessels shall be carried out unless the plans submitted meet the requirements set out in the regulations.
- 2.8.5 At least 90 days prior to the coming in service of the Trans Mountain Expansion Project the following documents must be updated and submitted to Transport Canada (acting on behalf of the Minister).
- 2.8.5.1 Westridge Marine Terminal Oil Pollution Prevention Plan (OPPP).
  - 2.8.5.2 Westridge Marine Terminal Emergency Response Plans, including oil pollution response plans.

## **PART A – OIL POLLUTION PREVENTION PLAN**

### **3.0 PURPOSE**

- 3.1 The contents of this section of the document serves to satisfy the requirements of an Oil Pollution Prevention Plan (OPPP) as mandated by Transport Canada
- 3.2 This OPPP evaluates the risk of oil spill at the Westridge Marine Terminal and identifies specific measures for reducing or eliminating these risks during oil transfers carried out across the Westridge dock. It is closely aligned and is a precursor to the Westridge Marine Terminal Emergency Response Plan.
- 3.3 The plan is maintained and updated based on new developments at the terminal, updates in technology and lessons learned from actual spill events. It is reviewed at least once each year and changes are subject to a formal review and approval process. Updates to the OPPP are provided to Transport Canada as and when changes have been made.
- 3.4 Information found in the plan is based upon international and local requirements, procedures, best practices, and guidance found in:
  - 3.4.1 Applicable Transport Canada standards and regulations.
  - 3.4.2 International Safety Guide for Oil Tanker and Terminals (ISGOTT).
  - 3.4.3 Port of Vancouver Port Information Guide; Westridge Marine Terminal Procedures (Trans Mountain internal documents); and Trans Mountain's Emergency Response Plan (ERP) for Westridge Marine Terminal (Trans Mountain – Westridge ERP).



## 4.0 ENVIRONMENTAL POLICY

- 4.1 Trans Mountain is committed to operating the Westridge Marine Terminal in accordance with all relevant and applicable rules and regulations and in keeping with international recognized industry best practices such as those recommended by the Oil Companies International Marine Forum (OCIMF). Safety and respect for and protection of the environment are fundamental objectives of the Marine Terminal Operations Management Program (Marine Program).
- 4.2 Operating in accordance with the Marine Program will ensure:
  - 4.2.1 Operations are planned and carried out in a manner that considers all known hazards with appropriate knowledge of current and potential risks including the nature, scale, and impacts, including environmental impacts, of such activities.
  - 4.2.2 Vessels that call at the WMT are reviewed in advance to confirm each vessel's adherence with terminal requirements and while at the Terminal are monitored to confirm that vessel operations are carried out safely and efficiently.

## 5.0 DUTY TO REPORT

- 5.1 Trans Mountain is committed to operating the Westridge Marine Terminal in accordance with all relevant and applicable rules and regulations and in keeping with international recognized industry best practices such as those recommended by the Oil Companies International Marine Forum (OCIMF). Safety and respect for and protection of the environment are fundamental objectives of the Marine Terminal Operations Management Program (Marine Program).
  - 5.1.1 Any Trans Mountain employee who identifies an imminent hazard that is, in their best judgment, likely to result in personnel injury, a product release event or damage to property, or that presents immediate danger to the public, is required to report it immediately to the Marine Interface Supervisor, Westridge Terminal Supervisor or a person designated by them.
- 5.2 The Marine Interface Supervisor, Westridge Terminal Supervisor or the person designated by them have the authority to immediately cease product transfer if, in their best judgment, personnel injury, a product release event, damage to property or immediate danger to the public is likely.
- 5.3 The Marine Interface Supervisor, Westridge Terminal Supervisor or a person designated by them is obliged to notify the applicable authorities of a vessel breach of compliance.
- 5.4 An individual who has reasonable grounds to believe that there has been a contravention of the requirements under the WMT OPPP may notify the appropriate authority of the matter and may request that their identity be kept confidential with respect to the notification.

## 6.0 RISK MANAGEMENT

- 6.1 As part of Company Policies Trans Mountain has identified the hazards associated with the transfer of oil to or from a vessel, assessed the risks with those hazards and has incorporated the measures that will be taken to prevent an incident from happening within its procedures.
- 6.2 Accidental release of Petroleum product during its transfer may potentially result from certain vessel-related conditions and for this purpose Trans Mountain and its agents and contractors will endeavour to ensure through close interaction with vessel staff and by carefully monitoring the oil transfer that vessels using WMT neither suffer nor cause damage at any time.
- 6.3 Examples of potential vessel-related conditions may include:
  - 6.3.1 Collision of a vessel with a berth due to mechanical failure onboard the vessel.
  - 6.3.2 Collision or grounding of a vessel due to navigation failure.
  - 6.3.3 Leakages onboard a vessel due to transfer from a piping defect, including piping that is improperly connected or punctured, valve malfunction, etc.
  - 6.3.4 Human error.
  - 6.3.5 Influence of environmental conditions (weather, water currents, etc.) on the vessel's operation; and failure to exercise good seamanship, for example, poorly moored or mooring left unattended for a long period of time allowing the vessel to move while alongside.
- 6.4 Examples of actions taken by the Terminal to prevent spills during an oil transfer operation include:
  - 6.4.1 Ensuring the OHF's design capability, condition and water depth can handle the size of vessels transferring the product at the facility.
  - 6.4.2 Diligent application of the Standard and, when required to do so, exercising the Terminal's right to reject any Vessel that does not meet all the criteria and requirements of the Standard.
  - 6.4.3 Assignment of suitably trained personnel by the terminal, including a Marine Interface Supervisor and an adequate number of Operators, to undertake the necessary activities.
  - 6.4.4 Overseeing or closely observing all vessel berthing and unberthing.
  - 6.4.5 Overseeing or closely observing vessel mooring and maintaining moor.
  - 6.4.6 Managing general oil cargo vessel hazards while vessels are alongside.
  - 6.4.7 Developing a joint, mutually acceptable (between vessel and OHF) plan for oil transfer.
  - 6.4.8 Implementing the oil transfer plan.
  - 6.4.9 Monitoring the execution of the oil transfer is in accordance with the plan.
  - 6.4.10 Suspending or completing the oil transfer.
  - 6.4.11 Making a temporary or permanent change in the facility's design, equipment, or operating procedures and describing the general operation of equipment.

- 6.5 Should a spill occur, the OPPP requires the Terminal to immediately conduct an initial assessment of the incident and activate the Westridge Marine Terminal Emergency Response Plan and carryout appropriate actions to limit the consequences and prevent further escalation of the situation.

## 7.0 WESTRIDGE MARINE TERMINAL DESCRIPTION

### 7.1 Location

7.1.1 The WMT Oil Handling Facility consists of three berths, one utility dock and foreshore situated on the southern shoreline of Burrard Inlet, to the east of Second Narrows, within the inner harbour of the Port of Vancouver in the City of Burnaby.

7.1.2 Vessels transiting to and from WMT must navigate the Burrard Inlet. For details, refer to relevant Government of Canada marine information sources, including the Canadian Hydrographic Service (CHS) Chart No. 3495 Vancouver Harbour Eastern Portion.

7.1.3 Immediately west of WMT is Second Narrows, a naturally formed narrows spanned by two bridges:

- Ironworkers' Memorial Second Narrows Crossing (a highway bridge).
- CN Rail Bridge (a mechanical lift bridge with a central section that must be raised for most vessels to pass).

7.1.4 WMT also serves as the entry point and storage facility for jet fuel usually supplying the Vancouver International Airport (YVR) and other clients.

### 7.2 Local Time

7.2.1 The Port of Vancouver is in the Pacific Standard Time Zone, which is eight hours behind Greenwich Mean Time (GMT) (UTC - 8).

7.2.2 During the period from the second Sunday in March to the first Sunday in November, clocks are advanced one hour (UTC - 7).

### 7.3 Petroleum Pipeline System

7.3.1 WMT forms the marine oil handling terminus of the Trans Mountain Pipeline ULC pipeline system that transports oil from Alberta via the Trans Mountain Burnaby Terminal. Specifications for the pipe and components used in the pipeline is included to a quality assurance program referred to in section 14 of The Canadian Energy Regulator Onshore Pipeline Regulations.

7.3.2 The Burnaby Terminal stages cargo oil in several breakout storage tanks for subsequent loading onto Vessels at WMT.

### 7.4 Jet Fuel Pipeline

7.4.1 The Jet Fuel pipeline connecting Berth 1 to WMT storage tanks is 203 mm (8" in) and approximately 300 m long.

7.4.2 Received Jet fuel is stored in tanks located at Westridge and then transported via a third-party operated pipeline from the WMT storage tanks to YVR storage tanks. This pipeline is 150 mm (6 in) in diameter and approximately 41 km long.

### 7.5 Westridge Marine Facility

7.5.1 The Westridge Marine Terminal is connected by three buried Westridge Petroleum pipelines connect the Burnaby Terminal with WMT Berths 1, 2 & 3. Each pipeline is of 760mm (30") in diameter and approximately 4.1 km long to the dock face.

- 7.5.2 All three tanker berths, each capable of loading crude oil to vessels.
- 7.5.3 One of the three berths is also equipped to handle refined Petroleum (e.g., Jet fuel). There are three tanks available for storage of offloaded refined Petroleum.
- 7.5.4 The Terminal handles Petroleum meeting Trans Mountain's Commodity Approval Process, which is based upon range of product density, viscosity and vapour pressure as tabulated below: foreshore has various equipment and controls for transferring crude oil and jet fuel, including oil metering and sampling, Vapour Recovery Units, Vapour Combustion Unit, Propane tank, Nitrogen tank and other ancillary equipment.
- 7.5.5 Appropriate aids to navigation (ATON) mark the facility's marine docks for the safety of navigation in the area.
- 7.5.6 The entire Terminal water lot is enclosed within a floating safety boom with perimeter of approximately 1.8 kilometer. Four gates are provided, a single gate each for entry and exit of vessels to Berth 1 and Berth 2, and two separate gates for entry and exit to Berth 3. (Appendix D)
- 7.5.7 Berths at WMT are not subject to the effects of siltation. However, the Vancouver Fraser Port Authority conducts depth assessments regularly (typically once every three years) to reassess the available depth of water. Controlling depth of water information is available from the Pacific Pilotage Authority website: <https://www.ppa.gc.ca/Controlling%20Depths>
- 7.5.7.1 Available depth alongside Berth 1 and berth 2 is 18.0m and alongside Berth 3 is 19m at Chart Datum. This depth of water is sufficient for berthed vessels to reach drafts of 15.1 meters (maintaining 5% UKC) at all stages of tide.
- 7.5.7.2 An under-keel clearance (UKC) of 10% of vessel's static draft is necessary during transit to and from the berth.
- 7.5.8 The Terminal handles Petroleum meeting Trans Mountain's Commodity Approval Process, which is based upon range of product density, viscosity and vapour pressure as tabulated below:

Item	Unit of Measure	Value Range
Density	kg/m <sup>3</sup> @ 15°C	600 - 940
Kinematic Viscosity	cSt	0.4 - 350
Vapour Pressure	kPa @ 37.8°C	≤103
Hydrogen Sulphide	ppmw	≤425
Receipt Point Temperature	°C	≤38

*Note: Reference temperature for the viscosity is published on the Trans Mountain website at <https://docs.transmountain.com/TM-Reference-Temperature.pdf>*

7.6 Critical OHF equipment consists of:

- 7.6.1 The trestle and loading platforms fitted with the necessary piping, storage and control systems that regulate the direction and flow of the oil being transferred.

7.6.2 The Berthing Dolphins and Mooring Dolphins with QMRH (Quick Release Mooring Hooks); More information on the mooring arrangement for tankers and barges is provided in Appendix B.

7.6.3 Oil transfer equipment including oil transfer conduits such as loading arms and associated process equipment, including means to shutdown transfer operations in case of an emergency; The cargo handling equipment consists of marine loading arms for oil and vapour recovery and supplemental process equipment, including vapour recovery process equipment and hydraulic control stations.

7.6.4 Vapour handling system including the associated vapour recovery units and vapour combustion unit, piping, and process controls.

7.6.5 The shore gangway - Ship to shore access is provided via a gangway tower at each Loading Platform, which has a hydraulically operated gangway system that can automatically adjust the height of the gangway to accommodate vessel's vertical movement due to tidal difference and vessel loading condition. The gangway tower also includes an integrated remote-controlled water/foam fire monitor. Additional fire monitors are included as part of the topsides design, providing a minimum of three fire monitors per berth.

7.6.6 Lighting of the dock and working areas; means of two-way communication, and the Operational oil spill boom which is pre-deployed prior to every oil transfer.

7.6.7 The emergency oil spill boom and means to deploy the boom within the time allocated under applicable regulation.

## **8.0 SAFE OPERATIONS**

8.1 Safe berthing and mooring provisions are satisfied through appropriate design of the berth layout and navigation approaches, including provision for:

8.1.1 Vessel docking assistance display systems.

8.1.2 Appropriate berthing and mooring dolphins outfitted with QRMH (Quick Release Mooring Hooks).

8.1.3 Robust fendering system, and Integrated mooring load monitoring equipment.

- 8.2 The use of pilots and tugs in accordance with Port of Vancouver rules is mandatory.
- 8.3 Safe Petroleum transfer operations are ensured via the provision of suitable cargo marine loading (transfer) arms and other process equipment located on the central loading platform of each berth.
- 8.4 All equipment and controls are checked, surveyed, and maintained in accordance with the equipment manufacturer's requirements and Trans Mountain's Operations and Maintenance Program, and maintenance management system, which holds records of maintenance work orders and completion details.
- 8.5 Each Loading Platform, which accommodates the necessary cargo handling equipment and associated piping and ancillary facilities, is protected within a containment area designed to contain operational spills.
- 8.6 The loading platform decks are accessible by vehicles with maximum weight of 35 tonnes. Foot or small ATVs (All Terrain Vehicles) traffic is typical, larger vehicles may be used during maintenance.
- 8.7 Providing stores to vessels at Westridge Marine Terminal is difficult and not recommended except in extenuating circumstances for which prior permission must be obtained.
- 8.8 The oil transfer conduits consist of transfer pipeline and marine loading arms. Conduits that are used in the transfer operation must be 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. Conduits are:
  - 8.8.1 Inspected prior to each use.
  - 8.8.2 Tested annually under hydrostatic test pressure equal to one and one-half times their respective maximum design pressure.
  - 8.8.3 Clearly marked with their maximum working pressures.
- 8.9 Dock lighting is provided by fixed lighting that together exceeds the minimum lighting intensity requirements per Section 34 of the Vessel Pollutions and Dangerous Chemicals Regulations, i.e.:
  - 8.9.1 54 lx at each transfer connection point of the facility, and 11 lx at each transfer operation work area around each transfer connection point of the facility.



- 8.10 The lighting system is checked visually during use and any observed deficiencies including any failed or broken bulbs and fixtures are replaced using appropriate replacement parts, which ensures the continued availability of the required lighting intensity. Additionally, if there is any fading observed of the fixed lighting, the lighting intensity is checked using a Lux Meter (Luminaire output) and necessary maintenance carried out to restore the lighting intensity to above minimum requirements.
- 8.11 Each mooring dolphin is provided with adequate lights for safety of navigation purposes.
- 8.12 Two-way communication between vessel and terminal can be maintained by fixed and portable VHF radios in the Terminal Control Centre, in the vessel's cargo control room, vessel bridge and with the Marine Interface Supervisor. Additional emergency sound signals are possible using the vessel's horn and alarms situated on the dock.
- 8.13 The supplier of the Petroleum is required to provide a Safety Data Sheet (SDS) or Cargo Information Card on request. The Terminal provides each loading vessel with SDS specific to the Petroleum and vessels discharging cargo should provide an SDS to the Terminal if requested.

## **9.0 OPERATIONAL CONTROLS**

9.1 WMT exercises operational controls by implementation of procedures that assist in preventing oil spill during operations, namely:

9.1.1 Pre-screening of vessels in accordance with the Trans Mountain Vessel Acceptance Standard and Procedures.

9.1.2 Assigning a Marine Interface Supervisor to every vessel that will undertake oil transfer at WMT. Amongst other duties, the Marine Interface Supervisor helps ensure communications between WMT and the vessel are always maintained, including backup means to ensure effective two- way communication is maintained.

9.1.3 Maintaining the vessel securely moored alongside is a shared responsibility between the vessel and WMT where applicable, e.g.

9.1.4 Provision of appropriate mooring equipment that a Vessel can secure to, the design of which has taken into consideration the likely environmental conditions to be encountered, such as the weather and the tidal and current conditions.

9.1.5 Ensuring alarm set points are appropriately set for the deployed QRMHs, marine loading arms and the gangway. Alarm set points are continuously monitored and displayed in the Terminal Control Centre and on Marine Interface Supervisor's portable display.

