Vancouver Energy
Operations Facility Oil Handling Manual

Plan No. OP.05 | Revision 00

Approved by:

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Designated Agent for EFSEC Application No. 2013-01
Date: 26 June 2015

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Vancouver Energy
Operations Facility Oil Handling Manual

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590
26 June 2015

Prepared for

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Record of Revisions

This record of revisions complies with the regulations of U.S. Coast Guard found at 33 CFR Section 154.310(c), and Washington State Department of Ecology regulations found at WAC 173-180-415(3).

No.	Date	Section Amended	Description of Change	Initials
00	26 June 2015		Submittal for Application Review	

Vancouver Energy
Operations Facility Oil Handling Manual

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1. Introduction

1.1 Purpose of Plan

This operations facility oil handling manual has been prepared for the Tesoro Savage Petroleum Terminal LLC's (Company) Vancouver Energy (Facility) to satisfy the requirements for an operations manual as found in Washington State statutes and the federal requirements of the U.S. Coast Guard (USCG) for facilities transferring oil in bulk.

This document is a PRELIMINARY version of the manual that will be prepared, implemented, and submitted as necessary to applicable state and federal agencies in accordance with applicable laws and regulations prior to the beginning of operations of the Facility. This manual has been developed based on Facility design completed at the time of writing. The Company will update this manual based on additional consultation conducted during the permitting effort for the Facility and the final design of the Facility. This preliminary manual is intended to be indicative of the planning and response strategies to be implemented by the Company at the Facility.

The purpose of this operations facility oil handling manual is to provide information and operational procedures for the transfer of oil product in bulk. The manual is written to address the operations manual requirements found at Washington Administrative Code (WAC) Chapter 173-180-420, and at Title 33 Code of Federal Regulations (CFR) Part 154, Subpart B. A regulatory cross reference is provided in Appendix N.

1.2 Submittal Agreement

This section complies with the regulations of the Washington State Department of Ecology (Ecology) found at WAC 173-180-420(2)(a) through (d).

1.2.1 Name, Address, and Phone Number of the Submitting Party

Vancouver Energy
Tesoro Savage Petroleum Terminal LLC
5501 NW Old Lower River Road
Vancouver, Washington 98660

Submitted by:
Kelly Flint, Senior Vice President and Corporate Counsel, Savage Companies
Telephone: 801-944-6600

1.2.2 Verification of Acceptance and Commitment to Execution

The undersigned, owner and operator of this Class 1 Facility, verifies acceptance of the operations manual and commits to execution of the operations manual. The undersigned is a person with the authority to bind the corporation, who owns this Facility and to make appropriate expenditures in order to execute the provisions of this operations manual.

_____ _____

By: Date
Title:

2. Facility Description

2.1 Geographic Location

This section complies with the regulations of USCG found at 33 CFR Section 154.310 (a)(1), and Ecology regulations found at WAC 173-180-420(3)(a).

The Facility is located at the Port of Vancouver USA (Port) within the City of Vancouver (City) in Clark County, Washington. The site is located on the Washington shore of the Columbia River. The site address is 5501 NW Lower River Road, Vancouver, Washington 98660. The marine dock is located at Port Terminal No. 4, on the north side of the Columbia River, at River Mile 103.5, approximately 2.5 miles downriver of the Interstate 5 bridge. The facility is located at latitude 45° 39’ 6” N and longitude 122° 43’ 52” W. The facility location is shown in Figure 1.

2.2 Physical Description

This section complies with the regulations of USCG regulations found at 33 CFR Section 154.310(a)(2) and Ecology regulations WAC 173-180-420(3)(a) (ii) and (xiii).

The Facility provides transloading services for pipeline quality crude oil from railcars to marine vessels. The Facility site is approximately 47.4 acres in size and comprises elements within the following “area” groupings, as illustrated in Figure 2 and detailed in Table 1, Summary of Facility Areas. More detailed plans are provided in Appendix A.

- Area 200 – Rail Unloading – located at Terminal 5 of the Port
- Area 300 – Storage – located at Parcel 1A of the Port
- Area 400 – Marine Terminal – located at Berths 13 and 14 at the Port
- Area 500 – Transfer Pipelines – located between areas 200, 300, and 400
- Rail Infrastructure – located at Terminal 5 of the Port

The Facility will receive an average of four unit trains per day and unload an average of 360,000 barrels (bbl) of crude oil per day. Six nominal capacity 380,000 bbl tanks are used to store crude oil on site. A transfer pipeline system will be used to convey crude oil from Area 200 to Area 300 for storage, and from Area 300 to Area 400 for vessel loading. The transfer pipeline system can also be operated to move crude oil from Area 200 directly to Area 400.

Figure 1. Facility Location Map

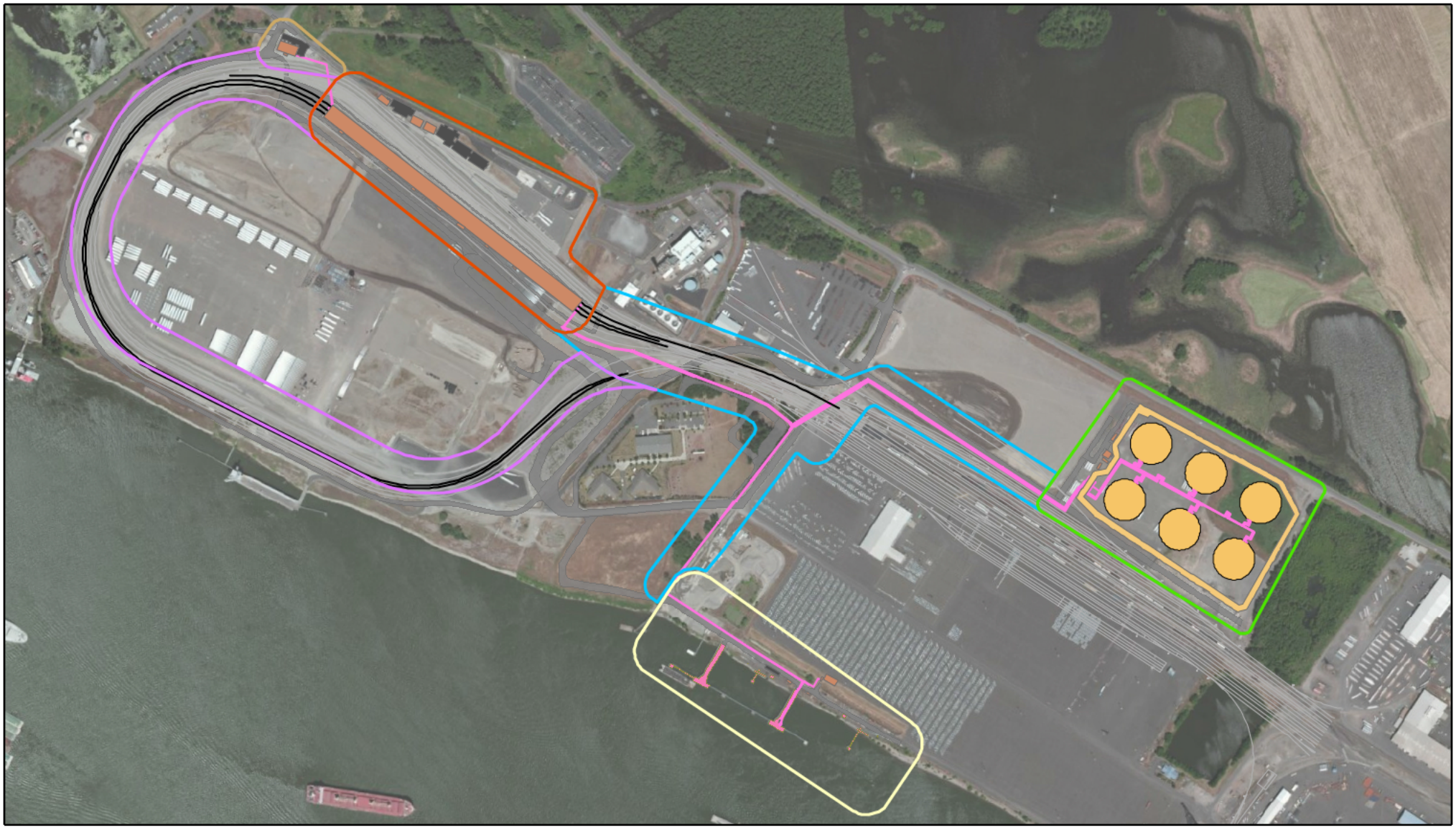

Figure 2 - Site Plan

VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

Proposed Project Facilities

- Containment Berm
- Transfer Pipeline
- Rail
- Storage Tank
- Parking
- Roads
- Building
- Marine Terminal

TSPT Improvement Areas

- 200 - Unloading and Office
- 300 - Storage
- 400 - Marine Terminal
- 500 - Transfer Pipelines
- 600 - West Boiler
- Rail Infrastructure

0 250 500 1,000
Feet

N

Date: February 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

Table 1. Summary of Facility Areas

Facility Area	Project Elements	Acreage
200 – Unloading and Office	Rail Unloading Area Control Rooms/E-houses Fire Pump and Foam Building Admin/Support Buildings	7.8 Acres
300 – Storage	Crude Oil Storage Tanks Secondary Containment Berm Storage Building Pump Basin Control Room/E-house Fire Pump and Foam Building	20.8 Acres
400 – Marine Terminal	Marine Vessel Loading Hoses and Equipment Control Room/E-house Dock Safety Unit Marine Vapor Combustion Units Vapor Blower Skid Spill Prevention, Response and Containment Equipment Dock Improvements Piping from Vessel Loading to Marine Vapor Combustion Units	7.7 Acres
500 – Transfer Pipelines	Transfer Piping from Area 200 to Area 300 Transfer Piping from Area 300 to Area 400*	4.9 Acres
600 – Boiler Building	Boiler Building	0.8 Acre
Rail Infrastructure	Rail Transportation Corridor	5.4 Acres
Total		47.4 Acres

*Transfer piping is arranged to also allow direct transfer from Area 200 to Area 400, bypassing storage in Area 300.