9.1.6 Ensuring rounds to confirm that Vessel mooring lines are tended so that the movement of the vessel does not damage the product transfer arms or their connections.

9.1.7 Transferring oil in bulk to or from a vessel will always be preceded by completion of a pre-transfer conference and completion of a Ship/Shore Safety Checklist (Checklist). Completion of the Checklist requires agreement on oil flow rate during starting of the transfer, the maximum oil flow during the transfer as well as reducing the flow of oil prior to planned completion of the transfer.

9.1.8 Procedures for contingencies during oil transfer, including emergency shutdown procedures have been developed and WMT operating staff are familiar with, and have been trained on, such procedures.

## **10.0 ENVIRONMENTAL CONTROLS**

10.1 Vessel Pre-Booming

10.1.1 Every vessel transferring Petroleum at WMT is pre-boomed whereby, throughout the period of cargo transfer, the vessel is surrounded by a floating spill containment boom to protect against any potential spill spreading to the rest of the harbour.

10.2 Vessel Discharges

10.2.1 Port of Vancouver regulations control the discharge of bilge and ballast for all vessels operating within the port. Port authorities periodically test ballast water to ensure any discharges during port stay will not contaminate the local environment.

10.2.2 Masters are responsible under the Vessel Acceptance Standard to ensure the vessel's bilge overboard discharge valve is shut and kept locked (with lock and key) during the entire time the vessel is within Canada's Exclusive Economic Zone (EEZ).

10.2.3 The Marine Interface Supervisor and WMT operations personnel will note any discharges that do not appear to meet regulations and are required to notify the appropriate authorities.

### 10.3 Scuppers and Drains

10.3.1 Before any transfer of cargo, ballast, slops or bunkers, deck scuppers and drain holes in save-alls and drip trays must be plugged. Accumulated water may be drained off (provided it is clean) as required and scupper plugs replaced immediately after the water has been run off.

10.3.2 Oily water should be transferred to a slop tank or other suitable containment using a portable pump rigged for this purpose. Air-operated pumps such as Wilden pumps must be securely grounded to the vessel's structure to prevent generation of electrostatic charges.

### 10.4 Discharge Containment/Drip Pans

10.4.1 Metal drip pans, manifold drip trays and other containment must be kept empty while alongside. Plugs and valves must be properly secured.

10.4.2 Ensure a supply of absorbent material is readily available near every transfer conduit to facilitate the cleanup of any minor spillage of oil that may occur on the vessel or on the shore.

### 10.5 Vapour Management

10.5.1 Volatile organic compound gases collected during crude oil loading will be processed using vapour recovery units or combusted. Any recovered oil is re-injected to the product loading line. The use of vapour recovery units is preferred, however the combustion unit, if used, is capable to safely combust and manage vapours generated during vessel loading.

### 10.6 Emergency Oil Spill Boom

10.6.1 Each berth is provided with a secondary floating emergency oil spill boom that is kept ready for deployment in case of an oil spill or threat of an oil spill.

10.6.2 Duty WMT Operators will deploy the emergency oil spill boom using emergency response boat moored at WMT utility dock.

## 11.0 PETROLEUM TRANSFER

### 11.1 Closed Loading or Discharging

11.1.1 Closed cargo transfer practices as described in ISGOTT must be always followed.

11.1.2 Vessels operating with inert gas must be capable of closed loading.

11.1.3 Cargo transfer will only commence after the Ship/Shore Safety Checklist has been completed to the satisfaction of the vessel and WMT.

11.1.4 Transfer shall commence at the agreed low initial rate and this rate shall be maintained till both vessel and the Terminal are satisfied with safety of the flow path of the transferring Petroleum and confirmed that the rate of transfer can be safely increased.

11.1.5 Transfer rate shall be progressively increased to the agreed maximum rate and regular checks shall be maintained during the entire course of the transfer operations.

11.1.6 Cargo loading rate will be reduced progressively as loading progresses and cargo tanks are completed and finally stopped once the required transfer volume has been reached.

### 11.2 Suspending or Stopping Cargo Transfer

11.2.1 The vessel may ask for suspension or stopping of cargo transfer by communicating a request over the radio to WMT operations.

11.2.2 Cargo valves on board must not be shut (kept open) until cargo flow has completely stopped and this has been verified with WMT operations and the attending Marine Interface Supervisor.

11.2.3 Cargo transfer will stop in case of an emergency at WMT or onboard the vessel, or if WMT determines that unsafe or hazardous vessel operating conditions are developing.

11.2.4 Under certain exceptional conditions, WMT may require the vessel to vacate the berth.

11.2.5 Cargo transfer may also be stopped under the following conditions (these conditions do not relieve the Master or Marine Interface Supervisor from the obligation to use best judgment when assessing the suitability of conditions for undertaking product transfer):

11.2.5.1 Any pre-arranged criteria have been met, e.g., vessel draft.

11.2.5.2 Crude oil delivery or vapour recovery system stops functioning properly.

11.2.5.3 Jet fuel offloading system stops functioning properly.

11.2.5.4 Cargo vapours accumulate either on deck or ashore.

11.2.5.5 Sustained wind speed reaches 30 knots.

11.2.5.6 If more than 10 per cent of a Vessel's moorings have been broken or compromised (e.g., an Aframax size tanker using 16 mooring lines has two broken mooring lines)

11.2.5.7 Excessive movement of the vessel at berth causing alarms on Trelleborg mooring system monitor.

11.2.5.8 Pre-deployed oil spill boom is displaced.

11.2.5.9 Lightning or severe weather threatens the vessel.

- 11.2.5.10 If an electrical storm is approaching, regardless of whether an inert gas system and/or vapour control system is fitted and in use, transfer operations will be stopped, and the cargo system secured.
- 11.2.5.11 The crude oil loading arms or the jet fuel transfer hose need to be drained during lightning storms.
- 11.2.5.12 General power or communication failure occurs.
- 11.2.5.13 Crude oil or jet fuel leak or spill occurs (see Spill Response).
- 11.2.5.14 Fire occurs on board the vessel or at WMT (see Dock Fire and Vessel Fire).
- 11.2.5.15 Security intrusion occurs either from shore or water.
- 11.2.5.16 Another emergency condition arises.
- 11.2.5.17 Emergency Shutdown system has been activated.

### 11.3 Resumption of Cargo Transfer

- 11.3.1 Cargo transfer may only resume after normal conditions have been restored, except when the stoppage was due to an emergency on board the vessel or at WMT.
- 11.3.2 Resumption of cargo transfer following an emergency on board the vessel or at WMT, activation of Emergency Shutdown or security intrusion will only take place after receiving authorization from the Director, Burnaby and Westridge Terminals or designate.

### 11.4 Shutdown Operations

- 11.4.1 Immediately upon being informed of an emergency within the terminal area, e.g., fire, oil spill, etc. WMT will inform the vessel and Marine Interface Supervisor and commence shutting down of all non-essential operations, including all cargo oil transfer operations.
- 11.4.2 Actions required under the Westridge Marine Terminal Emergency Response Plan shall be initiated.

### 11.5 Emergency Shutdown System

- 11.5.1 The crude oil loading system and vapour recovery system have manually operated Emergency Shutdown (ESD) systems. If the ESD systems are activated:
  - 11.5.1.1 The delivery line booster pumps are automatically shut down; and all valves at berth are automatically closed or set to a safe state.
  - 11.5.1.2 The jet fuel unloading system has separate manually activated ESD systems and procedures in case the unloading process needs to be stopped due to an abnormal operating condition.
- 11.5.2 If cargo loading to a vessel is stopped for any reason, the cargo tank, line, and manifold valves must be left open until the Marine Interface Supervisor instructs that they be shut after consulting with the WMT operator.

### 11.6 Oil Spill

- 11.6.1 Any vessel intending to call Westridge Marine Terminal must have an agreement with WCMRC (Western Canada Marine Response Corporation).

11.6.2 In the event of an oil spill a vessel berthed at WMT must inform the Marine Interface Supervisor and shut down cargo operations.

11.6.3 In the event of an oil spill, the following actions will be taken:

11.6.3.1 Stop cargo transfer.

11.6.3.2 Notify the Marine Interface Supervisor, the authorities and WMT.

11.6.3.3 The vessel will activate onboard oil spill response plans and, to the extent possible and safe to do so, try to prevent spilled oil from entering the water.

11.6.3.4 If the spill is not contained on the vessel, immediately call WCMRC to undertake on-water response.

11.6.4 WMT will activate the WMT Emergency Response Plan and lead the response outside of the vessel under an ICS structure until relieved by an authorized entity. Actions would include appropriately deploying a secondary/emergency floating oil spill boom and other actions necessary to contain and recover any oil on the water.

## **12.0 ROLES AND RESPONSIBILITIES**

### **12.1 Marine Interface Supervisor**

12.1.1 Review each vessel under the Standard and recommends whether it should be accepted or rejected to call at the Terminal.

12.1.2 Responsible on behalf of the Terminal to provide onboard oversight and monitoring of the entire transfer operation. From time to time, conducts required onboard checks and inspections and may recommend whether a vessel should be allowed or denied product transfer privileges at WMT.

12.1.3 Conduct, together with vessel and terminal operating staff, a pre-transfer conference guided by information in the Ship-Shore Safety Checklist and upon successful completion accepts the Notice of Readiness to indicate that the vessel has been accepted and granted product transfer privileges and WMT.

12.1.4 Witness, monitor and provide guidance to vessels prior to and during product transfers.

12.1.5 Undertake activities as per the requirements of the WMT OPPP and ensure that Standard Industry Practices for Vessels are being followed.

12.1.6 Immediately stop transfer operations if needed to safeguard the personnel, environment or the WMT assets.

12.1.7 Provide local knowledge and prompt on-scene guidance to the vessel and WMT during an emergency.

12.1.8 The Marine Interface Supervisor's authority does not extend to the vessel or crew.

12.1.9 Update records in Ocean Smart, which is an information technology tool used by Trans Mountain along with other tools in its Marine Terminal Management System, about the activities and performance of the vessel.

### **12.2 Vessel Master**

12.2.1 Is responsible for the safety of the vessel and staff onboard and operates the vessel in accordance with all Applicable Law and Standard Operating Practices for Vessels.

12.2.2 Ensures personnel operate in compliance with the vessel operating company's health, safety, environment, and quality policies.

12.2.3 Assigns the competent person to plan and supervise the oil transfer operation.

12.2.4 Remains available throughout the loading or unloading process or delegates this responsibility to the Chief Officer.

12.2.5 Interfaces with the WMT, authorities and ship's agent.

### **12.3 Director, Burnaby and Westridge Terminals**

12.3.1 Ensures WMT is operated in compliance with all applicable rules and regulations and in accordance with the Trans Mountain ISLMS; and undertakes the duties of Incident Commander in case of an emergency incident occurring at WMT, regardless of the nature or source of the incident.

## 12.4 Manager, Marine Logistics

12.4.1 Ensures operations at the WMT are according to Applicable Law, Company Policies, and standard industry practices.

12.4.2 Appoints the Marine Interface Supervisor.

12.4.3 Approves vessels for scheduling to call at WMT.

12.4.4 Apply the requirements of the Standard for all Vessel calls at the WMT and undertake occasional compliance checks on Vessels and otherwise apply all Company Policies as required.

12.4.5 Undertakes duties as necessary in case of an emergency impacting WMT.

## 12.5 Manager, Operations, Burnaby and Westridge Terminals

12.5.1 Ensures allocation of staff to undertake the activities required for safe oil transfers to be conducted at the WMT.

12.5.2 Ensures Supervisors and Operators are trained to the criteria determined by Trans Mountain as necessary to fulfill the duties of an operator, including training on:

12.5.2.1 Equipment deployment techniques.

12.5.2.2 Spill prevention, control, and countermeasure.

12.5.2.3 Workplace Hazardous Materials Information System (WHMIS).

12.5.2.4 Roles and responsibilities of various responders.

12.5.2.5 Site safety plan.

12.5.2.6 Transfer operations.

12.5.2.7 Basic vessel information; and Vessel arrival/departure procedures.

12.5.3 Schedules necessary WMT operations personnel and make other internal WMT arrangements as required.

12.5.4 Controls access to WMT by third-party service providers to the vessel and undertakes duties as necessary in case of an emergency impacting WMT.

## 12.6 Marine Terminal Operators

12.6.1 Members of the Marine Terminal Operations Team undertake shore-side activities related to product transfer in accordance with Trans Mountain ISLMS procedures, including:

12.6.1.1 Mooring the vessel while taking into consideration the weather and the tidal and current conditions, and that the mooring lines are tended so that the movement of the vessel does not damage the transfer conduit or its connections. This is a shared responsibility between the vessel and the operator of the OHF where applicable.

12.6.1.2 Confirming attendance of competent personnel onboard the vessel during the cargo and vapour arms connection operation.

12.6.1.3 Ensuring safe and secure ship-shore access is provided.



- 12.6.1.4 Managing the vessel-WMT interface, including undertaking the loading or unloading of the vessel, in accordance with Trans Mountain operating procedures and relevant global oil tanker industry safe operating best practices.
- 12.6.1.5 Completing a report on the readiness, including establishment and testing of communications/signals, including starting and stopping procedures and timing during normal and emergency conditions, and confirming the readiness of equipment necessary for the transfer, prior to commencement of the transfer operation through completion, together with the Marine Interface Supervisor and responsible vessel staff, of the Ship/Shore Safety Checklist.
- 12.6.1.6 Reporting any vessel-related concerns about the vessel to the Marine Interface Supervisor for necessary follow-up actions onboard the vessel.
- 12.6.1.7 Undertaking those actions, including ceasing the transfer of product, applicable in case conditions contingent or abnormal conditions are encountered during the transfer, including in case of a leak in the transfer conduit.
- 12.6.1.8 Deploys the emergency oil spill boom if required or deemed necessary.

## 12.7 Cargo Expeditor/Advisor

12.7.1 Some cargo interests may appoint their own Cargo Expeditor/Advisors to attend the vessel during product transfer operations. In such circumstances prior permission should be requested from Trans Mountain with the clear understanding that the presence onboard of a Cargo Expeditor/Advisor is in advisory capacity only and this person may observe the ongoing transfer activities but shall not interfere with the safe and efficient product transfer operations.

12.7.2 Their presence does not relieve the vessel's Master from the obligations to exercise sound judgement to ensure safe and efficient product transfer operations.

## **PART B – TERMS OF USE AND OTHER REQUIREMENTS**

### **13.0 TERMS OF USE**

- 13.1 Control and operation of the Terminal resides exclusively with Trans Mountain who provides suitable and safe mooring and berthing. Vessels are required to always exercise good navigation and seamanship, which includes employing suitable pilots and tug assistance as required by Port of Vancouver rules and regulations, complying with all Applicable Laws, Carrier policies and requirements and Standard Industry Practice for Vessels, and considering any further guidance or advice from Trans Mountain.
- 13.2 Arriving Vessels that do not meet requirements set out in the Vessel Acceptance Standard may be refused permission to transfer Petroleum until any deficiencies have been corrected. In such cases, WMT always retains the right to request a vessel to leave the berth. Refer to the Vessel Acceptance Standard and applicable documents for more information.
- 13.3 Each party (vessel and WMT) is responsible for the safe conduct of its own operations – for managing its own personnel and operating its own equipment.
- 13.4 Under no circumstances will either party operate any valves, switches, or alarms within the other's area of responsibility and control.
- 13.5 Details of necessary documentation is provided in Section 17 and must be completed to the satisfaction of Trans Mountain.

## 14.0 TERMINAL OPERATION

### 14.1 Vessel Scheduling

14.1.1 Accepted vessels are scheduled at WMT based upon their scheduled cargo readiness windows and in such a way as to not interfere with another vessel's load or discharge window.

### 14.2 Arrival Conditions

14.2.1 Vessels are to arrive with all vessel systems duly tested in advance to confirm their operability.

14.2.2 Crew must be fully familiar with rules and regulations for operating in Canadian waters and with the information in this document.

14.2.3 Pre-Arrival checks must be completed, and any issues or concerns should be immediately informed to the terminal.

14.3 When transiting the Juan de Fuca Strait to embark pilot, please plan the transit so as to avoid the vessel slowing down or loitering within the traffic lanes. The Canadian Coast Guard who manages the Vessel Traffic System in the pilot boarding area requires that vessels not pass Race Rocks more than ninety (90) minutes prior to the planned pilot embarkation time.

14.3.1 At all times, vessels must:

14.3.1.1 Be in good mechanical condition with no known deficiencies to propulsion, steering, navigation, or deck equipment.

14.3.1.2 Maintain adequate draft, under-keel clearance and suitable trim to ensure propeller submersion.

Have enough air draft to clear the bridges at the Second Narrows; and always, maintain all cargo tanks in inert condition with positive inert gas pressure between 300 and 400 mmWG (but not less than 300) on arrival at Westridge Marine Terminal.