2.2.1 Area 200 – Unloading and Office

Area 200 is located at 5501 NW Old Lower River Road in Vancouver and includes the administrative and support buildings, parking, rail access to the rail unloading facility, and the rail unloading facility. Area 200 is accessible from an unnamed private road owned and maintained by the Port. Area 200 facilities cover an area approximately 7.8 acres in size.

The rail unloading facility is a covered structure through which the trains are pulled and secured for unloading. The structure is approximately 1,850 feet long by 91 feet wide with a maximum height of approximately 50 feet. The building structure is open on the north, west, and east sides, and the southern wall is partially enclosed with built segments along the wall acting as a weather break.

Each of the three tracks includes 30 unloading stations for handling crude oil. Each station uses a completely closed loop of piping to prevent any atmospheric contact with the product during unloading. The entire 1,850 feet of the rail unloading facility includes full coverage rail collection pans, and the interior ground surfaces are constructed of concrete to contain any accident releases, as well as provide catchments for all stormwater that drips from railcars or is blown into the rail unloading facility by the wind.

All mechanical piping is located in concrete secondary containment trenches, and the pump basins used to transfer crude oil from the rail unloading facility to Area 300 storage are in below-grade concrete basins. The collection piping from the rail drip pans and rail unloading facility floor drains are mostly located in these concrete trenches with discharge pumps located in the pump basins. Water collected from within the rail unloading facility is collected in these systems and pumped to two containment tanks

located in the area of the administrative/support buildings. Other than from office buildings, there is no hydraulic connection to storm or sanitary sewers from within the rail unloading footprint.

Several accessory structures and equipment pads are located adjacent to the rail unloading facility, including electrical house (E-house) control rooms, fire pump and foam building, electrical equipment pads, and mechanical equipment pads.

The administrative/support buildings are located north of the rail unloading facility adjacent to Old Lower River Road. This area consists of three proposed modular structures, parking, and associated landscaping. In addition, the containment tanks for discharges from the rail unloading facility are located near the parking lot. A pedestrian bridge connects the administrative/support buildings to the rail unloading facility.

2.2.2 Area 300 – Storage

Area 300 contains storage tanks and associated containment areas, and includes a single pump basin used to transfer crude oil from the storage tanks to the Marine Terminal and associated support buildings and equipment pads.

The storage area includes six double-bottom, internal floating-roof aboveground storage tanks for storing crude oil. The tanks are approximately 50 feet in height and 240 feet in diameter. Each tank has capacity to store 380,000 bbl of crude oil. The maximum volume of oil to be stored is 360,000 bbl.

The containment area includes an earthen perimeter berm approximately 6 feet in height, which is tall in size to contain the release of 110 percent of one entire tank volume and a 100-year rainfall event. Intermediate berms approximately 2 feet tall are positioned between each tank to segregate the containment area. This capacity reflects the most stringent of Washington spill prevention and control and National Fire Protection Association (NFPA) requirements.

Each tank has a fixed roof to keep precipitation from reaching the inside of the tank and an internal floating roof (with dual seals) to control vapor emissions from the tank to the atmosphere. The floating roof is designed to avoid tipping during operations.

The double-bottomed tanks include a leak detection system between the tank floors and are equipped with cathodic protection to prevent corrosion. The entire tank containment area is lined with an impervious membrane to prevent any potential spills from leaving the containment area via infiltration into the ground.

Stormwater flows to a control structure, which passes the water at a controlled flow rate through two parallel oil/water separators for free oil removal. The water then passes into a stormwater pump station equipped with two submersible pumps that discharge to a treatment system. This water is comingled with the parking lot runoff prior to treatment and treated for turbidity, heavy metals, and volatile organics (benzene).

Crude oil stored in the tanks is pumped to the dock for transfer to a ship or barge. Approximately three to six variable speed pumps pump the crude oil, at least one of which would be on standby.

The pumps are housed in the tank storage pump basin located on the west side of the storage tank area. Stormwater flows by gravity from the pump basin through an oil/water separator to the sanitary sewer. There is a valve on the line to interrupt flow to the sewer if necessary.

The support buildings (including a storage building, fire water pump and foam building, control room/E-house, electrical pads, and mechanical pads) are constructed outside the containment area on slab-on-grade foundations. A small storage tank of approximate 500-gallon capacity is located inside the fire pump skid to hold ultra-low sulfur diesel fuel used to fuel the fire pump. The pump basin is isolated from the containment area by its concrete walls; the basin providing secondary containment for the pump machinery.

2.2.3 Area 400 – Marine Terminal

Crude oil is transferred by 36-inch-diameter pipeline to vessels at Berth 13, located at Area 400. Hoses supported by cranes or a pulley system are connected to the manifold used to transfer the crude oil from the piping system to the vessel being loaded. The hoses are connected to the grounding grid to protect against the buildup of static electricity. The loading system incorporates automatic shutoff valves with a maximum 30 seconds until shutoff. The pipelines serving the dock undergo annual hydrostatic testing as required by federal standards. A steel containment pan capable of holding 3 bbl of discharge is positioned below the deck level for the containment of inadvertent releases, in addition to stormwater, that may fall in the catchment area. The containment pan gravity flows to upland treatment (oil/water separator and carbon filtration) and discharges into on-site swales.

A fire pump and foam building located near the dock-side control house encompasses an emergency fire pump and fire protection systems associated with the Marine Terminal. A small storage tank of approximate 500-gallon capacity is located within the fire pump skid to hold ultra-low sulfur diesel fuel.

Prior to oil transfer, a fence boom is placed between the vessel and the shoreline, and floating booms connect with the fence boom on the downstream end (but open on the upstream, offshore side of the moored vessel due to currents).

Marine vessels are generally empty, having inert (noncombustible) gases occupying the cargo tanks, when they arrive at the berth. When the vessel tanks are filled with crude oil, the vapors from previous cargo, vapors from the crude being added to the tank, and the inert gases are displaced from the tank. These vapors are collected and sent to the marine vapor combustion unit (MVCU) system, which combusts the hydrocarbons in the vapors. Piping from the dock conveys the vapors to the MVCUs located north of the access trestle and roadway. Once in the MVCUs, the vapors from the vessel hold are mixed with small amounts of natural gas and combusted in the MVCUs. The resulting combustion gases are be expelled from the MVCU stack. Eight units are installed on a 100- by 50-foot concrete slab, housing equipment that has eight stacks approximately 25 feet in height and ranging between 3 and 4 feet in diameter.

2.2.4 Area 500 – Transfer Piping

A combination of above- and belowground steel transfer pipelines convey crude oil from the rail unloading structure in Area 200 to the storage tanks in Area 300 and from the storage tanks to the marine vessel loading system in Area 400. The system includes the following.

- Three 24-inch-diameter, approximately 1,800-foot-long pipelines collect the crude oil unloaded at the rail unloading stations; one of these pipelines is electrically heat-traced to ensure that the viscosity of the crude oil is maintained at approximately 150ºF while it is conveyed from the unloading structure.
- Three 24-inch-diameter, approximately 5,500-foot-long pipelines would connect the railcar unloading facility to the storage tanks in Area 300; one of these pipes would be electrically heat-traced to ensure that the viscosity of the crude oil requiring heating would be maintained while it is conveyed from the unloading facility to the storage area.
- One 36-inch-diameter, approximately 5,300-foot-long pipeline connects the storage tanks with the vessel loading system in Area 400.
- One 6- to 12-inch-diameter, approximately 5,300-foot-long pipeline returns crude oil from the vessel loading system back to the storage tanks; this pipeline is provided to handle loading process shutdowns and provide pressure relief and prevent pipe hammer in the pipe conveyance system.
- One 10-inch-diameter, approximately 600-foot-long pipeline delivers hydrocarbon vapor generated during loading of vessels to the MVCU (described in Section 2.2.3).

Piping is constructed to the specifications of American Standards Testing and Materials A53 or A106. Aboveground runs of piping are supported so that the bottom of the piping is a minimum of 1 foot off the ground on vertical supports located every 20 to 25 feet. The vertical supports are fixed on spread footings. Where multiple pipes are placed within the routing, pipelines are either placed side-by-side or

stacked. Expansion loops are constructed along the transfer pipeline runs to accommodate thermal expansion of the pipelines during operation. Where road or rail crossings occur and in other areas of limited space, the pipelines are located underground or raised above the ground in accordance with standard American Railway Engineering and Maintenance-of-Way Association clearances. Secondary containment with leak detection is provided for pipeline segments installed underground. Runs of aboveground pipeline are standard-walled to ensure ease of inspection and maintenance and designed in accordance with the applicable requirements of WAC 173-180-340 and 49 CFR 195.246 through 49 CFR 195.254. Transfer pipelines are cathodically protected at all underground sections to prevent corrosion.

To allow greater flexibility in operations, the transfer piping system is designed to allow crude oil being unloaded in Area 200 to be directly conveyed to Area 400, Marine Terminal, for loading onto vessels. This capability allows occasional topping off of vessel loads and may allow the Facility to begin limited operation during the construction of the Area 300 storage tanks.