Note: vessels loading crude oil should maintain oxygen level in tanks to less than six per cent (6%) to ensure continuous operability of the terminal's vapour combustion unit.

### 14.4 Arrival Notices

14.4.1 Immediately upon receiving orders to call at Westridge, Vessels should provide estimated time of arrival at the offshore waiting area (see item 17.5) designated by Trans Mountain together with all other information required per the Vessel Pre-Arrival Information Form, update this information regularly and provide further updates every 24 hours once within 96 hours passage from the waiting area. In reply, the terminal shall advise berthing prospects.

14.4.2 Inform Westridge operations upon the vessel's arrival at the waiting area and await current berthing advice.

14.4.3 As general information only, and without prejudice, Trans Mountain can advise that arrival of a vessel at Brotchie Ledge Pilot Station is considered as having arrived at the customary location for filing a vessel's commercial notice of readiness for arriving at the Port

of Vancouver; such notice should be followed by updates once the vessel is safely at anchor or at a berth within port limits. Please also refer to item 15.2.

## 14.5 Berthing Conditions

14.5.1 Vessels may not dock under any of the following conditions:

14.5.1.1 Sustained wind speed exceeds 25 knots.

14.5.1.2 Visibility is 0.40 km or less.

14.5.2 The above criteria do not relieve the Master from the obligation to use best judgment, consistent with good seamanship, and to seek advice from the Marine Interface Supervisor when assessing the suitability of conditions for berthing and remaining at berth.

## 14.6 Berth Approach

14.6.1 During berthing, a vessel should approach the dock at slow speed with minimum angle. Once close to its final position, as far as possible, the vessel should be transversely brought alongside at a velocity not exceeding 0.12 m/sec. (about 0.25 knot). The approach speed shall be indicated on the display board at the berth during berthing.

## 14.7 Mooring Requirements

14.7.1 Every vessel's mooring equipment, including mooring lines and any powered winches, must be in good operating condition.

14.7.2 Vessel must be securely moored alongside with enough ropes and/or wires.

14.7.3 Vessel moorings must be properly secured and tended throughout the stay to prevent undue vessel movement.

14.7.4 The following mooring equipment criteria shall apply:

14.7.5 All vessels over 5,000 MT DWT shall carry a minimum of eight mooring lines.

14.7.6 Vessels less than 5,000 MT DWT must be secured using a minimum of four mooring lines of adequate size and strength and in good condition.

14.7.7 Vessels over 5,000 MT DWT, but less than 10,000 MT DWT must be secured using a minimum of six mooring lines of adequate size and strength and in good condition.

14.7.8 Vessels of 10,000 MT DWT and above must be provided with powered mooring winches (or capstans) and secured with a minimum of eight mooring lines of adequate size and strength and in good condition.

14.7.9 Tankers (depending on size) require to be moored with a minimum of twelve mooring lines of adequate size and strength and in good condition.

14.7.10 Mooring lines may be of wire or synthetic material and construction suitable for the purpose and suitable mooring tails should be provided where applicable.

14.7.11 A vessel of 40,000 MT DWT and above must have sufficient mooring ropes fitted on self-stowing powered mooring winch drums. Mooring winch brakes must be tested in accordance procedures found in OCIMF.

14.7.12 For Panamax tanker size and above, spring lines should be of wire or materials that have low extension characteristics (such as HMPE) and are used in conjunction with synthetic rope tails/pennants.

14.7.13 Mooring lines in the same service must be of similar material or having similar extension characteristics. Any special waiver of this requirement must be reviewed with the Marine Interface Supervisor.

14.7.14 Synthetic rope pennants fitted to wire moorings must be of enough length and strength and be properly secured to the wire using a shackle approved for this purpose.

14.7.15 Vessels with atypical mooring arrangements shall be considered on a case-by-case basis.

14.7.16 Powered winches (or capstans), where available, should be used for handling of mooring lines.

14.7.17 The practice of securing lines on the warping drums of winches is not recommended; and Self-tensioning winches, if fitted, must not be used in the automatic mode.

## 14.8 Communications

14.8.1 At all times, vessels must have at least one person on duty who speaks and readily understands the English language. At all times the person in charge of the vessel's cargo transfer must be able to communicate readily in English with the Marine Interface Supervisor and/or the WMT operators.

14.8.2 Two-way radio contact must be always maintained between the Marine Interface Supervisor, vessel and WMT operations using the intrinsically safe radios provided by WMT.

14.8.3 The vessel's fixed VHF radios must be available as backup to the hand-held radios.

14.8.4 Transfer operations will be stopped if two-way communications are lost during any stage of the transfer or if the vessel and WMT cannot communicate readily in English.

14.8.5 Additional sound signals in case of emergencies will be agreed to prior commencement of cargo transfer.

14.8.6 Use of the loud hailer and ship's whistle should be limited, except as required by the Collision Regulations or in an emergency.

## 14.9 Lighting

14.9.1 WMT ensures the terminal workspace is adequately lit to meet Transport Canada requirements.

14.9.2 Deck lights of the vessel must be used as fitted but should be kept to a minimum, consistent with the safety and security of the vessel.

14.9.3 In consideration of residents living near the Terminal, and wildlife, lighting glare should be reduced by having deck lights aimed downward, not outward or towards the shore.

## 14.10 Oil Transfer Procedures

14.10.1 Oil transfer procedures will be conducted in accordance with Applicable Law, Company Policies, and standard industry practice.

## 14.11 Vessel State of Readiness

14.11.1 A vessel must always be able to move under its own power at short notice. If the vessel cannot comply with this requirement for any reason, WMT must be advised

immediately. However, certain routine maintenance may be carried out on vessel's propulsion subject to prior agreement with WMT.

14.11.2 For barges, the tow boat assigned to a barge will stand by in the immediate vicinity of the barge and will keep its engines ready to maneuver at short notice.

#### 14.12 Onboard Systems Alarms

14.12.1 If system alarms sound during operations, they must be investigated and properly dealt with. Silencing alarms without rectifying the fault is not acceptable practice.

14.12.2 As repeated and random system alarms may pose distractions; the Marine Interface Supervisor may request to temporarily stop cargo transfer until the matter has been resolved.

#### 14.13 Incidents at The Terminal

14.13.1 If a transfer conduit or a connection (e.g., a transfer hose or marine loading arm) leaks during a transfer operation, the person in charge of cargo operations on board the vessel and the supervisor at the Oil Handling Facility must, as soon as feasible, slow down or stop the operation to remove the pressure from the conduit or connection.

14.13.2 In case of an oil spill or threat of an oil spill involving a vessel berthed at WMT, Trans Mountain will activate the Terminal ERP and according to the circumstances of the case. Resources as deemed necessary to best respond to the emergency shall be activated and used. The Master will always remain responsible for the vessel but will support WMT and aid as needed to mitigate the conditions.

14.13.3 The Terminal ERP requires Trans Mountain personnel to immediately suspend cargo operations; activate anti-pollution and response measures; At their discretion, call on the resources deemed appropriate to undertake necessary cleanup operations; and in all such circumstances, the vessel must provide necessary support to Trans Mountain, authorities, and responders.

#### 14.14 Phyto-Sanitary Inspections

14.14.1 Vessels arriving during the FSMC (Flighted Spongy Moth Complex previously known as AGM- Asian Gypsy Moth) risk period for Canada from a FSMC regulated area (typically Far-east Russia, Japan or Korea) should:

14.14.2 Obtain a Phytosanitary Certificate or other approved certificate(s) prior to departing for Canada and provide it to the agent prior to arriving in Canada.

14.14.3 Inspect the vessel for FSMC masses during its passage to Canada and if any masses are found the agents and the terminal must be informed immediately.

14.14.4 Vessels not carrying a Phytosanitary Certificate should expect to be inspected prior to berthing by the Canada Food Inspection Agency, which is likely to cause delays and may affect vessel's berthing schedule.

#### 14.15 Westridge Marine Terminal Access

14.15.1 WMT is a designated marine Oil Handling Facility regulated by Transport Canada under Canada's Marine Transportation Security Act. The MARSEC level for the terminal is normally set to Level 1 but may be adjusted at any time depending on prevailing security conditions.

14.15.2 Declaration of Security is required to be completed in case of a change in MARSEC Level.

14.15.3 The movement of visitors, including vessel staff, is regulated.

#### 14.16 Repairs and Services

14.16.1 Vessels should check with their agent about the many services available in the Port of Vancouver.

14.16.2 At WMT limited transfer of stores and other materials, typically hand carried, to or from a vessel is available during cargo transfer. Under extenuating circumstances larger items requiring truck transport through the terminal may be permitted, but only if authorized by WMT and prior arrangements have been made by local Agent.

14.16.3 Major planned repair work is not permitted while alongside WMT.

14.16.4 Essential emergency repairs needed to rectify malfunctioning equipment and to prevent hazardous or unsafe conditions will be permitted on a case-by-case basis and may only begin once approved by WMT in writing.

14.16.5 The vessel Master may contact the Marine Interface Supervisor directly or submit a request through the agent.

14.16.6 The Manager Marine Logistics will review the request and, if approved, detail the specific work to be done in writing.

14.16.7 If additional control measures are deemed necessary, such as having a standby tug in attendance during the repair, the vessel will bear the cost of these measures.

#### 14.17 Prohibited and Restricted Activities

14.17.1 The following repair and maintenance activities are prohibited in the cargo area, cargo tanks, fuel tanks, cargo pump rooms or enclosed spaces immediately above or adjacent to cargo tanks, such as cofferdams:

14.17.1.1 Hot work repairs, including welding, cutting, burning, abrasive blasting and other heat-producing operations.

14.17.1.2 Use of power-driven or manually operated devices capable of producing sparks.

14.17.1.3 Cleaning of cargo tanks, including crude oil washing, is not permitted.

14.17.1.4 Gas freeing of cargo or bunker tanks is not permitted.

14.17.2 The following repair and maintenance activities are restricted but may be allowed upon request by the vessel or a competent authority, provided they are considered safe by the Marine Interface Supervisor or Supervisor, Westridge Terminal:

14.17.2.1 Repair works, including boiler tube cleaning, light chipping and scraping, touching up hull painting and testing or servicing of electrical equipment. Soot blowing is not permitted at berth.

14.17.2.2 Repair activities or other work that may immobilize the vessel or render propulsion and/or steering systems inoperative.

14.17.2.3 Activities that may either disrupt cargo operations or render them less efficient.

14.17.2.4 Tasks that require entry into an enclosed space.

14.17.2.5 Lifeboat servicing or lowering.

14.17.2.6 Underwater diving operations.

14.17.2.7 Lowering of one or both anchors by use of windlass while secured to the berth.

14.17.2.8 Turning of the propeller, whether by turning gear or air/fuel.

#### 14.18 Craft Alongside

14.18.1 No craft is permitted to come alongside or remain alongside a berthed vessel without prior permission from WMT, which permission is not typically obtainable.

14.18.2 If a craft is given permission to come alongside, personnel on board must be instructed on any specific safety requirements requested by the Terminal.

#### 14.19 Vessel Bunkering

14.19.1 Bunkering operations are not permitted while vessels are alongside WMT.

#### 14.20 Vessel Crew

14.20.1 Watch schedules – Watch schedules for vessel personnel should be prepared in advance and arranged to minimize fatigue and comply with the maximum working hours established by the vessel's flag.

14.20.2 The schedule must meet the Standards of Training, Certification and Watchkeeping for Seafarers (STCW).

14.20.3 Watch handovers involving the person in charge should be scheduled so they do not take place during critical phases of the transfer, such as within 30 minutes of final topping off.

14.20.4 Vessel personnel will control and monitor all vessel systems during product transfer and will report any issues or safety concerns to the Marine Interface Supervisor.

14.20.5 A manifold/gangway watch must be always kept. On barges, the Marine Interface Supervisor may accept this watch being kept from the Cargo Control Room (CCR) if the manifold is visible from the CCR.

14.20.6 At all times during product transfer, the vessel will remain enclosed within WMT's floating oil spill containment boom. The deck watch should observe the deployed boom during regular rounds and immediately bring any defects to the attention of the Marine Interface Supervisor.

14.20.7 Accumulations of water on deck will be carefully drained, making sure always that no pollutants are discharged from the vessel.

14.20.8 In case of an emergency sound the alarm; arrange to stop cargo transfer; and activate the relevant vessel response plan.



## 14.21 Drug and Alcohol Policy

14.21.1 Vessels must have an onboard Drug and Alcohol Policy (D&A Policy) that, at a minimum, meets OCIMF-recommended practices.

14.21.2 Crew members should not be under influence of drugs or alcohol when performing scheduled duties. Crew members returning from shore leave who are observed being under influence of drugs or alcohol will be escorted to the vessel, reported to Marine Interface Supervisor and the vessel's Master.

14.21.3 The use of prescription or non-prescription medications must not adversely affect a crew member's ability to safely perform his or her duties.

14.21.4 Trans Mountain reserves the right to cease or terminate cargo operations if deviations from this requirement are observed on board.

## 15.0 PETROLEUM TRANSFER

### 15.1 Pre-Transfer Conference

15.1.1 The Marine Interface Supervisor and the Terminal Representative will hold a pre-transfer conference with the person in-charge (PIC) of cargo operations.

15.1.2 At minimum, the scope of the conference must comply with the requirements of the ISGOTT Ship/Shore Safety Checklist.

15.1.3 A checklist combining ISGOTT pre-transfer requirements with other specific WMT requirements is completed as part of this conference.

### 15.2 Vessel Notice of Readiness

15.2.1 The Vessel Notice of Readiness is accepted by the Terminal only after the cargo and/or vapour arms/hose have connected, the Marine Interface Supervisor has completed a physical inspection of the vessel, the pre-transfer conference has been held and the Ship/Shore Safety Checklist has been completed.

### 15.3 Cargo and Vapour Arms

15.3.1 The vessel will identify the two adjacent cargo manifolds to use. During berthing of the vessel, these manifolds will be appropriately lined up with the WMT marine loading arms used for oil or vapour service.

15.3.2 WMT will identify (or mark) in advance the location to which the vessel's manifolds must line up.

15.3.3 Manifold drains must be of suitable size to allow easy draining of the type of oil to be loaded.

15.3.4 Narrow bore manifold drain lines could be problematic, especially during cold temperatures.

15.3.5 The manifold drain line must be checked before arrival to ensure it is completely clear of clogs or restrictions especially if previous cargo was heavy with high pour point. Any delays due to inability to effectively drain manifold lines will be to the vessel's account.

15.3.6 If an air operated pump is to be used, then it must be properly integrated to the manifold draining system; use of temporary couplings is not allowed.

15.3.7 Connection of marine loading arms will be carried out by WMT operations personnel who are trained for this purpose.

15.3.7.1 In all cases, the points of connection between the vessel's manifold and the cargo transfer arm or vapour recovery arm must be completely over the manifold containment or drip tray.

15.3.7.2 The presentation flanges will be adequate distance from the edge of the manifold drip tray/working platform as recommended by OCIMF. If required, remove fitted spool pieces to facilitate locating the presentation flanges as per OCIMF requirements.

15.3.8 WMT cargo and vapour transfer arms have hydraulically operated QCDC (Quick Connect Disconnect Couplings), and flanges are fitted with rubber "O" rings. All vessel manifold flange surfaces must be smooth and free of dirt and rust to ensure effective sealing.

15.3.9 Jet Fuel flexible hose fitted only on Berth 1 does not have QCDC. It is a flanged connection and must be fully bolted with a bolt in every hole and tightened in accordance with WMT specifications.

15.3.10 Vessel manifold valves will be kept shut and the manifolds must be free of cargo or residues prior to and during connection of the cargo and vapour transfer arms.

15.3.11 All vessel's manifolds not in use must be covered by a suitable blank flange. All nuts and bolts of these blank flanges must be tight.

15.3.12 The vapour connection manifold must be suitably marked.

15.3.13 Loading arms must be suitably supported to ensure flange connections are not subjected to undue strain before commencing cargo transfer.

15.3.14 The following precautions must be followed:

15.3.14.1 Cargo and vapour manifold valves will only be opened when requested by the Marine Interface Supervisor.

15.3.14.2 Cargo and vapour manifold valves will only be closed when instructed by the Marine Interface Supervisor.

15.3.14.3 Disconnection of marine loading arms will be carried out by WMT operations personnel.

15.3.14.4 Cargo transfer arms and the vessel manifold must be drained of cargo before commencing disconnection.

15.3.14.5 Instructions from the Marine Interface Supervisor on draining the loading arms must be carried out efficiently to avoid delays in operation.