The piping system and associated supports and foundations are designed to applicable seismic protection standards and are electrically grounded to protect against the buildup of static electricity during crude oil conveyance. Manual and automatic isolation valves are located on the piping system at the exit of the railcar unloading facility and at the entrance to the storage tank area.

2.2.5 Area 600 – Boiler Building

Area 600 (Boiler Building) contains a boiler building with a natural-gas boiler. The boiler is used to generate steam for heated crude unloading operations inside Area 200. Area 600 also includes an E-house and associated parking.

2.2.6 Rail Infrastructure

Three rail loops, ranging from approximately 7,700 to 8,100 feet in length, service the Area 200 unloading facility. (The three rail loops servicing Area 200 are located inside of several other loops owned and operated by the Port that are not part of the Facility.) In addition to the three rail loops servicing Area 200, the following rail infrastructure is part of the Facility.

- A connection with cross-over switches capable of departing on any of two of the departure tracks listed below.
- Two tracks located off the loop tracks (of 200- and 700-foot lengths) to serve as a temporary staging location for railcars that have deficiencies and have been removed from the unit train prior to the cars being released back to the rail carrier.

2.3 Firefighting and Safety Equipment

Firefighting equipment is installed and maintained throughout the Facility and includes automatic and engineered controls, to allow control of fires should they occur. Fire suppression equipment and systems are designed to NFPA and American Petroleum Institute (API) requirements, the more stringent Factory Mutual Global insurance requirements, and state and local regulations. Process-related buildings are fireproofed, and emergency egress is provided in accordance with applicable fire and building codes. All automatic fire suppression systems are designed to activate automatically and is equipped with manual trip stations.

Fire suppression systems, linear heat detection, manual release stations, and gas monitors are connected to local audible alarms and visual strobes located in areas 200, 300, 400, and 600. Each area has its own fire alarm system control panel that transmits to a supervising station at the E-house/control room for each area. All alarm signals will also initiate the audible and visual alarm, transmit the alarm signal to the supervising station, and shut down the transfer operation, with all crude oil transfer valves closing within 30 seconds. General firefighting features and the locations of safety equipment are depicted in the figures included in Appendix A.

3. Hours of Operation

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(3), and Ecology regulations found at WAC 173-180-420(3)(a)(iii).

The Facility operates 24 hours per day, 365 days per year.

4. Sizes, Types, and Numbers of Vessels

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(4), and Ecology regulations found at WAC 173-180-420(3)(b)(i).

The dock facility loads only one vessel at a time. A vessel with a maximum length of 899 feet and a maximum draft of 43 feet at low water can be accommodated. Descriptions of the barges and vessels that use the dock are provided in Table 2 below.

Table 2. Dimensions of Articulated Tug Barges and Tanker Vessels Anticipated to Dock at the Facility

Vessel Class	27.5 MDWT	46 MDWT	75 MDWT	115 MDWT	125 MDWT	142 MDWT	160 MDWT
Type	Articulated Tug Barges	Oil Tanker	Oil Tanker	Oil Tanker	Oil Tanker	Oil Tanker	Oil Tanker
Length overall [feet]	587.4	601.1	748.0	816.8	869.0	894.7	899.0
Length between perpendiculars [feet]	583.1	570.9	718.5	784.1	825.0	847.0	866.1
Beam [feet]	74.0	105.6	105.64	143.7	136	151.6	157.5
Moulded depth [feet]	40.0	61.7	65.0	68.9	71.5	86.3	77.8
Ballast Condition *(for upriver transit)*							
Freeboard [feet]	23.8	42.7	44.5	48.4	50.0	54.3	49.8
Draft [feet]	16.2	19.0	20.5	20.5	21.5	32.0	28.0
Displacement (MT)	17,083	23,900	35,325	50,472	47,850	76,300	78,671
Loaded Condition *(for downriver transit)*							
Freeboard [feet]	9.8	20.7	22.0	25.9	28.5	43.3	34.8
Draft [feet]	30.2	41.0	43.0	43.0	43.0	43.0	43.0
Deadweight [MT]	27,181	46,172	64,100	94,200	86,821	90,700	103,000
Displacement [MT]	32,885	56,368	77,996	112,872	111,299	122,469	125,751
Cargo capacity at max draft, including FWA (bbl)	327,000	319,925	449,772	667,777	614,337	642,428	731,513

Notes:

MT = metric ton

FWA = freshwater allowance

5. Product Information

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(5), and Ecology regulations found at WAC 173-180-420-(3)(a)(viii) – (x).

5.1 Oil Types Transferred at the Facility

The only product transferred at this facility is North American crude oil.

Material Name (Trade Name)	DOT HM Y/N	Description	UN/NA No.	DOT ER Guide No.
Crude Oil	Y	Petroleum crude oil	1267	128
Crude Oil	Y	Combustible or flammable liquids	1993	128

Crude oil appears as a clear to brown liquid, with a rotten egg, petroleum-like odor.

5.2 Handling Hazards, Instructions for Safe Handling, and Firefighting Procedures

Appendix C presents representative crude oil Material Safety Data Sheets and Emergency Response Guidebook, Guide 128, Flammable Liquids (Non-Polar/Water-Immiscible) 2012. These documents address measures for safe handling of crude oil, general measures for spill response, personal exposure to crude oil, and typical firefighting procedures for fires involving crude oil.

In addition to this oil handling manual, the Facility implements the following plans for preventing and responding to crude oil spills.

- Vancouver Energy Operations Spill Prevention, Control, and Countermeasures Plan (SPCCP)
- Vancouver Energy Operations Facility Oil Spill Contingency Plan (OSCP)

6. Transfer Staffing and Duties

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(6), and Ecology regulations found at WAC 173-180-420(3)(b)(iv).

During ship or barge transfer operations, qualified personnel from the ship or barge staff the vessel. The cargo and vapor hoses are connected under the guidance of the vessel's Bosun, Pumpman, and a Deck Officer. One Facility employee is designated as the Terminal Person-in-Charge (TPIC) of the transfer, and one vessel employee (the ship's chief officer) is designated the Vessel Person-in-Charge (VPIC). One Facility employee is designated to monitoring conditions at the storage area, Area 300, from the Area 200 control room.

6.1 Duties of the Terminal Person-in-Charge

- The TPIC is at the site of the transfer operation and is immediately available to the VPIC vessel's oil transfer personnel.
- The TPIC has a current copy of the oil handling manual in his possession and is familiar with its contents.
- The TPIC conducts all transfers in accordance with the oil handling manual.
- The TPIC completes the "Declaration of Inspection" and "Declaration of Security" prior to start of the transfer. An example Declaration of Inspection form is provided in Appendix F.

- The TPIC maintains communications with vessel personnel and other facility personnel and responds to any emergencies.
- Together with the VPIC, the TPIC conducts the Pretransfer Meeting. During this meeting, all aspects of the transfer are discussed.
- The TPIC is NOT involved with any other duties or activities not related to the transfer operation, while conducting a transfer.

6.2 Duties of the Vessel Person-in-Charge

- The VPIC conducts the deck inspection with the TPIC.
- The VPIC provides oversight of all ship personnel involved in the transfer (Bosun, Pumpman, and Deck Officer).

6.3 Duties of the Tank Farm Monitoring Personnel

- Maintains communications with the TPIC on the dock.
- From the dock control room, start or stop the flow of products as directed by the TPIC on the dock.
- Gauges tanks as required during the transfer operation.
- Assists the TPIC during emergencies.

6.4 Rail to Storage Transfer Staffing

- Staffing includes two operators per train car being unloaded (for connecting transfer hoses, opening values, etc.). With six unloading stations per track and three tracks, this equals 36 operators at the unloading stations.
- Two operators at the Area 200 control room.

6.5 Storage to Vessel Transfer Staffing

- Two operators at the Area 400 control room (to include the TPIC). The control room will always be attended during transfer and the other operator will assist in making rounds.
- Two operators at the storage area/other.
- Vessel personnel (VPIC and other vessel personnel).

6.6 Rail Direct to Vessel Transfer Staffing

- Staffing includes two operators per train car being unloaded (for connecting transfer hoses, opening values, etc.). One track with six unloading stations has the capability of direct vessel loading; therefore, this equals 12 operators at the unloading stations.
- Two operators at the Area 200 control room.
- Two operators at the dock control room (to include the TPIC). The control room will always be attended during transfer, and the other operator will assist in making rounds.

7. Procedures for Emergencies/Notification

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(7), (17)(iv), (18), and Ecology regulations found at WAC 173-180-420(3)(d)(i) and (ii).

The Qualified Individual oversees the management of the entire response, establishes the response priorities and objectives, serves as the liaison with corporate management, and works with the state and federal on-scene coordinators in Unified Command. The Qualified Individual meets the requirements of the 33 CFR 154.1026; and is an English-speaking representative of the Facility, available on a 24-hour basis, familiar with the implementation of the OSCP, and trained in the responsibilities of the Qualified Individual.

The designated Qualified Individual is a member of the Tesoro West Coast Regional Response Team or Facility manager, as yet to be determined.

Oil spill response is discussed in more detail in the OSCP and operational SPCCP provided under separate cover. Emergency response is addressed in the emergency response plan that is included as a section of the operations facility safety program, also provided under separate cover. In summary, initial spill response actions include the following.