15.3.14.6 The vessel's vapour manifold will be disconnected only when instructed by the Marine Interface Supervisor.

15.3.14.7 14.20.3.17.6 All manifold blanks must be put back in place and fully tightened after the cargo and vapour transfer arms have been disconnected.

#### 15.3.15 **Commencing the Transfer**

15.3.15.1 Cargo transfer will only commence after the Ship/Shore Safety Checklist has been completed to the satisfaction of the vessel and WMT.

15.3.15.2 The following sequence of events shall be practiced by the vessel's crew under guidance and overview of the Marine Interface Supervisor:

15.3.15.3 The cargo piping lineup will be checked by the person in charge of the vessel's cargo transfer and confirmed satisfactory.

15.3.15.4 Once cargo loading has commenced the vessel's manifold valve/s, dropline valve/s (for loading only) as well as the inlet valve of at least one cargo tank must not be closed unless expressly instructed by the Marine Interface Supervisor.

15.3.15.5 In all cases, the precautionary oil spill boom will be kept deployed for the entire time cargo transfer is ongoing.

- 15.3.15.6 Crude oil loading to a vessel will commence at the low rate that was agreed during the pre-transfer conference. Typically, 500m<sup>3</sup>/hr.
- 15.3.15.7 At all times during loading cargo flow must be directed to more than a single cargo tank.
- 15.3.15.8 It is acceptable to direct the initial flow to a single tank only if there is more than one tank valve open, e.g., the tank has main and stripping valves, and both are kept open.
- 15.3.15.9 Initially the cargo will be directed to a single tank or to one set of receiving tanks on the vessel, until system checks have been carried out and confirmed as normal.
- 15.3.15.10 The vessel and WMT will communicate and mutually confirm that initial system checks have been completed and confirmed as normal.

**15.3.16 Continuing the transfer operation**

- 15.3.16.1 During cargo transfer, all requirements of the Ship/Shore Safety Checklist must be always maintained.
- 15.3.16.2 Based upon the cargo stowage plan, additional receiving tanks will be placed online, and the transfer rate increased to reach the agreed maximum rate, typically 4600m<sup>3</sup>/hr.
- 15.3.16.3 Loading into vessel cargo tanks may be adjusted according to the stowage plan, ballast handling rates, and to always maintain stability and vessel trim or list requirements.

**15.3.17 Topping off vessel cargo tanks**

- 15.3.17.1 When loading to multiple cargo tanks, it may be possible to shut off loading to individual cargo tanks once the planned cargo amount for that tank has been loaded. The following precautions must be taken:
- 15.3.17.2 Cargo loading rate will be reduced progressively as loading progresses and cargo tanks are completed.
- 15.3.17.3 Typically, the valve closing time shall be 30 seconds or more and should be confirmed before loading commences.
- 15.3.17.4 Vessel will always inform WMT prior to shutting cargo tank valves.  
14.20.6.1.4 Vessel will inform WMT when only two cargo tanks remain to be completed.
- 15.3.17.5 14.20.6.1.5 Loading will be reduced to the agreed topping-off rate as the final tank is approaching its planned topping-off level. Typically, 1000m<sup>3</sup>/hr.

**15.3.18 Completion of cargo**

- 15.3.18.1 Typically, cargo oil flow shall be stopped by the Terminal once the nominated volume quantity has been loaded. However, in certain circumstances a vessel stop may be necessary. This will be discussed and agreed during the pre-commencement meeting with the Marine Interface Supervisor.

15.3.18.2 Should the vessel load to the maximum draft allowed for transit through TCZ 2 or have any other loading restriction, Officer in charge of cargo operations shall liaise closely with the attending Marine Interface Supervisor who will communicate with the Westridge Operators and arrange to stop the transfer when the vessel has reached the maximum draft.

15.3.18.3 In case of a discharging vessel, the oil flow shall be controlled and stopped by the vessel upon either having completed discharge of the required quantity or upon request of the Terminal.

15.3.18.4 Manifold valves will only be shut after receiving Marine Interface Supervisor's clearance to do so.

15.3.18.5 Cargo tank valve of the final loaded tank must never be shut against the flow of cargo and will be left open till manifold valves have been shut.

#### 15.4 Ensure vessel's departure draft is not exceeded

15.4.1 The Terminal has no means to offload already loaded crude oil from a vessel, therefore Vessels must be extremely mindful of the vessel draft in relation to the draft allowed for transiting the Second Narrows. The pilot will confirm this before getting underway. A vessel that has loaded beyond the permitted transit draft of the day applicable to the vessel could face extensive delays in port before it is allowed to depart.

#### 15.5 Jet Fuel Handling

15.5.1 Vessels are expected to carry jet fuel cargo in tanks of which the prior cargo was either clean or had previously been used for carriage of a middle distillate such as gas oil, premium diesel, or kerosene, which limits the risk of contamination with water.

15.5.2 The cargo receiver will appoint a cargo surveyor to test samples of jet fuel cargo. The Vessel Notice of Readiness will only be accepted once the sample has cleared. The sample is likely to fail under the following conditions:

15.5.3 Failure to ensure that prior to loading, all lines and pumps were drained of water and any product other than pure middle distillates.

15.5.4 The jet fuel contains contaminated water (water contaminated with persistent oils or other impurities).

15.5.5 The jet fuel was carried in tanks that had previously contained sour (H<sub>2</sub>S positive) products such as 'sour' naphtha or dirty products such as blended marine diesel oil or intermediate fuel oil.

#### 15.6 Vapour Control Operations

15.6.1 Vapour control operations will be conducted during crude oil loading in accordance with applicable regulations. Some of the WMT requirements for vessel systems and procedures are highlighted below.

#### 15.7 Vessel gas tightness

15.7.1 Each vessel shall have Class approved VOC (Volatile Organic Compound) Management Plan as per regulation 15 of MARPOL Annex VI Reg. 15.6 applies.

15.7.2 Cargo tanks and cargo tank access points must be maintained in a vapour-tight condition.

15.7.3 Cargo tanks must be proven vapour-tight at 600-mm water gauge minimum, at intervals not exceeding 24 months, and upon completion of related maintenance, repairs, or modifications.

15.7.4 Documentation of the most recent test must be kept on board and presented to attending Marine Interface Supervisor on request. Soap testing, pressure drop test or EPA Test Method 21 are acceptable methods of testing.

15.7.5 The cargo tanks should be fitted with individual pressure sensors with means of recording tank pressure fitted to each cargo oil tank.

15.7.6 Vessel should have a plan in place to manage increasing pressure in cargo tanks in case of hot weather. Avoid venting of cargo tanks into atmosphere within the port and at anchorage.

#### 15.8 Vapour collection manifolds

15.8.1 Vapour manifold arrangements, flanges and markings must conform to OCIMF recommendations.

15.8.2 A 300-mm (12-in) reducer is required to connect with the shore vapour line arm.

15.8.3 Vapour manifolds fitted immediately above cargo liquid loading manifolds (i.e., piggybacking) are not permitted.

#### 15.9 Overfill Protection

15.9.1 Vessels must be fitted with an overfill control system that conforms to applicable regulations and has been certified by the vessel's Classification Society or flag state.

15.9.2 Overfill control system sensors should be located near the geometric center of each cargo tank with a set point not less than 75 mm (3 in) below the deck.

#### 15.10 Split Loading

15.10.1 Vessels that split-load dissimilar cargoes that require vapour segregation must have a vapour collection system that allows segregation of cargo vapours. This must be discussed during the pre-transfer conference.

#### 15.11 Tank Gauging

15.11.1 Use of fixed cargo tank gauging system is preferred method of onboard gauging. However, in consultation with the Marine Interface Supervisor, the vessel may use portable cargo tank gauging equipment e.g., MMC/UTI via appropriate vapour lock, in which case Para 15.12 shall apply.

15.11.2 Health and safety precautions must be taken to ensure personnel involved in the activity are not harmed.

15.11.3 The fitted remote tank gauging system must be checked for accuracy and records may be requested for review by the Marine Interface Supervisor. This system is an important component of the vessel's closed loading system.

15.11.4 Tanks that are to be loaded to more than 93 per cent capacity should be checked manually during topping off using portable gauging tapes e.g., UTI/MMC using the designated gauge points.

#### 15.12 Manual Gauging or Dipping

15.12.1 Under normal circumstances the Terminal strongly prefers the use of fixed remote gauging system such as tank radars. However, it is left to the Master's discretion to decide. Equipment for manual gauging or dipping of cargo tanks, if used, must be capable of use under closed loading conditions. The Marine Interface Supervisor may ask to sight gas tightness certificates to verify this.

15.12.2 The use of manual tank gauging or dipping equipment may be restricted depending on condition of the equipment, environmental conditions, tank pressure and based upon the judgment of the attending Marine Interface Supervisor.

#### 15.13 Gauge Points

15.13.1 The appropriate tank opening or fitting to be used for custody transfer measurement should be identified as the gauge point. The corresponding reference height (the total height between the rim of the vapour lock ullage port and the striking plate at the bottom of the tank) must be clearly marked on deck.

15.13.2 Cargoes defined as static accumulators must be handled as per recommendations provided in ISGOTT.

#### 15.14 Maximum Cargo Tank Filling Level

15.14.1 The maximum cargo tank filling level must not exceed 98 per cent of tank capacity or 75 mm (3 in) below the deck level which is the typical minimum set point of the overfill control system of a vessel being loaded.

#### 15.15 Checks on Quantities Transferred

15.15.1 Preferably every hour and at least once every two hours, the vessel should provide WMT operations with information on the amount of cargo that has been discharged or loaded using GSV.

15.15.2 WMT will provide comparable shore figures to the vessel. Typically, a small difference between ship and shore figures is expected and up to 0.15% is acceptable. However, in case of a sudden or significant difference between WMT and vessel figures on quantities transferred, the Marine Interface Supervisor must be informed and the cause for the difference investigated. If required, or difference exceeds 0.5% or 300 m<sup>3</sup> (whichever is greater) operations will be stopped until a satisfactory explanation for the discrepancy can be found.

#### 15.16 Avoid Excessive Movement of Vessel at Berth

15.16.1 The vessel crew is responsible for ensuring the vessel is safely moored with minimum movement.

15.16.2 A vessel may move during loading or unloading due to any of the following:

15.16.3 Changes to weights on board (cargo and ballast); tide-induced water level changes; wind; waves and surges caused by passing vessels; Poorly tended moorings.

15.16.4 To avoid excessive movement at berth, the crew must:

15.16.4.1 Regularly check moorings; be aware of the tide times and range; and monitor the position of the vessel relative to the dock face and the loading equipment during product transfer.

15.16.4.2 If high winds are forecast, in consultation with the Marine Interface Supervisor, mooring arrangements will be reviewed, and supplement moorings will be deployed if necessary.

15.16.4.3 In case of a barge, the assist tug should be placed on standby.

15.16.4.4 Whenever possible, cargo loading arms should be disconnected prior to high wind conditions being reached.

15.16.5 The following shall be considered:

15.16.5.1 30 knots Stop cargo transfers (firm stop)

15.16.5.2 35 knots Disconnect cargo loading arms and consider additional moorings

15.16.5.3 40 knots Prepare to leave from the dock, subject to availability of pilot and tug/s

15.16.6 The Marine Interface Supervisor, vessel Master or WMT operator may independently decide to shut down product transfer due to ship movement if at any time they feel continued operation poses a safety or environmental risk.

15.16.7 If mooring lines slacken excessively or break, and the vessel becomes significantly out of position or the manifolds become significantly misaligned with the loading arms, the vessel will:

15.16.7.1 Inform the Marine Interface Supervisor; prepare to shutdown loading operations; and prepare to reposition and secure the vessel's mooring.

15.16.7.2 In severe situations, with assistance from the vessel's crew as required, it may be deemed necessary to drain and disconnect the crude oil loading arms or jet fuel transfer hose after shutting down product transfer and before repositioning the vessel.

In case of shutdown due to an actual fire onboard, transfer will not be resumed until authorized by the Director Burnaby and Westridge Terminals.



## **16.0 VESSEL EMERGENCY**

### **16.1 Fire on Vessel**

16.1.1 Vessels have their own established emergency response plan and are fully equipped with onboard firefighting equipment.

16.1.2 In the event of a fire or potential fire on the vessel, the crew will:

16.1.2.1 Immediately inform the Marine Interface Supervisor and prepare to shut down product transfer in a safe manner; notify the appropriate parties; implement the vessel's emergency response plan under the Master's direction; operate the onboard firefighting system as required; evacuate the vessel if required; and seek assistance as required.

16.1.3 As required, WMT operations personnel will:

16.1.3.1 Shut down cargo operations; operate the dockside firefighting system as required; make necessary notifications; contact emergency responders and internal Trans Mountain personnel as required, assist with evacuation of the vessel if deemed necessary by the Master; and prepare to drain and disconnect the loading arms.

16.1.4 Product transfer will not be resumed until all conditions have reverted to normal and this has been confirmed by the vessel Master and Marine Interface Supervisor.

16.1.5 Prior to doing so, the Marine Interface Supervisor will conduct an on-the-spot inquiry and determine if future operations will be carried out safely by the vessel's crew.

In case of shutdown due to an actual fire onboard, transfer will not be resumed until authorized by the Director Burnaby and Westridge Terminals.

### **16.2 Emergency Evacuation**

16.2.1 The dock and vessel will be evacuated if an emergency poses immediate and serious risk of injury or death.

16.2.2 If the Master requires the vessel be evacuated, the following actions will be taken:

16.2.2.1 Immediately inform the Marine Interface Supervisor; after assessing conditions on board, select the appropriate evacuation route (by the gangway to the shore or using the vessel's lifeboat); upon orders from the Master, evacuate the vessel by the selected means.

16.2.3 If it is necessary to evacuate the dock, WMT operators will:

16.2.3.1 Inform the Marine Interface Supervisor and shut down cargo operations; follow the Trans Mountain Emergency Response Plan and Westridge Emergency Response Plan Manual; be guided by the evacuation route map in Appendix C.

## 17.0 GENERAL AND NAVIGATION CONDITIONS

### 17.1 Overview

17.1.1 This section summarizes meteorological and navigational information that applies to vessels transiting through Canadian waters and the Port of Vancouver.

17.1.2 Vessels transiting to and from WMT must meet the prevailing port and harbour regulations. If in doubt, they may contact their agent for clarification.

17.1.3 Vessel Masters must obtain a copy of the current Annual Notices to Mariners issued by the Canadian Coast Guard, which may be downloaded from **notmar.gc.ca**. The document should be reviewed on board and relevant information shared with all those engaged in watchkeeping or in charge of the vessel's navigation in Canadian waters.

17.1.4 The Canadian Coast Guard issues Notices to Shipping to advise the marine public of hazards to navigation, defective aids to navigation and other important navigational information in the local area. Active NOTSHIPS can be accessed at **vtos.pac.dfo-mpo.gc.ca/notship/ntsactive.htm**.

17.1.5 Master is encouraged to review the vessel's outward passage plan with the Marine Interface Supervisor for the extent of its transit through Canada's territorial waters. In addition to ensuring all industry recommended Bridge watchkeeping practices such as the practice of Bridge Team Management should be followed. To reduce the risk of collision the following Enhanced Situational Awareness practices should be applied for all laden crude oil tankers departing the Terminal.

17.1.5.1 The tanker shall carry out a "SÉCURITÉ" broadcast on appropriate VHF channel at First Narrows, off Point Atkinson, off Point Grey, prior to East Point and prior to Turn Point and whenever else it is necessary when risk of collision with another ship is deemed to exist or when doubt exists as to the actions, or the intentions of another ship as described in PPA Notice to industry 07-2019.

17.1.5.2 The escort tug when not tethered will be stationed ahead of the vessel approximately  $\frac{3}{4}$  mile (1300m). The vessel and tug shall remain in close contact over VHF and, should the tug (while it is ahead) or the tanker determine that close quarters situation is developing with another vessel, it will always act in accordance with the COLREGS, including the use of appropriate sound signals.

### 17.2 Meteorological Conditions

17.2.1 WMT is situated in the City of Burnaby, British Columbia, one of Canada's warmest cities. The relatively high amount of precipitation during the winter months also makes it one of Canada's wettest cities. Vancouver Harbour, which includes WMT, generally experiences an oceanic or marine west coast climate, and remains ice-free year-round.

17.2.2 Colder days in winter will result in frosty and slippery surfaces.

17.2.3 In winter months, vessel personnel should exercise caution on outdoor surfaces due to slipping hazards.

#### Table: 7

<b>Temperature and Precipitation</b>	
Summer (July and August)	Average high temperature: 22°C (72 F).
	Daytime maximum temperatures rarely reach 30°C (86°F).
	Average monthly summer precipitation (June through August): 80 mm (3.1 in). Daily average temperature rarely drops below freezing.
Winter (December through February)	Daily mean temperature: 4°C (39°F).
	Average daily low temperature: 1–2°C (33–35°F).
	Average monthly winter precipitation: 244 mm (9.6 in).
<b>Wind</b>	
Summer	Westerlies are common, as northwesterly winds over the Strait of Georgia are enhanced and drawn east near the mouth of Burrard Inlet when combined with the onshore sea breeze.
Winter	Winter easterlies through the inlet are typically southeasterly winds that are steered in advance of approaching frontal systems, and on occasion can result from the northern extension of outflows from the Fraser Valley or from Indian Arm. These outflow winds are not as frequent or as strong as the outflows through Howe Sound, which spill into Georgia Strait and the western portion of the outer harbour of Burrard Inlet.
	Winter winds at Vancouver Harbour exceed 6 m/s (12 knots) approximately five per cent of the time.
Thunderstorms	Infrequent in the Vancouver Harbour area. When they occur, they form with strong winds and dissipate quickly.
<b>Visibility</b>	
Fog	May form in Burrard Inlet when cold air draining from the neighbouring valleys settles into the inlet under light winds or calm conditions and reaches saturation over water.
	Occurs in this area more often in the fall and winter, especially in high-pressure or inversion conditions.
<b>Waves, Tides and Currents</b>	
Waves	Local winds generally do not generate waves of any significance within Burrard Inlet due to limited fetch for wave development.

## Temperature and Precipitation

	<p>In Vancouver Harbour, waves generated by moving vessels and floatplanes can be of similar or greater height than wind- generated waves. Long-period swell-like waves sometimes propagate through First Narrows, but these waves dissipate rapidly to the east in the inner harbour.</p> <p>Nearby and to seaward of First Narrows, waves can develop when combined with strong westerlies during ebb tides.</p> <p>These waves may be of concern to small craft.</p>
Water level in Vancouver Harbour	<p>Mean water level: 3.1 m (10.2 ft) above local CD.</p> <p>Higher high water: 5.0 m (16.4 ft) above local CD.</p> <p>Lower low water: 0.1 m (0.3 ft) below local CD.</p>
Typical tidal range	<p>Varies from 3.3 m (10.8 ft) for mean tides to 5.1 m (16.7 ft) for large tides.</p>
Currents	<p>Surface currents in the area are primarily tidally driven, modulated by storm winds.</p> <p>Depending on the stage of the tide, funnelling effects can lead to very swift currents at First and Second Narrows that can attain a speed of 3.0 m/s during flood and ebb tides.</p> <p>The location of maximum current at Second Narrows, because of adjustment to the pressure gradient at different tide stages, does not remain stationary. It typically shifts to the seaward side of the Second Narrows Bridge during ebb tide and to the inland side of the bridge during flood tide.</p> <p>Flood tide current typically 0.30 to 0.45 m/s. Flood tide current chart depicted as Figure 2. Ebb tide current typically 0.30 to 0.60 m/s. Ebb tide current chart depicted as Figure 3.</p>

Figure 2: Flood tide currents at Westridge Marine Terminal

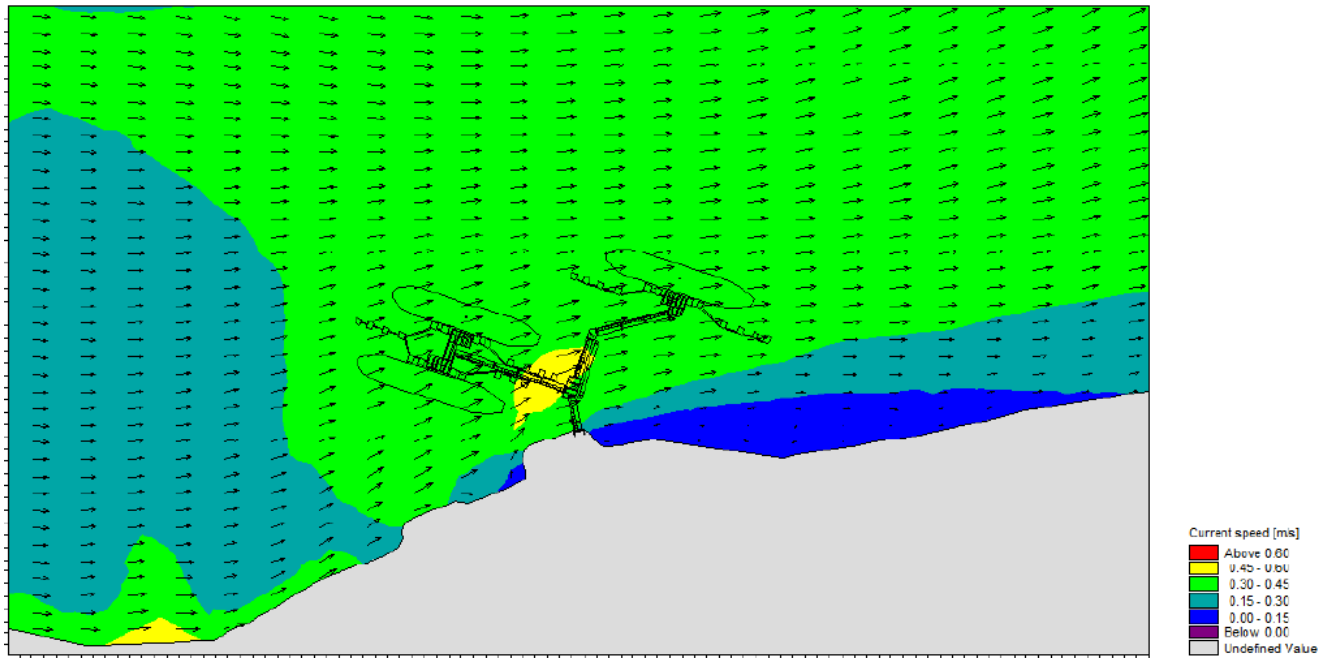
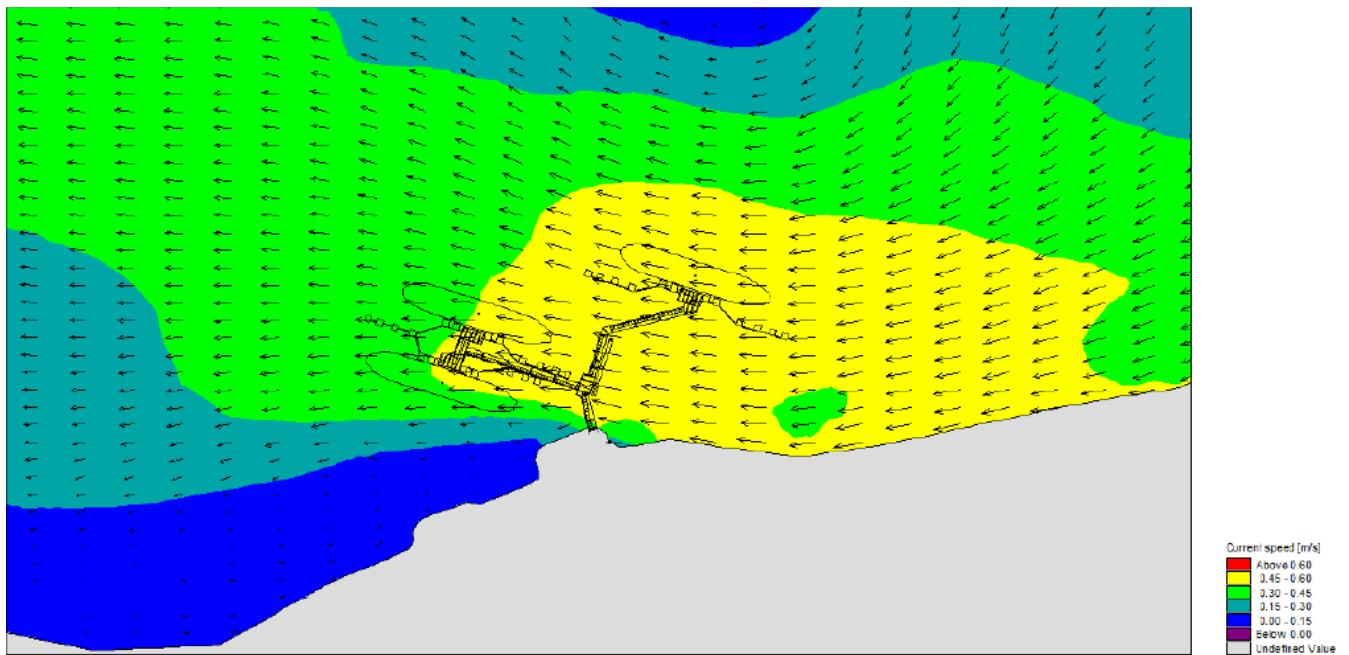


Figure 3: Ebb tide currents at Westridge Marine Terminal



### 17.3 North American Emissions Control Area (ECA)

17.3.1 The International Maritime Organization has officially designated waters off the North American coasts as an area in which stringent international emission standards will apply for ships. It extends up to 200 NM from the coasts of Canada and the United States.

17.3.2 All vessels must operate using the fuel grade appropriate to the ECA.

### 17.4 Tanker Exclusion Zone

17.4.1 A Voluntary Tanker Exclusion Zone (TEZ) has been in existence off the west coast of Vancouver Island since 1985. It was established through joint discussions between the

Canadian Coast Guard, the United States Coast Guard, and the American Institute of Merchant Shipping.

17.4.2 Its purpose is to keep tankers west of the zone boundary to protect the shoreline and coastal waters from a potential risk of pollution.

17.4.3 The Master of any vessel passing the west coast of Vancouver Island must respect and remain west of the TEZ, both while laden and in ballast (Figure 4).

**Figure 4: Tanker Exclusion Zone**



#### 17.5 Tanker Offshore Waiting Area

17.5.1 Trans Mountain has established a voluntary waiting area approximately 50 nautical miles SW of Buoy J, centered around 48° 07' N and 126° 07' W. Arriving vessels are required to provide notice of estimated time of arrival (or passing) of this location. This position is about 207 nm from Westridge with transit time between the waiting area and Westridge dock of about 18 hours subject to favourable tides and planning.

17.5.2 Arriving vessels may explore availability of a suitable anchorage with their agent and should one not be available, consider waiting at the waiting area till such time as a berth is available and then plan to arrive directly alongside.

**Figure 5: Map showing the offshore waiting area for tankers bound for the Westridge Terminal**



### 17.6 Tug Escort for Tankers In-Product

17.6.1 The Pacific Pilotage Authority has published through Notice to Industry specific tug escort requirements for in-product (carrying cargo) tankers over 40,000 DWT when passing through Boundary Pass and Haro Strait.

17.6.2 In accordance with Terms and Conditions of the Service Level Agreement between Trans Mountain and KOTUG Canada, KOTUG Canada shall provide, on an exclusive basis, escort tug towage services between Buoy QA and Buoy J (i.e., from close to the jurisdictional limit of the Port of Vancouver to the western entrance of the Juan de Fuca Strait) for all tankers loaded with crude oil from the Westridge Marine Terminal (Westridge). KOTUG Canada shall ensure the services are rendered using tugs which are suitable for foreseeable meteorological and ocean conditions and based on tanker and cargo size.

17.6.3 The es escort tugs are equipped with oil spill response equipment and have firefighting capabilities, and tug crews have received training to that purpose.

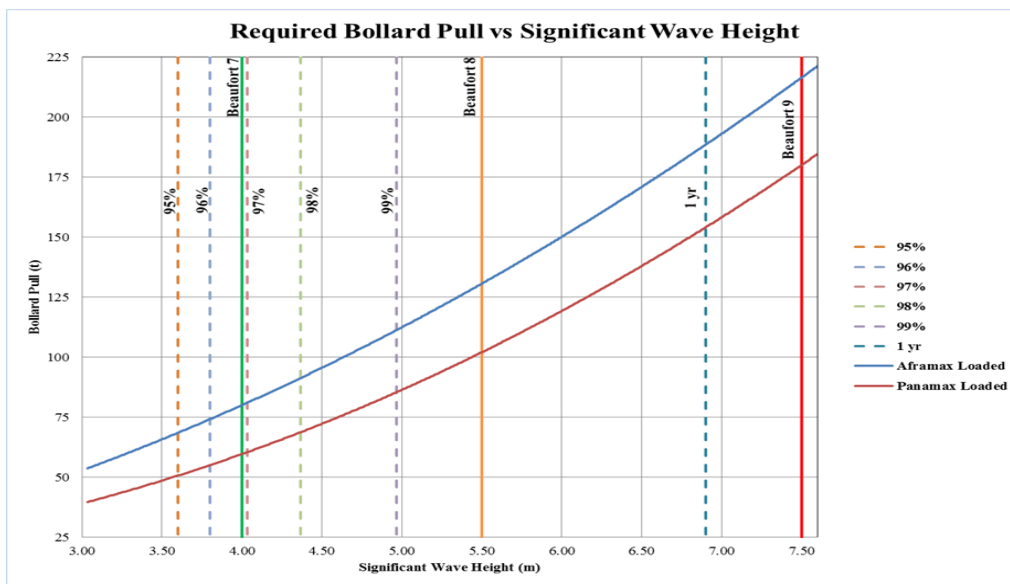
17.6.4 Escort by KOTUG Canada provided escort tugs is a pre-condition for acceptance of the tanker to load at Westridge. The Vessel's Master must ensure that arrangements have been made in advance for this purpose through the vessel's local agents. Upon arrival at the terminal, compliance will be checked and confirmed prior to acceptance of Vessel's Notice of Readiness. For added clarity, this requirement applies regardless of whether or not the tanker makes a direct passage to Buoy J or calls at another nearby port or terminal after having loaded crude oil cargo at Westridge, notwithstanding whether the secondary port call is for cargo or any other vessel related purposes, including receiving of bunkers.

17.6.5 Tankers under escort should be aware that the following maneuvers may be applied by the escort tug subject always to the discretion of the escort tug Captain.

- Passive escort – tug follows a ship closely but is not connected (untethered).
- Active escort – tug is connected (tethered) to the tanker's centre lead aft to assist steering of the ship

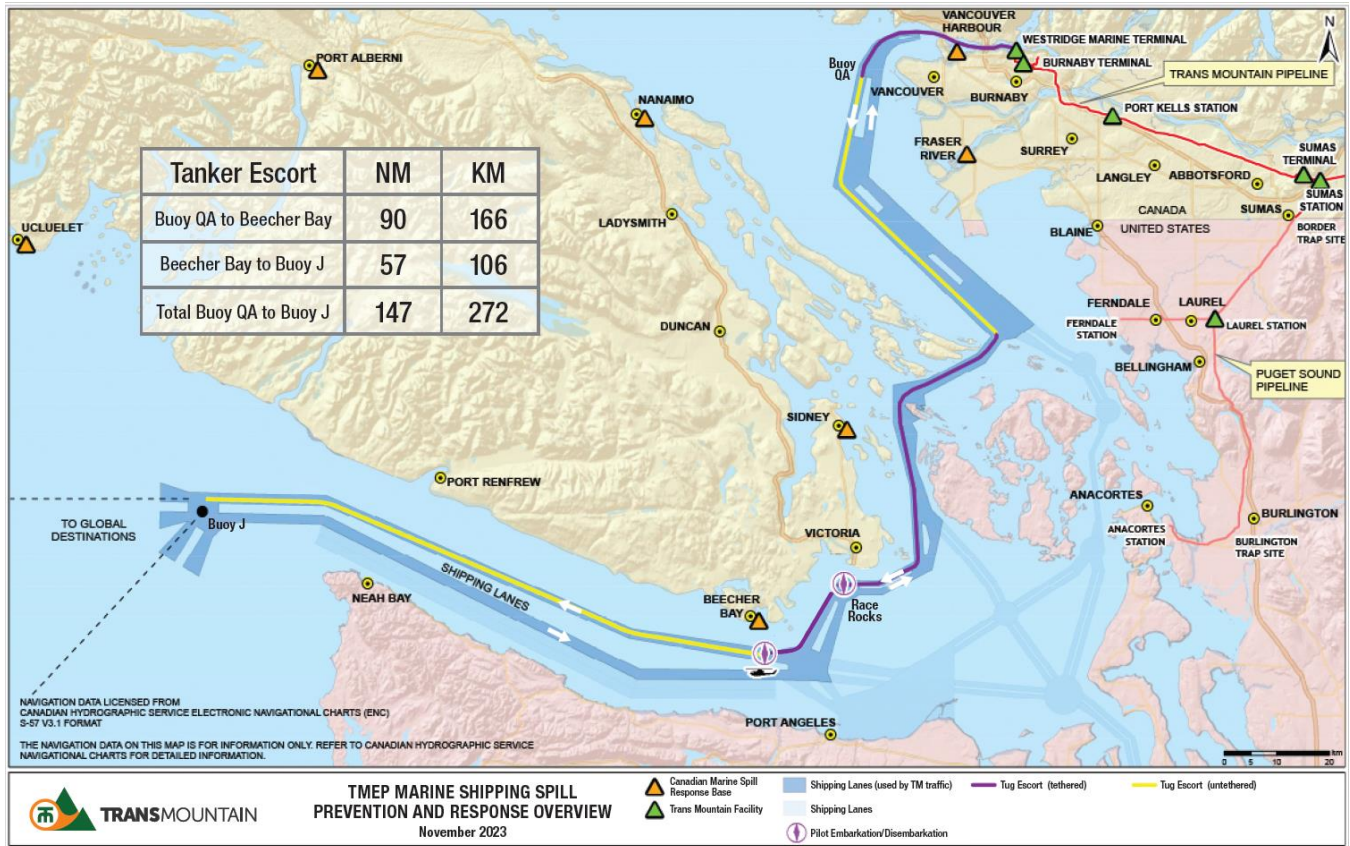
- Indirect towage – tug assists a ship around a channel. It uses propulsion to steer the tug away from the general direction of heading to create drag and includes towline force.
- Powered indirect – similar to indirect, but the tug actively drives forward and turns away from the direction of heading, generating high towline forces and doubling tug bollard pull. In an emergency such a manoeuvre may also be used to turn a ship away from danger.
- Transverse arrest – tug is connected (tethered) to the tanker's centre lead aft but used to slow and stop the ship – can be brought around into direct pull once speeds drop to less than 7 knots.
- Emergency (rescue) towage – tug connects (tethers) expeditiously with a ship to prevent drift grounding. Depending on the prevalent circumstances the connection with the ship may be by means of the ship's deployed emergency towing arrangement

17.6.6 Escort tugs shall be capable of meeting the criteria set in the Tug Matrix below:





**Figure 5: Map showing extent of tethered and untethered tug escort tracks**



To safely comply with tanker escort requirements, all vessels to which additional tug escort is applicable must review and confirm the compatibility and availability of appropriate mooring bits.