- Make an immediate and rapid assessment to determine
  - If anyone has been injured
  - If situation poses hazards to other personnel or the public (i.e., fire, explosion, fumes, etc.)
  - Source of the spill
  - Type of material spilled and approximate size
- Take immediate steps to stop the flow.
- Ensure safety of personnel. If someone requires medical attention or there is an emergency, dial 911.
- Alert the Facility manager and other Facility personnel. The Facility manager will be the initial Incident Commander.
- Evacuate personnel as necessary.
- Shut down and control the source of the spill, if safe to do so. Assess the potential hazards for explosion and airborne toxins.
- If safe to do so, direct facility responders to shut down potential ignition sources.
- Monitor the area for potential explosion and fire hazards. If fire is present, enable fire alarm and water system.
- Ready the area for firefighting.
- Use whatever resources are available to limit the spread of the spill.
- Establish safety zone around the spill.

In the event of an oil spill or other emergency requiring environmental response, the following agencies and other personnel may be contacted.

Table 3. Emergency Notifications

(* Represents after-hours telephone numbers)

Affiliation	Phone No.
A. COMPANY PERSONNEL	
TBD	TBD
B. MANDATORY NOTIFICATIONS	
National Response Center (NRC)	(800) 424-8802*
Washington Emergency Management Division	(800) 258-5990
Port of Vancouver Security	(360) 992-1120
C. SECONDARY NOTIFICATIONS	
USCG Marine Safety Office (MSO) – Portland	(503) 240-9301*
State of Washington Energy Facility Site Evaluation Council (EFSEC)	TBD
State of Washington Department of Ecology – Southwest Office	(360) 407-6300
Oregon Emergency Response System	(800) 452-0311
Clark Regional Emergency Services Agency	(360) 737-1911
City of Vancouver	(360) 487-8600 and/or (360) 693-9302
D. NOTIFICATIONS AS APPROPRIATE	
Federal Agencies	
Environmental Protection Agency Region 10 – Seattle	(206) 553-1264*
National Ocean and Atmospheric Association Seattle (Hazmat)	(206) 526-6317 and/or (206) 526-4911
National Weather Service Portland	(503) 326-2340 and/or (503) 326-2720
Federal Bureau of Investigation, Portland, Oregon	(503) 224-4181*
U.S. Forest Service, Mountlake Terrace, Washington	(800) 627-0062

Affiliation	Phone No.
U.S. Department of the Interior, Portland, Oregon	(503) 326-2489
Tribal Nations	
TBD	TBD
State Agencies	
Washington Highway Patrol	(360) 757-1175*; (360) 753-6540 (emergency only)
Washington State Department of Fish and Wildlife (WDFW)	(800) 258-5990; (360) 534-8233 (pager); (360) 902-8124 (office)
Oregon Emergency Response System	(800) 452-0311
WDFW Oil Spill Response Team	(360) 534-8233 (pager); (360) 902-8124 (office)
Washington State Department of Natural Resources (Regional)	(360) 856-3500
Washington State Department of Parks and Recreation	(360) 755-9231
Washington State Fire Marshall	(360) 596-3900
Oregon Department of Wildlife	(503) 872-5268
Local Agencies	
Port of Vancouver	(360) 992-1120
Vancouver Public Works Operations Center	(360) 693-9302
Clark Public Utilities	(360) 992-3000
Clark County Public Works (waste water)	(360) 397-6118
Vancouver-Clark Parks and Recreation	(360) 487-8311
Clark County Public Health	(888) 727-6230
E. EMERGENCY SERVICES	
Emergency Medical and Hospitals	
Legacy Salmon Creek Hospital	(360) 487-1000
SW Washington Medical Center (Emergency Room)	(360) 514-2064
Clark County/Vancouver Emergency Services	(360) 737-1911 or 911
Clark County Public Health	(360) 397-8215
Oregon Health and Science University, Portland, Oregon	(503) 494-7686
Providence Portland Medical Center	(503) 215-1111
Legacy Good Samaritan Hospital and Medical Center, Portland, Oregon	(503) 413-7711
Fire Departments	
Vancouver Fire Department	(360) 487-7211 or 911
Clark County Fire Marshall	(360) 397-2375, Ext. 2186
Clark County Hazardous Materials	(360) 397-2375
Police Departments	
Vancouver Police Administration	(360) 487-7400 or 911
Clark County Sheriff Administration	(360) 397-2366 or 911
F. RESPONSE CONTRACTORS	
Marine Spill Response Corporation	(800) 645-7745; (360) 417-9287 (office); (206) 799-1621 (Cell)
Clean Rivers Cooperative	(503) 220-2040*
CARDNO ENTRIX, Environmental Consultants	(800) 476-5886*
Global Diving and Salvage Inc. (no contract in place)	(206) 623-0621* and/or (800) 441-3483
NRC (no contract in place)	(800) 337-7455
Harder Mechanical	(503) 281-1112

8. Duties of Watchman for Unmanned Vessels

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(8).

There will be no unmanned vessels moored at the Facility's dock. All vessels moored at the Facility must maintain surveillance of their respective vessels. All vessels provide a person who is responsible for the security of the vessel and for keeping unauthorized persons off the vessel.

9. Communication Systems

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(9), and Ecology regulations found at WAC 173-180-420(3)(a)(xi).

Voice communication between the terminal dock and the tank farm is maintained with intrinsically safe two-channel portable radios. During transfer operations, the Facility dock personnel maintain both voice and visual contact with vessel crew. The Facility lends one portable radio to vessel personnel during transfer operations. Directions for use are provided in Appendix E.

10. Personnel Shelter

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(10), and Ecology regulations found at WAC 173-180-420(3)(a)(xiv).

The Area 400 dock-side control house is available for use by Facility and vessel personnel as a shelter.

11. Drip and Discharge Collection

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(11), and Ecology regulations found at WAC 173-180-420-(3)(b)(v).

11.1 Area 200 Drip and Discharge Collection

The entire 1,850 feet of the rail unloading facility (Area 200) includes full coverage rail collection pans, and the interior ground surfaces are constructed of concrete. Thereby any releases of product are contained, as is stormwater that drips from railcars or is blown into the rail unloading facility by the wind.

Pumps used to transfer crude oil from the rail unloading facility to Area 300 storage are situated within belowgrade concrete basins. The collection piping from the rail drip pans and rail unloading facility floor drains is direct-buried that feeds to a header pipe located within the concrete secondary containment. Collection discharge pumps are co-located within the underground concrete pump basins. Water collected from within the rail unloading facility is directed to two containment tanks located in the area of the administrative/support buildings. That is then taken to approved sites for recycling/disposal.

11.2 Area 300 Drip and Discharge Collection

With the exception of one manually operated valve, the entire storage area (Area 300) is situated within bermed secondary containment. A drip pan is situated below the valve not in containment. Stormwater from the secondary containment area is discharged through an oil/water separator and carbon filtration.

11.3 Area 400 Drip and Discharge Collection

The face of the dock at the Marine Terminal (Area 400) includes a containment area for the work areas, including all flanges and transfer hose areas. The containment area is sized to contain the release of at least three 3 bbl within a curbed area.

11.4 Area 500 Drip and Discharge Collection

All flanges and aboveground valves associated with the transfer piping (Area 500) is equipped with drip pans. Underground piping is located within a concrete utilidor that provides secondary containment.

12. Emergency and Shutdown Systems

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(12), and Ecology regulations found at WAC 173-180-420(3)d(iii).

Emergency plans and procedures are described in detail in the emergency response plan that is a section of the operations facility safety program provided under separate cover. The location of the emergency and safety equipment is depicted on the figures in Appendix A.

Fire suppression systems, linear heat detection, manual release stations, and gas monitors are connected to local audible alarms and visual strobes located in areas 200, 300, 400, and 600. Each area has its own fire alarm system control panel that transmits to a supervising station at the E-house/control room for each area. **All alarm signals also initiate the audible and visual alarm, transmit the alarm signal to the supervising station, and shut down the transfer operation, with all crude oil transfer valves closing within 30 seconds.** During crude oil transfer, operators can manually stop transfers by closing either dock valve or depressing the emergency shutdown buttons located on the dock, or the operator in the control room can stop the pumps or change the valve configuration.

12.1 Area 200 – Fire/Safety Systems

The railcar unloading area is served with a foam fire extinguishing system. A closed-head foam-water pre-action sprinkler system is installed inside the rail unloading structure at the roof level, under walkways (as required by code), and in the pump basin areas. The structure is divided into five zones; each zone will be activated either manually from the foam manual release stations or automatically from the linear heat detection installed at the roof level and at the pump basin level for that associated zone. The pump basins are located in the center of each zone respectively between the tracks. Note that this system is a closed-head pre-action foam-water system; therefore, foam-water solution will only be discharged once the fire is large enough to activate the linear heat detection, trip the valve, and then activate the sprinklers above the fire. In the event of a fire, foam would be used to control and extinguish the crude oil pool fire and will also provide cooling to the railcars and any adjacent equipment or building elements.

Manual foam release stations are located at the base and at the top of the stairs of the rail unloading structure and at every egress point of the rail unloading structure.

A closed-head wet-pipe sprinkler system (water only, no foam) is provided for the fire pump/foam building in accordance with NFPA 20, Section 4.12.1.1.2. The wetpipe system contains water under pressure; therefore, when a fire starts and grows large enough to trip a sprinkler at the ceiling/room, a sprinkler or sprinklers are expected to control the fire.

Manual fire pull stations are surface mounted, and typically located within 5 feet of every egress point, near the fire alarm control panel in the rail unloading structure and at exits from the fire pump/foam buildings and E-houses. These manual pull stations, when manually activated, will send an alarm signal

to the fire alarm panel, activate the audible and visual alarms, and transmit the alarm signal to the supervising station.