Capacity of fitted towing strong points, must be suitable for tethered escort purposes (up to 150 tonnes bollard pull).

Although most tankers are fitted with an Emergency Towing Apparatus (ETA), typically of 200 tonnes SWL, not all these systems are designed for routine (non-emergency) tethered escort tug services.

**Figure 7: Examples of vessel's towing strong points that are suitable for escort tug line securing.**



In case of any doubt, the master must seek clarification from the PPA through the appointed port agent by forwarding copies of the vessel's official mooring arrangement plans along with a photograph of the stern deck.

## 17.7 Marine Mammals

17.7.1 The region is inhabited by a variety of marine mammals. Much of the waters of southern British Columbia are designated critical habitat for endangered southern resident killer whales and important to other at-risk whales as well.

17.7.2 The Enhancing Cetacean Habitat and Observation (ECHO) Program is a Vancouver Fraser Port Authority-led initiative aimed at better understanding and managing the impact of shipping activities on at-risk whales.

17.7.3 Vessels must participate in any navigation initiatives sponsored by the local marine industry in the region and ECHO, including voluntary vessel slowdown in sections of the vessel passage between the Port of Vancouver and Buoy J; please check with the port agent on this matter. Such initiatives are typically of a seasonal nature during the summer months.

17.7.4 If a vessel sights a marine mammal in distress for any reason, the matter must be reported to MCTS. This includes any low-likelihood incident whereby a vessel makes physical contact with or strikes a whale.

17.7.5 Reporting details can be found in the Annual Notices to Mariners. More information on the ECHO Program can be found in the Port of Vancouver Port Information Guide and on the Port's website.

### 17.7.6 **Underwater Noise Effects on Marine Mammals.**

17.7.7 It has been determined that underwater noise from vessels interfere with marine mammals and impact these animals' ability to navigate, communicate, and locate prey. To mitigate underwater noise, the IMO's Marine Environment Protection Committee (MEPC) has issued non-mandatory Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life, which are intended to provide general advice about reduction of underwater noise. The MEPC notes that propeller polishing done properly removes marine fouling and vastly reduces surface roughness, helping to reduce propeller cavitation. In addition, maintaining a smooth underwater hull surface and smooth paintwork may also improve a vessel's energy efficiency by reducing the vessel's resistance and propeller load. Both measures will help to reduce underwater noise emanating from the vessel.

17.7.8 All vessels are requested to take note of these recommendations and endeavour to ensure the underwater portions of the vessel, including its hull and propeller, are clean and well maintained.

17.7.9 When transiting in ballast, vessels should ensure full propeller immersion; this is a requirement under international regulation, which besides ensuring navigation safety will prevent propeller ventilation that could contribute to increased underwater noise radiation.

17.7.10 Trans Mountain reserves the right to reject the vessel for future calls if it has been identified as having excessively fouled hull or propeller.

17.7.11 The Port of Vancouver ECHO Program can assess and provide reports on a vessel's underwater noise radiation level. Masters and ship operators are encouraged to use this service to become aware of their vessel's underwater noise radiation levels and as a means to support decisions on due hull or propeller cleaning.

## 17.8 Light induced seabird strikes

17.8.1 Seabirds are highly visually oriented and are known to become disorientated at night in the presence of artificial light, e.g., industrial setting near shore or marine vessels and may strike the vessel.

17.8.2 Observation of deceased maimed or disoriented seabirds on the deck of the vessel shall be reported to Canadian Coast Guard when the vessel is transiting Canadian waters or at anchorage and to Westridge Marine Terminal Supervisor or Marine Interface Supervisor while the vessel is alongside the Westridge Marine Terminal.

## 17.9 Testing of Vessel's Propulsion and Steering

17.9.1 Master of the vessel must ensure that main propulsion and steering are operating with normal efficiency and response time in both directions prior to entering Canada's territorial sea, and the vessel must be fully ready to manoeuvre freely while underway. Masters are reminded that the regulations of SOLAS Chapter V Regulation 26 or 33 CFR Chapter I 164.25 "Tests before entering or getting underway" must be complied with.

17.9.2 The tests are typically carried out prior to entering the Traffic Separation Scheme (TSS) from sea and one hour before getting underway from anchorage or berth.

17.9.3 A second vessel auxiliary engine generator must be kept running while the vessel is navigating in near coastal waters to provide redundancy and mitigate the effects of failure of a single auxiliary engine.

17.9.4 Any concerns with the vessel's propulsion or steering system must be immediately informed to the Vessel Traffic Service and also communicated to WMT either directly or via the vessel's port agent.

## 17.10 Vessel Traffic Services

17.10.1 The area between Buoy Juliet and the Port of Vancouver is covered by a VTS that is jointly managed by the Canadian Coast Guard and United States Coast Guard. Masters must familiarize themselves with VTS operating conditions before entering this area.

17.10.2 Vessels must only navigate within the appropriate boundaries and lane of the TSS, unless forced to deviate for safety reasons.

17.10.3 As much as practically possible and when safe to do so, vessels in Juan de Fuca Strait should remain close to the separation zone of the TSS, near mid-channel.

17.10.4 Marine Communications and Traffic Services (MCTS) of the Canadian Coast Guard can communicate with and monitor the movement of vessels in the VTS under their jurisdiction.

17.10.5 The VTS operator may be contacted by VHF on the channel allocated to the location of the vessel and on Channel 16.

## 17.11 Departure Route

17.11.1 As noted in the Master's Declaration, whenever a vessel laden with oil from WMT is departing for an overseas destination, after passing Buoy Juliet, the vessel must not steer a true course greater than 270° until it has passed beyond Canada's EEZ (exclusive economic zone).

17.11.2 Stay further away from key marine mammal foraging grounds within shipping lanes of the Strait of Juan de Fuca by remaining closer to the traffic separation zone.

## 17.12 Transit Call-in Points

17.12.1 Laden tankers must call in to VTS on the appropriate VHF channel and provide the requisite information at the normal call-in locations; and make a safety call (“SÉCURITÉ”) at additional times while transiting through Juan de Fuca Strait: off Race Rocks, Sheringham Point and Port Renfrew.

17.12.2 A call must also be made immediately in case of loss of propulsion or steering failure while within Canada’s EEZ.

## 17.13 Pilots

17.13.1 Under Canadian regulations, every foreign vessel over 350 GRT is required to use the services of a marine pilot when it enters BC waters. Pilotage services are provided by the British Columbia Coast Pilots Ltd. (BCCP), and the Pacific Pilotage Authority (PPA) regulates the pilotage service.

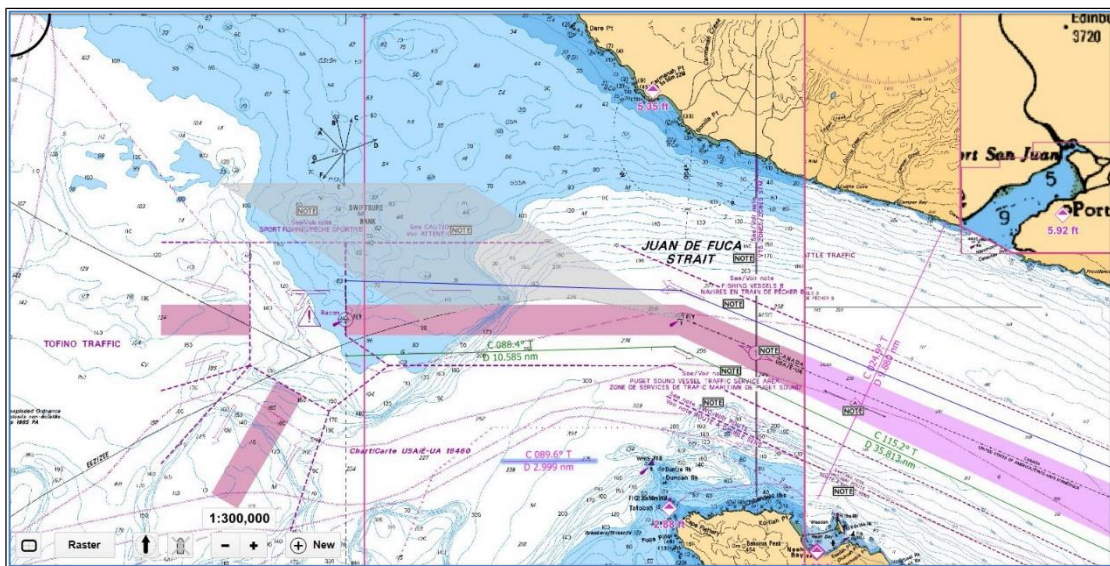
17.13.2 The PPA’s industry publications and notices can be accessed over the internet.

## 17.14 Swiftsure Bank

17.14.1 Commercial fishing boats, sports anglers and other small craft are known to congregate in large numbers, both underway and at anchor, near Swiftsure Bank, which is located near the western entrance of Juan de Fuca Strait (Figure 8).

17.14.2 When navigating in the area, Masters are requested to exercise special caution and set the bridge team strength to an appropriate level. Small boats are typically not fitted with an Automatic Identification System (AIS) and may not be able to detect other vessels in a timely manner.

Figure 8: Swiftsure Bank

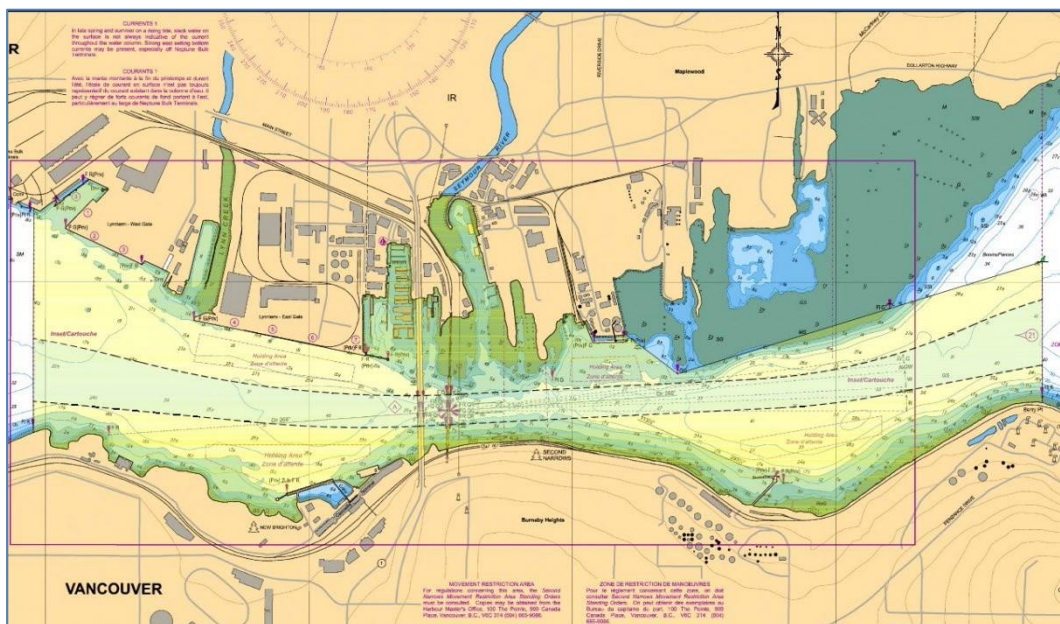


## 17.15 Transit Through Port Of Vancouver

### 17.15.1 Traffic Control Zones

- 17.15.1.1 When enroute and prior to entering Vancouver Harbour, vessels must communicate their intention to transit the harbour to CCG-MCTS via VHF Channel 12.
- 17.15.1.2 A Second Narrows Traffic Control Zone (TCZ) has been defined by the Port of Vancouver (Figure 9).
- 17.15.1.3 MCTS provides clear narrows broadcasts that aim to ensure transit of certain vessels through First and Second Narrows are unimpeded and that vessels are not met, overtaken or crossed ahead by other vessels.
- 17.15.1.4 When navigating in TCZ, all vessels with drafts greater than 15 m and laden tankers require a clear narrows authorization.
- 17.15.1.5 MCTS provides clearance to all tankers and barges transporting dangerous goods that transit the Second Narrows TCZ, after determining the vessel's schedule and considering tidal windows.
- 17.15.1.6 MCTS coordinates the movement of other vessels through the Second Narrows TCZ, which may delay clearances for vessels departing or transiting the Second Narrows Bridge.

**Figure 9: Vancouver Harbour Traffic Control Zone (TCZ-2)**



## 17.16 Tug Escort for Tankers

17.16.1 Laden (loaded) tankers transiting the Second Narrows TCZ require a minimum of two tugs, both inbound and outbound. They must comply with Port of Vancouver Port Information Guide, Vessels Tug Matching Matrix, which summarizes requirements for bollard pull and tug configuration.

17.16.2 When a loaded tanker is inbound, at the pilot's discretion, the tugs tether directly to the vessel at a suitable location on the west side of Second Narrows and escorts the vessel through to the east side of Second Narrows.

17.16.3 When a laden tanker is outbound, at least two tugs must stay tethered to the vessel through the Second and First Narrows transit to English Bay.

17.16.4 One tug remains tethered to the vessel until it passes Point Grey.

17.16.5 Empty tankers in ballast require an escort of at least two tugs within the TCZ2 at Second Narrows.

17.16.6 For additional tanker escort rules that apply through the Strait of Georgia, Boundary Pass and Haro Strait, review the relevant Notice to Industry issued by the Pacific Pilotage Authority .

#### 17.17 Tug Escorts for Barges

17.17.1 Barges moving within the Second Narrows TCZ2 must comply with Port of Vancouver Port Information Guide, Table 1: Barges-Tug Requirements, which summarizes bollard pull requirements and number of tugs required to transit through the TCZ2.

#### 17.18 Tug Assigned to Barges

17.18.1 The owner/operator of a tug that has been wholly assigned to tow or push a barge for the duration of its voyage will, for all practical purposes, be considered the owner/operator of both the tug and barge.

17.18.2 Both the tug and the barge must meet and follow all relevant port and WMT guidelines and will undergo a screening process before acceptance.

17.18.3 Those tugs operating under a pilot waiver must be completely familiar with the PPA's pilot waiver program.

17.18.4 Non-compliance may cause serious delays to the voyage, for which the tug's owner/operator will be held responsible and liable.

#### 17.19 Use of Anchorages

17.19.1 If the berth at WMT is not available, the Port of Vancouver may assign anchorage upon request via the pilot, ship's agent or MCTS. If vessel is early and the WMT berth is not available and there is no vacant anchorage spot, vessel should plan to remain at the waiting area.

17.19.2 Partly loaded vessels or vessels in ballast lying at anchor must ensure an appropriate amount of ballast is retained on board, if necessary, to always satisfy the vessel's minimum trim and propeller immersion criteria should they need to move on a short notice.

17.19.3 Noise levels and light usage should be minimized in consideration of residents in areas surrounding the Terminal and wildlife.

17.19.4 Each vessel calling Westridge Marine Terminal shall have main engine and auxiliary engines exhaust silencer fitted and in good condition.

17.19.5 MCTS will broadcast a wind warning advisory on VHF 12 to all vessels at anchor in the port when winds from any direction reach or exceed 25 knots. The wind warning advisory will be cancelled when winds have abated below 25 knots for more than one hour.

17.19.6 A prudent Vessel Master will ensure:

17.19.6.1 The anchor is properly and firmly set prior to the pilot departing the vessel.

17.19.6.2 The latest edition of the largest-scale chart is used for taking vessel positions.

17.19.6.3 A continuous navigational watch is always maintained; and the vessel is prepared to take early and effective action, including letting out more chain, use of engines to maintain position and calling for a pilot if repositioning of the vessel is required.

17.19.7 Extra caution should be exercised when exposed to winds over 20 knots from any direction by:

17.19.7.1 Closely monitoring distances to shore and to adjacent vessel at anchor, to ensure they are being maintained.

17.19.7.2 Having the main engines and propulsion gear immediately available for use; having the windlass arrangement and anchoring equipment prepared and in good working condition.

## 17.20 Vessel Documentation

### 17.20.1 Documents on Arrival

17.20.1.1 The vessel's trading certificates, and various other documents must be available for review by the Marine Interface Supervisor. The following is a list of documents more frequently requested to review:

17.20.1.1.1 Vessel Crew and Passenger Lists.

16.21.1.1.2 Vessel's logbooks.

17.20.1.1.2 Class Certificate and Record of Survey.

17.20.1.1.3 IOPP (International Oil Pollution Prevention Certificate).

17.20.1.1.4 SOPEP (Ship Oil Pollution Emergency Plan).

17.20.1.1.5 International Air Pollution Certificate.

17.20.1.1.6 International Sewage Pollution Prevention Certificate.

17.20.1.1.7 Garbage record book.

17.20.1.1.8 Oil record book Parts I and II.

17.20.1.1.9 Bunker delivery receipt.

17.20.1.1.10 Ballast Water Management Plan.

17.20.1.1.11 Updated charts for the intended routes.

17.20.1.1.12 Ship Energy Efficiency Management Plan (SEEMP).

17.20.1.1.13 Hull and propeller maintenance logs.

17.20.1.1.14 Ship Membership Agreement with Western Canada Marine Response Corporation.

17.20.1.1.15 Phytosanitary Certificate for Flighted Spongy Moth Complex (arriving during FSMC risk period).

17.20.1.1.16 Safety Data Sheet/s.

17.20.1.1.17 Bills of Lading (applicable to a discharging vessel).

17.20.1.1.18 Shipping documents for bulk liquid cargoes.

- 17.20.1.1.19 16.21.1.1.20 Cargo stowage plans and records.
- 17.20.1.1.20 VOC (Volatile Organic Compound) Management Plan
- 17.20.1.1.21 Vessel gas tightness certificate.

17.20.1.2 To facilitate pre-transfer formalities, vessels should have the following documentation readily available for review on arrival at WMT:

- 17.20.1.2.1 Cargo stowage plan: identities of cargoes, quantities and tanks stowed in, or to be stowed in, as applicable.
- 17.20.1.2.2 Ballast stowage plan: quantities and tanks where ballast is stowed in, or to be stowed in, as applicable.
- 17.20.1.2.3 Oil transfer procedure for the operations at WMT.
- 17.20.1.2.4 Other relevant information, such as tank cleaning records, list of previous cargoes carried and Vessel Experience Factor calculations.

## 17.21 Documents Prior Departure

17.21.1 It is the vessel's responsibility to verify the validity of applicable cargo documents.

17.21.2 It is expected that vessels would operate under Early Departure Procedures (EDP). EDP means the practice whereby a vessel departs the terminal prior to the bill of lading having been issued, the Master having provided authority to the port agent to sign bills of lading after the vessel's departure. Since the vessel's transit through the Second Narrows depends on acceptable tidal conditions being met EDP will allow vessels to sail WMT in a timely manner and thereby avoid delays and further waiting at anchor.

17.21.3 The port agent for the vessel should be authorized for this purpose and to facilitate EDP.

17.21.4 Bills of Lading will be prepared by the appointed port agent for the vessel. The Master is responsible for verifying the cargo figures inserted to Bills of Lading.

17.21.5 WMT does not accept any responsibility or liability for discrepancy between the vessel's figures and those inserted to Bills of Lading.

17.21.6 The Master and the port agent of the vessel will cooperate in preparing a Statement of Fact (SOF) covering the entire time the vessel remains within Canada's EEZ.

17.21.7 A running SOF will be shared with WMT upon acceptance of the Notice of Readiness and upon sailing from WMT and finally upon leaving Canada's EEZ if sailing overseas.



17.21.8 The following table provides a summary of key documents indicating persons responsible for preparing these documents:

**TABLE 8:**

Documentation	Document Prepared by				
	Shipper	Terminal	Agent	Vessel	Cargo Inspector
Statement of Facts (Timesheet)		X	X	X	
Sailing Advice	X		X		
Cargo Custody Transfer Meter Ticket		X			
Bill of Lading			X		
Certificate of Quantity					X
Certificate of Quality					X
Certificate of Origin (Issued by VBOT)			X		
Cargo Manifest			X		
Ship Ullage Report				X	
Master Receipt of Samples					X
Master Receipt of Documents					X
Safety Data Sheet		X			
Letter of Protest if any		X		X	X

## 17.22 Port Call Records

17.22.1 Records pertaining to all tasks undertaken and information gathered to comply with this procedure will be maintained as per Trans Mountain's Document Record Keeping Standard, which requires that for each vessel the records will include the following:

Vessel Name.

Port Call ID (issued by Trans Mountain).

Comprehensive Statement of Facts for the entire time the vessel operated in Canadian waters including Canadian EEZ if arriving and departing overseas.

Confirmation of the validity of certificates noted in the Vessel Proposal Form.

Confirmation that the appropriate public and industry database records have been reviewed, including SIRE, Equasis, Port State Control and U.S Coast Guard.

Verification of mariners' qualifications and that experience of officers are suitable, reflected in a current Officer Matrix and minimum combined two years of experience in rank of the two most senior officers of the deck and engine departments onboard.

Any deficiencies noted or incidents during the port call. Any follow-up requirements.

Cargo details, including available quality and quantity certificates.

**Reference Table 9:**

Sr.	Document Name	Remarks
1	Port of Vancouver: Port Information Guide <a href="http://portofvancouver.com/portusers/marineoperations/annualsandregulations.aspx">portofvancouver.com/portusers/marineoperations/annualsandregulations.aspx</a>	Provides instructions on navigating the Port of Vancouver.
2	Trans Mountain Vessel Acceptance Standard and associated procedures and documents	Available at <a href="http://www.Transmountain.com">www.Transmountain.com</a> Agent to provide to Master prior to vessel's arrival.
3	Pacific Pilotage Authority industry publications and notices <a href="http://ppa.gc.ca/text/notice_to_industry-e.html">ppa.gc.ca/text/notice_to_industry-e.html</a>	Provides instructions on the use of pilots and escort tugs pertaining to the west coast of Canada.
4	BC Chamber of Shipping: Advisory to Ship Masters and Agents: Anchorage Guidelines	Provides instructions on anchoring in the Port of Vancouver. Agent to provide copy to Master prior to vessel's arrival.
5	International Safety Guide for Oil Tankers and Terminals (ISGOTT) <a href="http://isgott.co.uk/">isgott.co.uk/</a>	Provides general safety guidelines for oil tankers and terminals.
6	Oil Company International Marine Forum Ship Inspection Report Programme (SIRE) <a href="http://ocimf.com/SIRE/introduction">ocimf.com/SIRE/introduction</a>	Provides information on required vessel inspections.
7	International Convention for the Safety of Life at Sea (SOLAS 74) <a href="http://imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx">imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx</a>	An international treaty that concerns the safety of merchant ships.
8	Canadian Coast Guard (CCG) Notice to Mariners <a href="http://notmar.gc.ca/">notmar.gc.ca/</a> Annual Notices to Mariners <a href="http://notmar.gc.ca/publications/annual-annuel/annual-notices-to-mariners-eng.pdf">notmar.gc.ca/publications/annual-annuel/annual-notices-to-mariners-eng.pdf</a>	Informs mariners of important navigational safety matters affecting Canadian waters.
9	Canadian Hydrographic Service (CHS) Chart No.3495 Vancouver Harbour Eastern Portion (or equivalent)	Vessel to carry Chart No.3495 (or equivalent) for accessing WMT. Vessel to carry other charts as required.  All navigation charts must be corrected and up to date with recent Notices to Mariners.
10	WCMRC Membership Agreement <a href="http://cosbc.ca/index.php/our-services/oil-spill-response/registration-process">cosbc.ca/index.php/our-services/oil-spill-response/registration-process</a>	Must be completed prior to entering Canadian waters. Valid for one year.
11	Guidelines for the Reduction of Underwater Noise from Commercial Shipping to Address Adverse Impacts on Marine Life <a href="http://intertanko.com/upload/98595/Guidelines%20For%20The%20Reduction%20Of%20Underwater%20Noise.pdf">intertanko.com/upload/98595/Guidelines%20For%20The%20Reduction%20Of%20Underwater%20Noise.pdf</a>	Provides information on impact of underwater noise radiations from vessels and means to minimize it.
12	ECHO Program Noise Infographic, April 2016 <a href="http://portvancouver.com/wp-content/uploads/2016/04/ECHO-Program-Underwater-Noise-Infographic-April-2016.pdf">portvancouver.com/wp-content/uploads/2016/04/ECHO-Program-Underwater-Noise-Infographic-April-2016.pdf</a>	Provides information on impact of underwater noise from vessels.

Sr.	Document Name	Remarks
13	Vancouver Fraser Port Authority (VFPA) EcoAction Program <a href="https://www.portvancouver.com/environmental-protection-at-the-port-of-vancouver/climate-action-at-the-port-of-vancouver/ecoaction-program/">https://www.portvancouver.com/environmental-protection-at-the-port-of-vancouver/climate-action-at-the-port-of-vancouver/ecoaction-program/</a>	Vessel operators are encouraged to review VFPA EcoAction Program requirements.
14	Mariner's Guide to Whales, Dolphins and Porpoises of Western Canada <a href="http://wildwhales.org/conservation/marinersguide/">wildwhales.org/conservation/marinersguide/</a>	Useful reference guide on marine mammals on the BC coast.
15	Canada Food Inspection Agency, Invasive alien species and domestic plant health programs, e.g., including Plant protection policy for marine vessels arriving in Canada from areas regulated for FSMC (Flighted Spongy Moth Complex previously known as Asian Gypsy Moth) <a href="https://inspection.canada.ca/plant-health/plant-pests-invasive-species/directives/invasive-alien-species-and-domestic-plant-health-p/d-95-03/eng/1321945111492/1321945247982">https://inspection.canada.ca/plant-health/plant-pests-invasive-species/directives/invasive-alien-species-and-domestic-plant-health-p/d-95-03/eng/1321945111492/1321945247982</a>	Important information for arriving vessels
16	Trans Mountain Environment, Health and Safety Policy <a href="https://transmountaincanada.sharepoint.com/sites/Mainline/tools/docs/Documents/EHS%20Policy.pdf">https://transmountaincanada.sharepoint.com/sites/Mainline/tools/docs/Documents/EHS%20Policy.pdf</a>	

## 18.0 APPENDIX A

### 18.1 Environmental Health & Safety Policy

#### Policy Statement

The Environment, Health, and Safety (EHS) Policy serves to state and reinforce Trans Mountain's commitment to EHS principles in all aspects of its business activities.

#### Background

Trans Mountain is committed to ensuring that the principles of EHS remain a top priority wherever we operate. All employees and contractors working for, or on behalf of Trans Mountain must share in the commitment of protecting people and the environment, contributing to sustainable development by using materials, natural resources and energy efficiently, and promoting best practices to ensure we continue to earn the confidence of our customers, and the public.

#### Purpose

This Policy establishes the EHS principles by which Trans Mountain's business activities must be conducted and provides confirmation of Trans Mountain's commitment to the health and safety of our employees and contractors, the public, as well as to environmental protection and sustainability.

#### Applicability

This Policy applies to all employees, contractors, consultants, entities, companies, and offices under our operational control.

#### Guiding Principles

- We comply with all environmental, health and safety, laws, rules and regulations, not just because it is legally required, but also because we believe it is the responsible way to conduct our business.
- We have a systematic approach to environmental, health, and safety, (EHS) management designed to comply with the law and follow industry best practice through the implementation of our environmental management system and Life Saving Rules.
- We train our employees and contractors to be aware of and meet their responsibility for environmental protection, as well as health, safety and to achieve continuous performance improvement.
- We ensure all workers are aware of and understand their right to refuse unsafe work and the authority to stop any work they believe will endanger their health or safety, or that of others.
- We actively identify and manage risks to prevent or reduce possible adverse consequences from our operations and undertake a precautionary approach to EHS challenges.
- We have systems in place to ensure we are prepared for emergencies and procedures that coordinate our response plans with emergency response organizations to minimize the impacts to the environment and the communities where we operate.
- We assess and manage exposure of our employees and contractors to EHS hazards in our operations.
- We monitor and report EHS performance in support of our sustainability goals.
- We implement strategies to reduce our environmental footprint and meet our emissions reduction goals.
- We engage our leadership and resources to effectively implement and execute the principles above.

#### Compliance

All employees, contractors, and consultants working for, or on behalf of Trans Mountain shall comply with this Policy; any purposeful violation of this Policy may result in disciplinary action, including, where applicable, termination of employment/employment services agreement and/or legal action.

#### Review and Approval

This Policy, including any substantial revisions following its initial publication, shall be sanctioned by the Director, EHS and approved by Trans Mountain's President and Chief Executive Officer. Administrative modifications to this Policy and its appendices may be approved by the Director, EHS.

## 19.0 APPENDIX B

### 19.1 Vessel Berthing Orientation and Mooring Arrangements

Conventional practice with many crude and product loading terminals is for the vessels to berth facing toward the direction of departure, which for Westridge Marine Terminal it would be in westerly direction. While this is expected to be the preferred berthing orientation at WMT, the BC Coast Pilots bringing vessels alongside WMT berths can berth the vessel facing in either direction depending on local weather conditions prevailing at the time of arrival. Since the WMT berth facilities are essentially symmetrical about the vessel manifold, all three berths can safely accommodate the design vessels facing either east or west. There are however three features of the berths which are not symmetrical as follows:

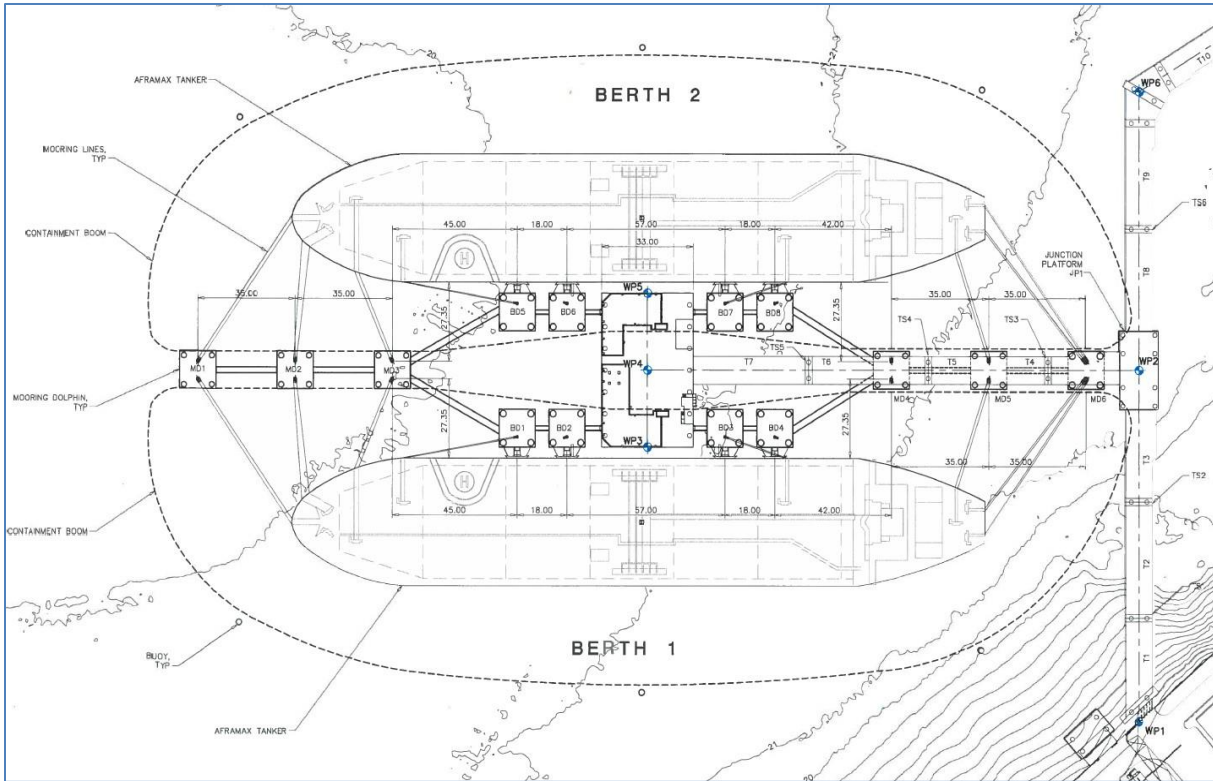
**Docking Assistance Display Units.** Each berth is equipped with one Docking Assistance Display Unit. The display units are mounted on the aft-most berthing dolphins for each berth, i.e., on BD4, BD8, and BD12, to allow the displays to be seen from the vessel's bridge when the vessel is facing west.