The system includes linear heat detectors, gas detectors, temperature monitors, pump monitors, automatic exterior alarm horns and strobes, manual alarm stations, automatic and manual foam release systems, and tamper-resistant systems. The manual foam release stations are mounted on catwalks near stairway exit paths. All systems interface with the Area 200 control room.

Fire hydrants supplied by the City water distribution system are located on the south side of the rail unloading structure, spaced at 300-foot intervals and are accessible to fire department apparatus. The office and support buildings are equipped with ABC-type fire extinguishers.

Hydrogen sulfide (H_2S) and lower explosive limit (LEL) monitors are located at each unloading station. H_2S, LEL, and oxygen (O_2) monitors are located in each pump pit basin. The high and low alarm set-points for the gas detector system are as follows.

Gas Detector	Low Alarm	High Alarm
H_2S	10 ppm	15 ppm
LEL	10% LEL	30% LEL
O_2	19%	24%

Eyewash and emergency shower stations are located near the pump pits and in the control room.

12.2 Area 300 – Fire/Safety Systems

Area 300 (Storage Area) contains six crude oil aboveground storage tanks. Area 300 also has a fire pump/foam building, storage building, E-house, and pump basin. All tanks are located inside a perimeter dike capable of containing 110 percent of the volume of the largest tank plus precipitation from a 24-hour, 100-year storm event. The tanks are positioned so that the distance between each tank is at least 120 feet in all directions. The distance from the tank to the dike varies from 33 to 150 feet.

An automatic fixed foam system is provided for each storage tank to protect the seal area of the internal floating roof. This system will be activated by the linear heat detection system installed at the foam dam of the floating roof or by the manual foam release stations associated with each respective tank. These automatic fixed foam systems are specifically designed to control a potential fire inside a tank. The linear heat detection cable located around the foam dam is connected to the fire alarm system.

Manual foam release stations are located at the base of the stairs on the tanks, at the top of the dike near the closest fire hydrant for each tank, and on a bank of release stations located at the foam/pump house.

The fire pump/foam building is equipped with a closed-head wet-pipe sprinkler system (water only, no foam) in accordance with NFPA 20. The wetpipe system contains water under pressure; therefore, if a fire starts and grows large enough to trip a sprinkler at the ceiling/room, a sprinkler or sprinklers are expected to control the fire.

Manual fire pull stations are surface mounted and typically located at every exit from the fire pump/foam buildings and E-houses within Area 300. These manual pull stations, when manually activated, will send an alarm signal to the fire alarm panel, activate the audible and visual alarms, and transmit the alarm signal to the supervising station.

Fire hydrants for fire department use are located around the perimeter of Area 300, spaced at 300-foot intervals. Two fire hydrants are located inside the dike area near the intersection of the intermediate dikes. These fire hydrants include a monitor nozzle that can be used to cool the tanks, reduce potential fire exposure, and apply the self-healing biodegradable foam.

Each fire hydrant is equipped with a monitor nozzle and foam eductor and pick-up line that can be placed in a bucket, pail, or other portable device of foam concentrate, which will draw foam concentrate from the pail/container to generate a foam solution. The flow of water from these monitor nozzles are provided to create a cooling effect on the tank wall. The foam eductor provided on each monitor nozzles will allow the fire hydrant to spray a foam water solution and control a small pool fire within the dike area. A predetermined size of foam concentrate will be kept in the fire pump/foam building. When the need arises for its use, such as a small spill or rubbish fire, the foam concentrate will be taken to the appropriate fire hydrant and the hose will be placed in the bucket, pail, or other portable device. The nozzle will draw the foam in at the manufacturer-determined proportioning rate to achieve the desired concentration of foam/water solution.

Additionally, an elevated monitor nozzle supplied with foam-water from the fire pump/foam building is located near the crude oil pump basin with the primary purpose of providing manual fire suppression to the pump basin. This monitor nozzle for the crude oil pump basin is capable of providing a 3 percent foam application to the pump basin area. Using a flow rate of 750 gallons per minute will provide coverage of the crude oil pump basin.

Hydrogen sulfide (H_2S), LEL, and O_2 monitors are located in the pump basin. The high and low alarm set-points for the gas detector system are as follows.

Gas Detector	Low Alarm	High Alarm
H_2S	10 ppm	15 ppm
LEL	10% LEL	30% LEL
O_2	19%	24%

Eyewash and emergency shower stations are located in the storage building and on the north side of the E-house.

12.3 Area 400 – Fire/Safety Systems

Two elevated fire monitors are installed at the marine loading dock. The monitor nozzles are supplied from a pre-action foam system located in the fire pump/foam building. Activation of the foam-water monitor nozzles is by manual foam release stations located in the E-house and throughout Area 400. The controller for the nozzles will be located in the E-house located shoreside. A fire hydrant is provided for fire department use near Area 400, supplied by the City water distribution system. This system is primarily for fires on the berth, but can be used to assist in the event of a vessel fire. Manual foam release stations are located at the loading berth.

The fire pump/foam building is equipped with a closed-head wet-pipe sprinkler system (water only, no foam) in accordance with NFPA 20. The wetpipe system contains water under pressure; therefore, if a fire starts and grows large enough to trip a sprinkler at the ceiling/room, a sprinkler or sprinklers are expected to control the fire.

Manual fire pull stations are surface mounted and typically located at every exit from the fire pump/foam buildings and E-houses for Area 400. These manual pull stations, when manually activated, will send an alarm signal to the fire alarm panel, activate the audible and visual alarms, and transmit the alarm signal to the supervising station.

International hose connections are located on the dock for vessel fire water. Vessels berthing at the Marine Terminal are required to have onboard fire protection systems, as well as contracts with commercial marine firefighting companies, to respond in the event of a shipboard fire.

Eyewash and emergency shower stations are located on the east and west sides of Berth 13.

12.4 Area 500 – Fire/Safety Systems

The pipeline area (Area 500) is served by previously existing and new (as constructed to serve specific Facility areas) fire hydrants in the vicinity of the pipeline alignment.

12.5 Area 600 – Fire/Safety Systems

Area 600 (West Boiler) contains a boiler building with a natural-gas boiler. The boiler building and surrounding area are served by adjacent fire hydrants. Smoke detectors, automatic and manual alarms, and hand-held fire extinguishers are located as appropriate inside and outside the boiler building as required by local fire code.

Eyewash and emergency shower stations are located along the east, south, and west walls of the boiler building.

12.6 Rail Infrastructure – Fire/Safety Systems

The rail infrastructure operated by the Facility is served by fire hydrants in the vicinity of the rail loop alignment. An overpass exists over the rail line on the east side of the rail loop; emergency services could use this overpass to access the interior of the rail loop.

13. Monitoring Devices

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(13), and Ecology regulations found at WAC 173-180-420(3)(a)(xii)(D).

The pressure, valve positions, volumetric flow rate, tank levels, and total volume transferred are monitored at every transfer from the Area 200 and/or Area 400 control rooms. During crude deliveries, flow is monitored using ultrasonic flow meters as it comes in from railcars and is delivered to storage tanks, and any flow discrepancies trigger an alarm and automated valves close. The pumping stations associated with the transfer also monitor crude oil density and contaminants (sediment and water), and collect regular samples for analysis.

When filling vessels, flow is monitored using ultrasonic flow meters as it is pumped from storage and when it is discharged to the vessel, and any flow discrepancies trigger an alarm and automated valves close.

14. Oil Spill Containment Equipment

This section complies with USCG regulations found at 33 CFR Section 154.310 (a)(14), and Ecology regulations found at WAC 173-180-420(3)(d)(iv).

The Facility maintains the following oil spill response equipment at the dock. The Facility is a member of Clean Rivers Co-op. As a Co-op member, a response contract is in place with Marine Spill Response Corporation (MSRC). In addition to the equipment listed below (Table 4), the Co-op's spill response equipment is available to the Facility within 2 hours of a spill and will be operated by their personnel. An inventory of equipment available from the Co-op is included in Appendix D. Instructions are found in Appendix E.

Table 4. On-Site Oil Spill Response Equipment

Item	Access Time	Location
1,600' of 18" Fence Boom	Immediate	VE Dock
1,000' 12" x 6" Containment Boom w/36" Floats	Immediate	VE Dock
2,000' 12" x 6" Containment Boom w/72" Floats	Immediate	VE Dock
1 - 20' ISO Storage Container	Immediate	VE Dock
3 - 12' x 30' Chafing Cloth	Immediate	VE Dock
2 - NOFI "Current Buster 2" High Speed Recovery System	Immediate	VE Dock
2 - Containerized Hydraulic Reels	Immediate	VE Dock
2 – 10-horse power Hydraulic Power Packs	Immediate	VE Dock
4 - High-Capacity Backpack Blowers	Immediate	VE Dock
2 - C-Disk 13/30 Coated Disc Skimmer Systems	Immediate	VE Dock
2 - 10,000-lb Flatbed Trailer w/Ramps	Immediate	VE Dock
1 - 18' Response Boat	Within 15 minutes	Tesoro Terminal Dock
2,800' of 20" Harbor Boom	Within 15 minutes	Tesoro Terminal Dock
8" x 12" Kepner Sea Boom	Within 15 minutes	Tesoro Terminal Dock

Note: Instructions for use of all equipment listed above is contained in Appendix E.

15. Fire Extinguishers

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(15), and Ecology regulations found at WAC 173-180-420(3)(d)(v).

15.1 Fire Extinguisher Location

Portable fire extinguishers are located as depicted in the figures in Appendix A. All extinguishers are dry chemical ABC-type; some hand-held and others on wheels. The number and type of portable extinguishers are based on the requirements of NFPA 10, OSHA Subpart L, Section 1910.157, WAC 296-24-592, and local codes.

15.2 Fire Extinguisher Instructions for Use

Portable fire extinguishers are operated as follows.

1. Positioning 8 to 10 feet from the blaze
2. Holding the unit upright and pulling the pin
3. Squeezing the lever while aimed at base of flame, and sweeping the foam spray from side to side
4. Advancing toward flames over the area that has been extinguished, while maintaining 8- to 10-foot distance

16. Maximum Allowable Working Pressure and Relief Valves

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(16), and Ecology regulations found at WAC 173-180-420(3)(a)(xv).

The maximum allowable working pressure for the loading hoses is as follows.

- Loading hoses (open to vessel) – 50 psi

For transferring product from the rail unloading area, a predetermined pipeline connection (PLC) setpoint from a pressure transmitter signal will automatically power off the facility pump at approximately 100 psi. The pressure transmitter is located on the 10-inch pump discharge pipeline at the pump basin. In addition to the pump shutdown, the system has a pressure relief valve downstream of each pump that will recirculate the crude in the event that the pump discharge piping is blocked and the pressure transmitter fails. This pressure relief valve is set at approximately 110 psi. The system also has thermal pressure relief valves relieving thermal expansion in blocked portions of the piping between the rail unloading area (Area 200) and the storage area (Area 300). These valves are set at varying pressures depending on their location in the piping system.

For transferring product from the storage area (Area 300) to the marine terminal area (Area 400), a predetermined PLC setpoint from a pressure transmitter signal will automatically power off the facility pump at approximately 100 psi. The pressure transmitter is located on the 36-inch pump discharge pipeline at the pump basin. In addition to the pump shutdown, the system has a pressure relief valve on the pump discharge header that will recirculate the crude in the event that the pump discharge piping is blocked and the pressure transmitter fails. This pressure relief valve is set at approximately 110 psi. The system also has thermal pressure relief valves relieving thermal expansion in blocked portions of the piping between the storage area (Area 300) and the marine terminal area (Area 400). These valves are set at varying pressures depending on their location in the piping system.

17. Transferring Procedures

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(17)(i) and (ii), and Ecology regulations found at WAC 173-180-420(3)(a)(xii)(A) and (B) and 173-180-420(3)(b)(ii) and (iii).

There are no loading arms located at the Facility dock. Transfers are from manifold to vessel via two-hose connections.

17.1 Transfer to Vessel

1. Only a single vessel is docked at a time.
2. Only a single vessel is loaded at a time.
3. Once a vessel is all fast and secured in place at a dock and the tugs are released, the dock shore gangway is then lowered to the deck to permit safe access for people to cross back and forth. After the gangway is on and the vessel is “all fast,” the full wrap boom is put around the vessel to contain any potential for oil spill. Once the boom is in place, the TPIC comes aboard the vessel and conducts a safety inspection with the ship’s Chief Officer VPIC. During the deck inspection, the cargo and vapor hoses are connected under the guidance of the vessel’s Bosun, Pumpman, or Deck Officer. After completion of cargo and vapor hose connection, the TPIC and VPIC conduct the Pretransfer Meeting (key meeting). During this meeting, all aspects of the cargo transfer are discussed, such as starting; coming up to rate; topping off; completion of loading; and any safety security concerns, including signals for shutdowns should the primary, secondary, and tertiary means of communication fail. An oil transfer load plan is completed, an example of which is provided in Appendix I.
4. The vessel is pre-boomed, following procedures in Appendix M.
5. The Facility is designed to load the ships using positive displacement pumps on a variable frequency drive, thus allowing adjustment of loading flow rate by increasing or decreasing the speed/flow rate of the pumps as needed. The pumps are also staged so they can be turned off and on in multiple configurations to ensure optimal loading feed to the vessels. Different vessels have different loading configurations. For example, a 46-DWT vessel calling to the Facility might have a header sized at 12 to 24 inches with the dimension of the header dictating the rate at which the vessel can be loaded. As a rule of thumb, vessels start loading at 10 to 25 percent of their maximum rate of fill. The top-off rate also depends on the vessel size and the amount of cargo it will carry. If a vessel is filling to less than 90 percent total cargo volume (as would be the case with some of the proposed larger vessels), the ship may be filled at full or near full rates to the very end. If the ship is filled to 95 to 98 percent of its rated capacity towards the end of the loading cycle, the fill rate is slowed down to the 10 to 25 percent.

17.2 Transfer from Railcar

The Facility receives crude oil by rail with offloading from tracks located at the Port's Terminal 5. There is one unloading header at each railcar position. The pumps are located between the unloading rails. Each railcar position is protected by a spill containment system.

During railcar unloading, the following procedures are followed.

17.2.1 Railcar Spotting and Bottom Hook-Up

1. The operators ensure that they have the necessary tools/equipment to accomplish this task. They work in teams of one on the ground and one on the mobile platform.
2. The operators don the required personal protective equipment.
3. Prior to starting the transfer, the operator initiates radio communication with team or other authorized personnel to perform a radio check.
4. Railcars are spotted on each of six unloading station.
5. The operator uses the set of railcar chocks, by resting each individual chock on top of the rail on opposite sides of the railcar's wheel; a wheel chock will be placed on the front and rear railcar of each string of railcars. This process is undertaken to prevent any accidental movement during the transfer process.
6. The operator sets the railcar's handbrake by turning the wheel in a clockwise motion; the brake is fully applied when you can no longer turn it. The front and rear railcars for the string of spotted cars will have handbrakes set. The handbrake is located on the railcar's B-end.
7. An operator qualified to do railcar inspections performs a general inspection of the railcar ensuring that it is in good operating condition and provides for a safe work environment.
8. The operator checks the surrounding area for slip or trip hazards, removing any hazards where possible and/or be warned that a hazard exists and to be cautious when working in that specific area.
9. An operator will place a containment pan (unloading fitting will be in the pan) under each railcar.
10. The operator uses the pipe wrench to remove the cap/plug from the railcar's bottom oil valve (BOV).
11. The operator attaches and secures the railcar's appropriate BOV fitting to the railcar's BOV.
12. The operator connects and secures the product hose to the recently installed 90 degree fitting.
13. At this time, the hose may need to be raised and tied off with a rope or strap to ensure the OPW valve and the 90 degree fitting are not sagging, which may create leakage of product.
14. At this time, the operator grasps the ball handle on the hose valve and pushes it down into the locked open position then checks for leaks.
15. Once fitting and hose are properly hooked up and secured, the BOV on the railcar is opened.
16. The operator verifies the product hose is charged to the site glass and not leaking.

17.2.2 Platform Operation and Hook-Up

1. The operator uses 4-point contact to climb the steps on the mobile platform to access the top of the railcar. Once the mobile platform is aligned, the walkway (ramp) is lowered with safety rail completely encompassing the platform area approximately 6 inches above the height of the railing of the platform.
2. The operator on the mobile platform works from side to side moving to the north, hooking up vent hoses/vacuum breakers.
3. The operator inspects the man-way bolts using a wrench to tap each bolt. All bolts must be tool tight, any bolt that moves is not tool tight and will be tightened before moving on.
4. The operator opens the dome cover lid to inspect for loose bolts on the flanges.
5. The operator ensures the vapor and liquid valves are closed, capped, and tool tight and there is no leakage or product loss.
6. The operator inspects the pressure relief device for visible damage, leakage, or product loss.
7. The operator lowers the rope to the operator on the ground to retrieve the vapor hose and pulls the hose up.
8. The operator removes the cap from the vapor valve on the tank car and attaches the vapor hose/vacuum breaker to the tank using a cam lock fitting.
9. The operator then opens the ball valve on the vapor hose (if hose is allocated) by moving the handle to the inline position.
10. The operator then opens the ball valve on the tank car vapor valve by moving the handle to the inline position, being careful to allow the railcar's internal pressure to be relieved.

11. Before leaving the tank car platform, the operator gathers tools and visually inspects that both the vapor valve on the tank car and the vapor recovery hose valve are open, then verbally acknowledging this by saying, “open, open” to the operator on the ground who will open the main product and vapor valve for that station while checking for leaks.

17.2.3 Initiating the Transfer and Transfer in Progress

1. Once a set of railcars has been hooked up for unloading, the drip pans are in place, the vent fittings and/or vent hoses are hooked up, the railcar BOVs have been opened, and all personnel are clear at both the top and bottom of the railcars, the operator on the ground checks with the operator in the control room via radio and then opens the product and vapor valves at each unloading station.
2. After the railcars are hooked up at each unloading station, an operator in the control room starts the pumps. Once the pumps are started, the operators check for leaks and any abnormalities. If leaks are detected, the BOVs are immediately closed and appropriate steps taken to stop the leak.
3. An operator continually monitors the product flowing into the manifold by observing the sight glass in the VISI FLOW fitting. In addition, the operators continue to check for leaks and any abnormalities on the entire terminal at a minimum of every 30 minutes.

17.3 Completion of Pumping

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(17)(iii), and Ecology regulations found at 173-180-420(3)(a)(xii)(C).

Crude oil is transferred at the terminal by two different methods.

1. Articulated tub barge (ATB) or ship (dispense).
2. Railcar (receive only).

Completion of pumping procedures is described for each of these methods below.