**Quadruple QMRH (Quick Release Mooring Hooks)** are provided only at MD6 (for Berths 1 and 2) and MD 12 (for Berth 3), corresponding to the aft end of the largest design vessel. This allows the vessel's crew to deploy either 2, 3 or 4 lines to MD6/MD12 depending on preference. The other mooring dolphins are equipped with triple hooks and berthing dolphins are equipped with double hooks each. Most Aframax vessels will deploy up to 8 lines at each end of the ship (i.e., 8 forward and 8 aft.). For vessels facing west there are a total of 13 mooring hooks available to accommodate the 8 forward lines, while there are a total of 14 mooring hooks available to accommodate the 8 aft lines. If vessels are moored facing east forward and aft lines have 14 and 13 hooks available respectively.

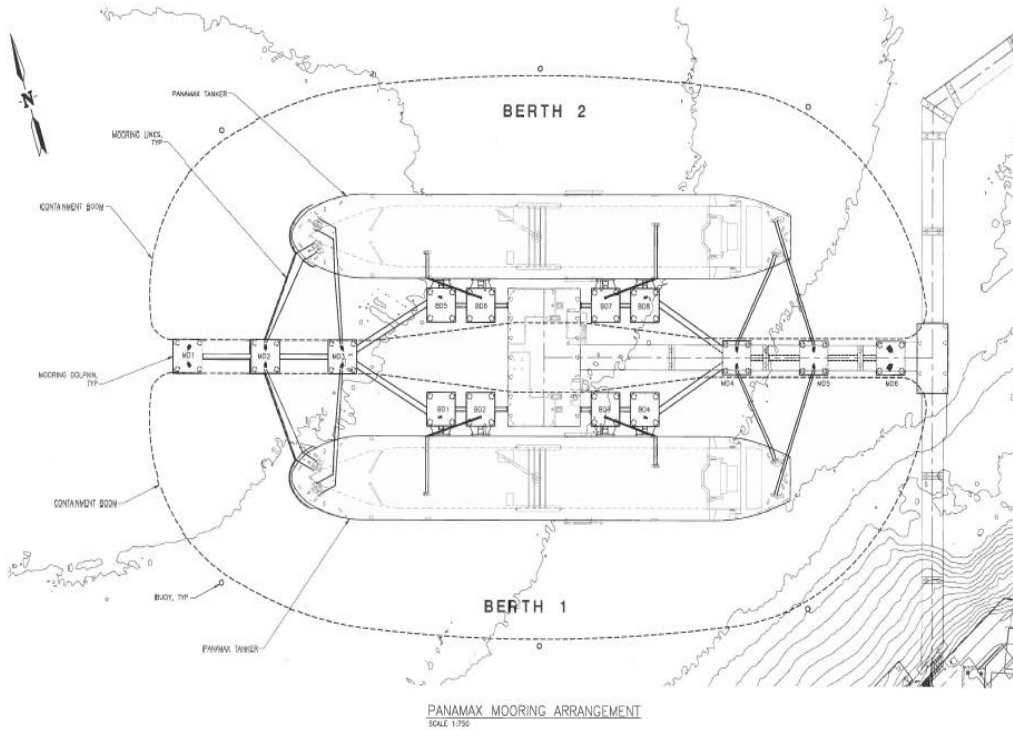
**Vessel access gangway tower.** Each berth is equipped with one gangway tower, located on the eastern end of the loading platform at each berth which translates to shore gangway placement aft of the cargo manifold for vessels facing west, and forward of the cargo manifold for vessels facing east.

Barges can be moored at any of the three Berths, however, due to their smaller size, attaching mooring lines to the middle and outer Mooring Dolphins may not be feasible but using inner most Mooring Dolphins and Berthing Dolphins will provide adequate lead and number of QRMH to secure the mooring lines. Depending on their freeboard and height of tide, barge spring lines may need to be secured to one of the Berthing Dolphin fender vertical pipe tie-up rails on the fender outer edges which can accept barge mooring lines. Designed safe working load of these vertical tie-up rails is 50 tonnes.

**Figure 10: Aframax Tanker Mooring Configuration 4-2-2 at Berth 1 and Berth 2.**



**Figure 11: Panamax Tanker Mooring Configuration 2-2-2 (forward and aft) at Berth 1 and Berth 2**



**Figure 12: Handymax Tanker Mooring Configuration 2-2-1 (forward and aft) at Berth 1 and Berth 2**

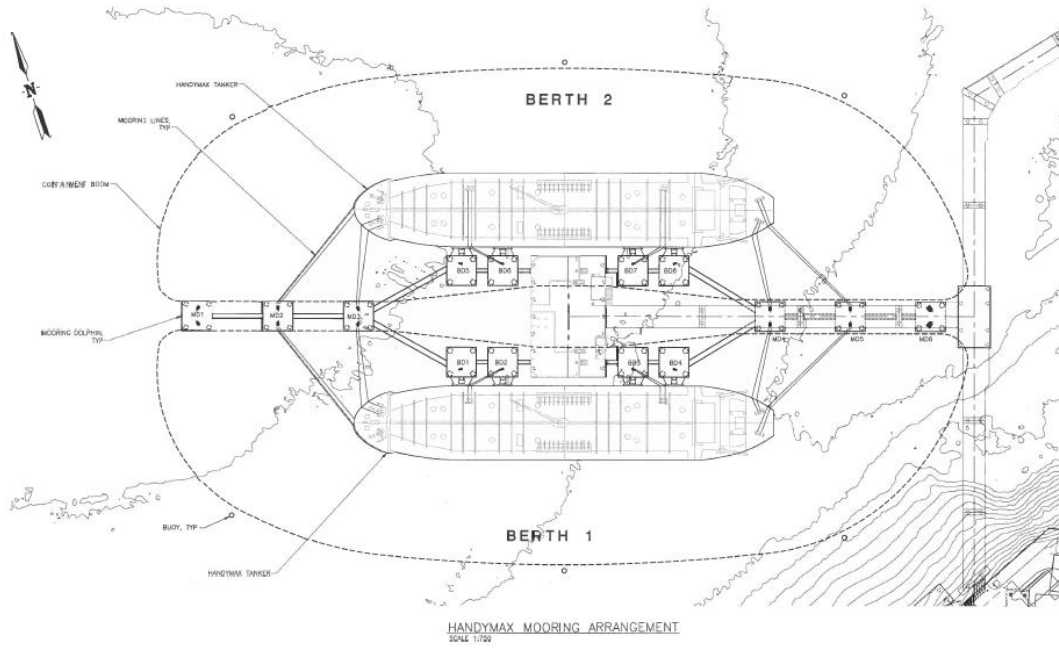
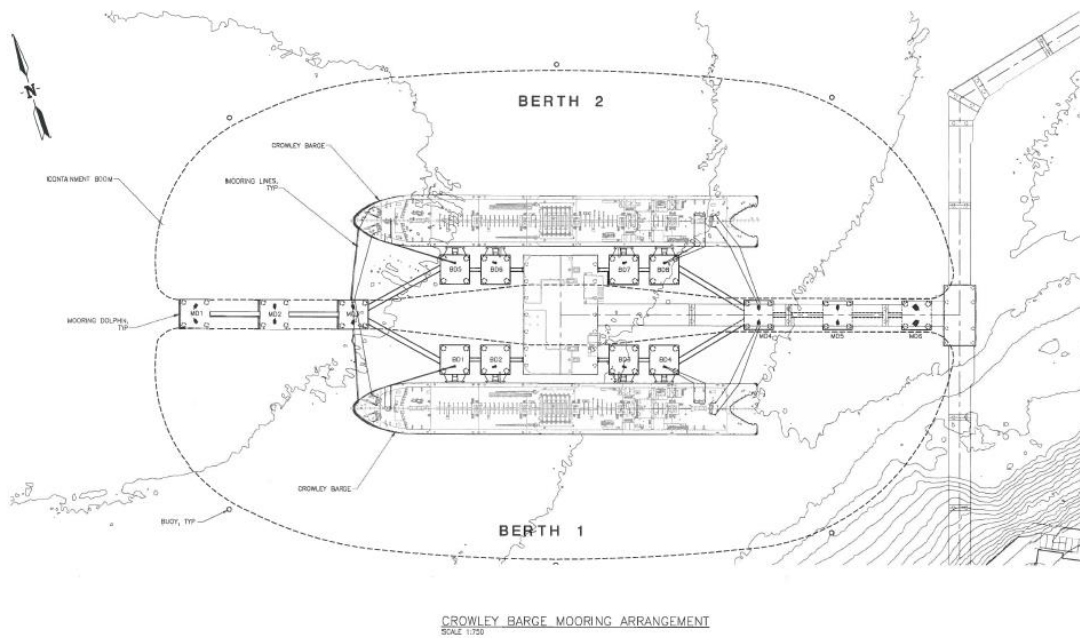
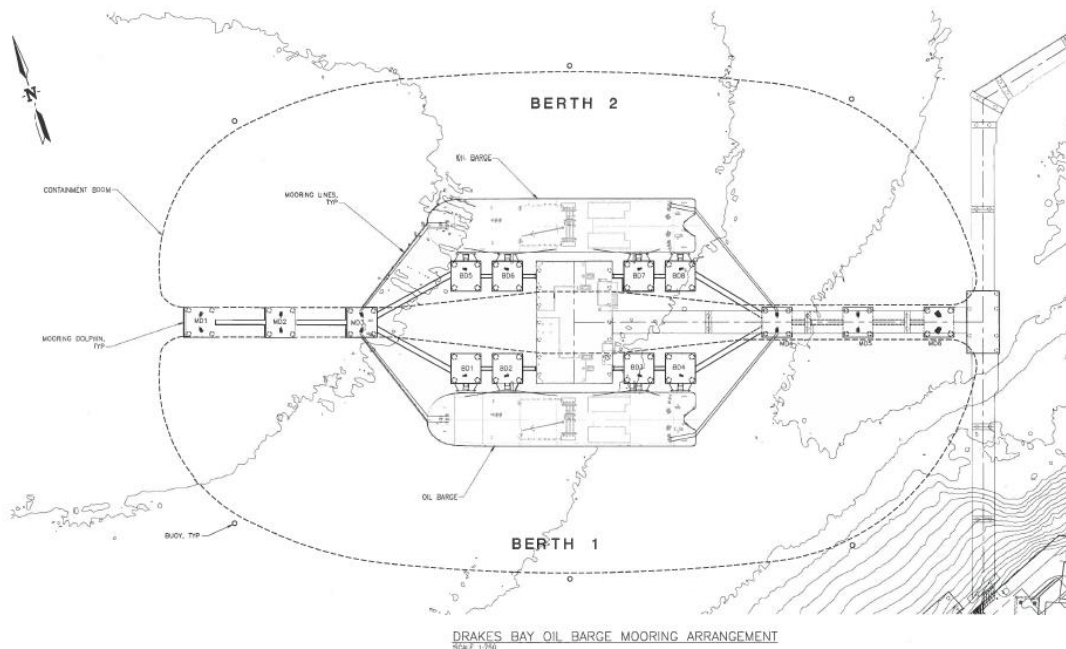


Figure 13: Crawley tanker barge Mooring Configuration 2-1 (forward) and 2-2 (aft) at Berth 1 and Berth 2





**Figure 14: Drakes Bay tanker barge Mooring Configuration 2-1-1 (forward) and 2-1-1 (aft) at Berth 1 and Berth 2**

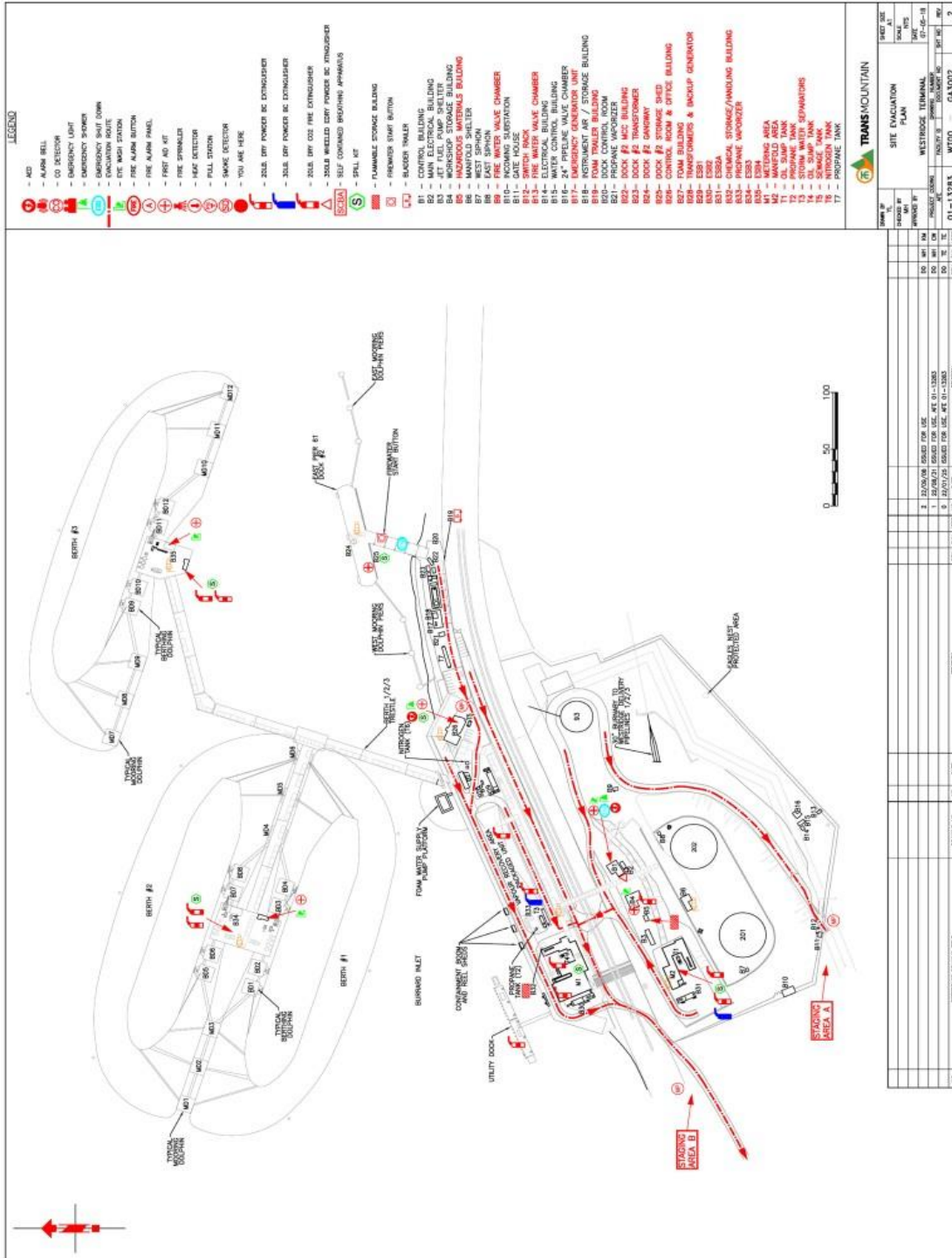


# 20.0 APPENDIX C

## 20.1 Westridge Marine Terminal Evacuation Route

Posted in Westridge Control Centre and copy provided to all vessels during pre-transfer conference.

Emergency Evacuation Route with Muster Locations



## 21.0 APPENDIX D

### 21.1 Westridge Marine Terminal Floating Security Gates layout (General Arrangement and design)

Berth #1 entry and exit gate between Buoy 1 and Buoy 2

Berth #2 entry and exit gate between Buoy 2 and Buoy 3

Berth #3 western entry/exit gate between Buoy 4 and Buoy 5

Berth #3 eastern entry/exit gate between Buoy 7 and Buoy 8