17.3.1 Transfer to Vessel

1. Upon completion of product transfer, the terminal dock operator assists ATB or vessel personnel in draining the hose, disconnecting the hose, and capping the end of the hose prior to the hose being passed over water for storage.
2. The vessel manifolds are fully blanked and secured.
3. The terminal dock operator closes all valves and secures each with a chain and lock.
4. The containment boom around the vessel is removed and the second mate tests gear, the engines are tested ahead and astern, and the steering gear is tested as are communications and alarms.
5. Upon completion of the transfer, the vessel is gauged by an independent third-party cargo surveyor, and cargo quantities are reviewed, confirmed, and documented.

17.3.2 Transfer from Railcar

1. The supervisor notifies other crew members that pumps are down and teardown can begin.
2. Once the product quits flowing through the VISI FLOW sight glass, the operator closes the BOV on the railcar and allows and residual product to finish draining from the hose.
3. The operator then closes the main (API) valve on the product hose.
4. Once both valves are closed, the hose is disconnected from the 90 degree fitting and placed on the containment pan after the end of the valve is wiped off with an absorbent wipe.
5. The 90 degree fitting is disconnected from the railcar and a 4-inch plug inserted. The cam lock levers are locked down and the fitting is placed in the containment pan. The end of the 90 degree fitting that the valve was once hooked to is wiped off with an absorbent wipe.
6. The product hose (the end with the API valve on it) is returned back to its holder by snapping it in place.
7. The main product valve and main vapor recovery valve are closed.
8. The containment pan is pulled out from under the railcar, and it is placed beside the main product valve at that station.

18. Procedures for Spill Reporting and Initial Containment

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(18), and Ecology regulations found at WAC 173-180-420(3)(d)(i).

Refer to Section 7 for reporting information. As previously stated, emergency response is addressed in the emergency response plan that is included as a section of the operations facility safety program, provided under separate cover.

In the event of an oil spill, all operations are shut down immediately using emergency shutdown buttons (see Section 12), and the TPIC shall secure the source of the discharge as soon as it is safe to do so. A Qualified Individual is immediately notified. The Qualified Individual notifies appropriate agencies as described in Section 7. The first responder is prepared to relay information regarding the source, estimated size, crude oil released, location, and other pertinent information available or requested. The Qualified Individual may request assistance from the Oil Spill Response Organization (Clean Rivers) or, under certain situations, may seek assistance from contractors directly (MSRC).

After the source of the discharge has been secured, the TPIC, along with Facility personnel, deploys the containment boom located in Area 400 in accordance with the Facility booming strategy. After the boom is deployed, Facility personnel will take any other measures necessary to contain and begin cleanup of the discharge until Clean Rivers arrives and takes over the cleanup operations, if it is safe to do so.

Transfer operations are not resumed until the system has been inspected and repaired, and the TPIC as well as the Captain of the Port have deemed the system fit for continued operations.

19. Federal, State, and Local Laws and Regulations

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(19), and Ecology regulations found at WAC 173-180-420(3)(a)(iv), and State of Oregon Law, Chapter 340, Division 47.

19.1 Federal Law

Federal law requires the immediate reporting of all spills of oil and hazardous substances to the water. The Federal Water Pollution Control Act amendments of 1972 made it unlawful to discharge oil “into or upon the navigable waters of the United States, adjoining shorelines, or into or upon waters of contiguous zone,” [22 USC 1321 (b)(3)]. Immediate reporting of such discharges is required by both the USCG and EPA. The responsibility is established in National Oil and Hazardous Substances Contingency Plan, 40 CFR 154.1036(b)(1) and (2). Spills on inland waters are the responsibility of the EPA, while the USCG has jurisdiction for coastal waters, ports, and harbors.

19.2 State of Washington Law

State of Washington Law Revised Code of Washington (RCW) 90.48 (Water Pollution Control) defines state laws regarding water pollution. RCW 90.56 provides statutory authority for developing regulations more specific for an oil handling facility’s operations. The following applicable WACs are authorized by RCW 90.56.

- WAC 173-180
- Part A General Requirements
- Part B Oil Transfer Requirements
- Part C Design Standards for Class I Facilities
- Part D Operations Manual Requirements for Class I and Class 2 Facilities
- Part E Training and Certification for Class I and Class 2 Facilities
- Part F Prevention Plans for Class 1 Facilities

Note that prevention plans prepared according to Part F requirements are often made to also comply with Federal SPCCP requirements found at 40 CFR 112. Additionally, WAC 173-182 includes regulations and response criteria for Facility OSCP, and is inclusive of requirements under the federal Facility Response Plan (40 CFR 112).

19.3 State of Oregon Law

Chapter 340 Division 47 Regulations Pertaining to Oil Spills into Public Waters defines state laws regarding water pollution. This chapter provides statutory authority for developing regulations more specific for an oil handling facility's operations. The following are applicable for oil spills that may affect Oregon waters.

- Chapter 340 Division 47
- 340-047-0015 Notice, Control and Cleanup of Oil Spills Required
- 340-047-0020 Approval Required For Use of Chemicals
- 340-047-0025 Approval Required For Disposal of Spilled Oils

20. Shielding Portable Lighting Procedures

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(20), and Ecology regulations found at WAC 173-180-420(3)(b)(vi).

No portable lighting is used at the Facility. The Facility has adequate fixed lighting to provide safe operations during dark hours.

21. Terminal Training and Qualification Program

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(21), and Ecology regulations found at WAC 173-180-510.

1. The Facility has developed and implemented oil transfer training for key supervisory, operations, maintenance, management, and indirect operations personnel identified pursuant to Subsection (3) of WAC 173-180-510.
   (a) The Facility has designed a training program, to the maximum extent practicable, to promote job competency and environmental awareness for the purpose of preventing oil spills.
2. Oil transfer training programs are approved by Ecology under WAC 173-180-525.
3. The Facility has identified, in writing, the specific position titles that the Facility has identified to be subject to its oil transfer training requirements. In making this determination, the Facility has evaluated the functions of Facility personnel positions using the following definitions.
   (a) "Key" means a position with direct responsibility for performing or overseeing the transfer, storage, handling, or monitoring of oil at a facility, or a job function, where typical human factors present the probability of a spill occurring.
   (b) "Operations" means direct involvement in the transfer, storage, handling, or monitoring of oil at a facility in a capacity that involves the risk of an oil spill to waters of the state. This functional group includes, but is not limited to, the person-in-charge, storage tank operators, pipeline operators, and oil transfer monitors.
   (c) "Supervisory" means involvement in directly supervising the transfer, storage, handling, or monitoring of oil at a facility by implementing operations policies and procedures that involve the risk of an oil spill to waters of the state.
   (d) "Maintenance" means direct involvement in maintaining and repairing the equipment used for the transfer, storage, handling, or monitoring of oil at a facility in a capacity that involves the risk of an oil spill to waters of the state.

(e) "Indirect operations" means involvement in on-site activities, such as new construction, in a capacity that indirectly involves the risk of an oil spill to waters of the state due to potential impacts to nearby oil handling operations (e.g., operating digging equipment next to an active transfer pipeline). For cases where certain job titles associated with indirect operations cannot be identified in advance, the Facility must identify the types of job orders or work sites that may involve the need for indirect operations oil transfer training.

4. The Facility has identified, in writing, the specific initial classroom and/or on-the-job oil transfer training requirements for each position, including minimum hours that are appropriate for each position given the facility's training needs and human factor risks. For the purposes of this section, "human factors" means human conditions, such as inadequate knowledge or fatigue, which can lead to incompetency or poor judgment, and "human factor risks" means risks of causing an oil spill due to the effects of human factors on competency and judgment.
5. Operations and supervisory personnel training. Requirements for training of operations and supervisory personnel focus on building personnel competency in operating procedures and spill prevention systems specific to the Facility. Oil transfer training requirements incorporate the following training topics at a minimum.

   (a) Overview of all oil handling, transfer, storage, and monitoring/leak detection operations at the Facility;

   (b) Operating procedures and checklists specific to trainee's job function;

   (c) Problem assessment, including recognition of human factor risks and how they can be minimized;

   (d) Awareness of preventative maintenance procedures;

   (e) Awareness of local environmental sensitivity and oil spill impacts;

   (f) Major components of Facility's oil spill prevention plan;

   (g) Major components of Facility's operations manual;

   (h) Major components of Facility's OSCP;

   (i) Safe use and handling of response equipment, including, but not limited to, containment, personal protection, and recovery equipment;

   (j) Decision-making for abnormal operating events and emergencies, including emergency spill prevention and safe shutdown conditions, responsibilities, and procedures;

   (k) Routine and emergency communications procedures;

   (l) Overview of applicable oil spill prevention and response laws and regulations; and

   (m) Drug and alcohol use awareness, pursuant to WAC 173-180-630.
6. Management personnel training: Requirements for initial oil transfer training of management personnel incorporate the following training topics at a minimum.

   (a) Overview of all oil handling, transfer, storage, and monitoring/leak detection operations at the Facility;

   (b) Management role in operations and oil spill prevention;

   (c) Recognition of human factor risks and how they can be minimized;

   (d) Awareness of local environmental sensitivity and oil spill impacts;

   (e) Major components of Facility's oil spill prevention plan;

   (f) Major components of Facility's operations manual;

   (g) Major components of Facility's OSCP;

   (h) Decision-making for abnormal operating events and emergencies, including emergency spill prevention and safe shutdown conditions, responsibilities, and procedures;

   (i) Overview of applicable oil spill prevention and response laws and regulations; and

   (j) Drug and alcohol use awareness, pursuant to WAC 173-180-630.

7. Maintenance personnel training: Requirements for initial oil transfer training of maintenance personnel incorporate the following training topics at a minimum.

   (a) Overview of all oil handling, transfer, storage, and monitoring/leak detection operations at applicable maintenance work sites within the Facility;

   (b) Equipment problem assessment and preventative maintenance procedures;

   (c) Awareness of local environmental sensitivity and oil spill impacts;

   (d) Major components of Facility's oil spill prevention plan;

   (e) Major components of Facility's operations manual;

   (f) Major components of Facility's OSCP;

   (g) Emergency spill prevention and safe shutdown conditions, responsibilities, and procedures;

   (h) Overview of applicable oil spill prevention and response laws and regulations; and

   (i) Drug and alcohol use awareness, pursuant to WAC 173-180-630.

8. Indirect operations personnel training: Requirements for initial oil transfer training of indirect operations personnel incorporate the following training topics at a minimum.

   (a) Overview of oil handling, transfer, storage, and monitoring/leak detection operations at specific indirect operations work site within the Facility;

   (b) Awareness of local environmental sensitivity and oil spill impacts;

   (c) Notification procedures for emergency spill prevention actions; and

   (d) For Facility employees, drug and alcohol use awareness, pursuant to WAC 173-180-630.

9. Training topics identified in subsections (5) through (8) of this section, do not prescribe fixed subject titles for class outlines or training organization. Facility may combine or integrate these topics as appropriate and check that information on each topic is presented in the applicable personnel training program.

10. Facility identifies, in writing, the specific oil spill prevention continuing education requirements for each affected position, including minimum hours, which are appropriate given the Facility's training needs and human factor risks. Ongoing training occurs at least annually, and at a minimum addresses

    (a) Any changes in the core topics identified in subsections (5) through (8) of this section, unless affected personnel have already been informed about the change after its occurrence;

    (b) Refresher awareness training on environmental sensitivity and oil spill impacts;

    (c) Review and analysis of oil spills that have occurred during the past year;

    (d) Refresher training on emergency spill prevention procedures; and

    (e) For key supervisory, operations, and management personnel, a practice exercise of the Facility's procedures for preventing a spill during a particular abnormal operations event.

11. Existing personnel that have entered their current position prior to adoption of this chapter are regarded as having met the Facility's initial oil transfer training requirements if

    (a) Facility has documented that those personnel have received the required training in the past; or

    (b) Facility attests in writing and in detail, how those personnel have had on-the-job training or other experience equivalent to the Facility's initial training requirements, including type and frequency of past training when known.

12. Facility develops follow-up remedial training for personnel clearly responsible for causing an oil spill while functioning in their position, unless such personnel no longer occupy a position identified under subsection (3) of this section.

13. Contractors hired by the Facility to perform key supervisory, operations, maintenance, management, or indirect operations functions, as identified by the Facility under subsection (3) of this section, are considered "personnel"

for the purposes of this chapter and are subject to the same oil transfer training requirements as Facility employees. The Facility is responsible to validate that such contractors have met the Facility's oil transfer training requirements before they perform a key supervisory, operations, maintenance, management, or indirect operations function.

14. Facility has developed minimum training and/or experience qualifications for trainers who will demonstrate Facility-specific procedures, equipment use, supervise practice sessions, and provide other on-the-job training to new operations personnel.
15. Facility has developed and maintains written oil transfer training materials, such as training manuals or checklists.
16. Oil transfer training is documented, and records are kept at the Facility in a central and accessible location for at least five years from the date of training completion.

22. Hose Marking

This section complies with USCG regulations found at 33 CFR Section 154.310(a)(22).

The Facility only transfers crude oil; therefore, there is no need to have hoses for different products marked.

23. Tank Cleaning Operations and Recordkeeping Procedures

This section complies with USCG regulations found at 33 CFR Section 154.310 (a)(23).

Examples of recordkeeping and inspection forms for the Facility and dock are presented in Appendix G. Periodically, tanks located at the Facility will be cleaned for routine maintenance and inspection (such as API 653 inspection). Cleaning and inspection are performed by a contractor. Tank cleaning and recordkeeping is done in compliance with Washington Solid and Dangerous Waste Regulations.

24. Inspection and Maintenance Schedules

This section complies with Ecology regulations found at WAC 173-180-420(3)(a)(vii).

Bulk storage tanks are inspected every 10 years according to API 653 protocol. Daily, weekly, monthly, and annual inspection and maintenance routines for other equipment is presented in Appendix H.

25. Recordkeeping

This section complies with Ecology regulations found at WAC 173-180-420(3)(a)(v) and 173-180-040. Appendices F, G, and J supplement this section.

Records required by WAC 173-180 will be maintained and available to Ecology for a minimum of three years, except for the following.

1. Preload plans and declaration of inspection forms are kept for at least 30 days from date of the oil transfer operation.
2. The design, construction, and repair records for storage tanks, pipelines, and all oil transfer equipment testing and repair records are kept for the life of the equipment. Inspection, maintenance, and repair records for pumps, valves, manifolds, and other ancillary equipment used in oil transfers are kept for 10 years.
3. Oil transfer personnel training and certification records are kept for five years from the date the persons were certified.
4. All records required in this chapter are available to Ecology for photocopying upon request.

26. Work Hours

This section complies with Ecology regulations found at WAC 173-180-055.

Personnel with oil transfer duties do not work more than 16 hours in any 24-hour period, no more than 40 hours in any 72-hour period, except in an emergency or spill response operation. “Emergency” means an unforeseen situation that poses an imminent threat to human safety, or the environment, or substantial loss of property. The terminal maintains records (e.g., maintenance records and/or payroll records) demonstrating compliance with work hour restrictions.

27. Operations Manual Review and Approval

This section complies with Ecology regulations found at WAC 173-180-430.

1. Upon receipt of an operations manual, EFSEC (with the assistance of Ecology) determines whether the operations manual is complete. If the agencies determine that an operations manual is incomplete, they will notify the Facility of the deficiencies.
2. When reviewing operations manuals, the agencies consider the following.
   (a) The ability of the operations manual to provide best achievable protection from damages caused by the discharge of oil into waters of the state;
   (b) The volume and type of oil(s) addressed by the Facility’s operations manual;
   (c) The history and circumstances of prior spills by similar types of facilities, including spills reported to the state and federal government in Washington State;
   (d) Inspection reports;
   (e) The presence of operating hazards;
   (f) Sensitivity and value of natural resources within the geographic area covered by the operations manual; and
   (g) Any pertinent local, state, and federal agency and public comments received on the operations manual.
3. The agencies endeavor to notify the Facility owner or operator within five working days after completing the review whether Ecology approves the operations manual.
4. If the operations manual receives approval, the agencies send the Class 1 facility owner or operator an approval letter describing the terms of approval, including an expiration date (Class 1 facility is defined in RCW 90.56.010, as any structure, group of structures, equipment, pipeline, or device, other than a vessel, located on or near the navigable waters of the state that transfers oil in bulk to or from a tank vessel or pipeline, that is used for producing, storing, handling, transferring, processing, or transporting oil in bulk).
5. Conditional approval as follows.
   (a) The agencies may approve an operations manual conditionally by requiring a facility owner or operator to operate with specific precautionary measures until acceptable components of the operations manual are resubmitted and approved by the agencies.
   (b) Precautionary measures may include, but are not limited to,
      (1) Reducing oil transfer rates;
      (2) Increasing personnel levels;
      (3) Restricting operations to daylight hours; or
      (4) Additional requirements to ensure availability to response equipment.
6. After receiving notification of conditional status from the agencies, a Class 1 facility submits and implements required changes to the agencies within 30 calendar days. The agencies may issue an extension at Ecology's discretion. Operations manual holders who fail to meet conditional requirements or provide required changes in the time allowed will lose conditional approval status.
7. If the operations manual approval is denied, the agencies must send an explanation of the factors for disapproval and a list of deficiencies to the Class 1 facility owner or operator.

(a) The owner or operator of the facility resubmits the operations manual within 90 calendar days of notification of reasons for noncompliance, responding to the reasons and incorporating any suggested modifications.

(b) The Facility does not continue oil storage, transfer, production, or other operations until the agencies approve an operations manual for that facility.

8. Approval of a manual by the agencies does not constitute an express assurance regarding the adequacy of the operations manual nor constitute a defense to liability imposed under state law.
9. A facility conducts operations if the Facility properly submitted an operations manual to the agencies, and they have not provided the Facility with a formal response.

28. List of Acronyms and Abbreviations

API: American Petroleum Institute

ATB: articulated tub barge

bbl: oil barrel and barrels

BOV: bottom oil valve

CFR: Code of Federal Regulations

City: City of Vancouver

Company: Tesoro Savage Petroleum Terminal LLC

DWT: deadweight tonnage

Ecology: Washington State Department of Ecology

EFSEC: Energy Facility Site Evaluation Council

E-house: electrical house

EPA: U.S. Environmental Protection Agency

Facility: Vancouver Energy

H_2S: hydrogen sulfide

LEL: lower explosive limit

MSRC: Marine Spill Response Corporation

MT: metric ton

MVCU: marine vapor combustion unit

NFPA: National Fire Protection Association

NRC: National Response Center

O_2: oxygen

OSCP: Operations Spill Contingency Plan

PLC: predetermined pipeline connection

Port: Port of Vancouver USA

RCW: Revised Code of Washington

SPCCP: Spill Pollution, Control, and Countermeasures Plan

TPIC: Terminal Person-in-Charge

USCG: U.S. Coast Guard

VPIC: Vessel Person-in-Charge

WAC: Washington Administrative Code

WDFW: Washington Department of Fish and Wildlife

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