
# Vancouver Energy
# Operations Stormwater Pollution Prevention Plan

Plan No. OP.01 | Revision 02

**Approved by:**

Name, Title: Kelly Flint, Senior Vice President and Corporate Counsel, Savage Companies
Designated Agent for EFSEC Application No. 2013-01
Date: 15 October 2015

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# Vancouver Energy
# Operations Stormwater Pollution Prevention Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590
15 October 2015

Prepared for

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5501 NW Old Lower River Road
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Job No. A13.0267.02

## Revision Summary

| No. | Date | Edits/Comments |
|---|---|---|
| 01 | 27 February 2015 | Submittal for Application Review |
| 02 | 15 October 2015 | Revisions in response to EFSEC comment letter dated 6 August 2015 |
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# Vancouver Energy
# Operations Stormwater Pollution Prevention Plan

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# Executive Summary

This operations stormwater pollution prevention plan (SWPPP) has been prepared as part of the National Pollutant Discharge Elimination System (NPDES) stormwater permit requirements as issued by the Washington State Energy Facility Site Evaluation Council (EFSEC) for the Vancouver Energy project (Facility) in Vancouver, Washington. The site is located within the Port of Vancouver USA (Port) and consists of a total of 47.4 acres located in six distinct "areas," including the rail improvements. A vicinity map and a site map are shown in Figure 1 and Figure 2, respectively.

The site primarily consists of existing vacant or underutilized industrial land. A portion of the site is located within the northern portion of the former Evergreen/ALCOA aluminum smelter. The proposed project consists of the construction of a rail unloading facility, transfer pipelines, storage tanks, and vessel loading berth for the transloading of crude oil from rail to vessel. The Facility includes support buildings and structures such as administrative offices, access roads, employee parking and facilities, and the future West Boiler.

The purpose of this operations SWPPP is to describe the proposed Facility functions, structural best management practices (BMPs), operations BMPs, inspection/monitoring activities, and recordkeeping that will be implemented during the Facility operations as they pertain specifically to stormwater. The objectives of the operations SWPPP are to

1. Protect existing water quality and comply with all required operations phase NPDES permits.
2. Identify activities that have the potential to cause surface water or groundwater contamination and the BMPs required to reduce, eliminate, or prevent contamination.

This operations SWPPP was prepared in reference to the Washington State Department of Ecology (Ecology) SWPPP template downloaded from the Ecology website on 23 December 2014. This operations SWPPP was prepared based upon the requirements of the NPDES Industrial Stormwater General Permit and Ecology's *2012 Stormwater Management Manual for Western Washington*.

The operations SWPPP is divided into six main facility areas which are described in each of the sections of the SWPPP. The main sections describe the site and the proposed Facility. Discussions follow of each of the types of operations, and the structural BMPs that will be employed during the operation of the Facility. The operation SWPPP then discusses site inspections and monitoring and reporting and recordkeeping.

This SWPPP is implemented in association with the other following operational plans, which also implement BMPs that minimize or prevent the potential release of pollutants to stormwater.

- Facility Operations Manual
- Operations Spill Prevention Control and Countermeasures Plan
- Oil Spill Contingency Plan
- Facility Oil Handling Manual

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# 1. Essential Information

## 1.1 Facility Information

| Facility Information | |
|---|---|
| Name of Facility: | Vancouver Energy |
| Site Address: | 5501 NW Old Lower River Road |
| City, State, Zip Code | Vancouver, WA 98660 |
| County: | Clark |
| SIC Code(s) | 5171 Petroleum Bulk Stations and Terminals |
| Permit Number: | WAR (To Be Issued) |
| Latitude: | 45° 39' 02" N |
| Longitude | 122° 43' 41" W |

## 1.2 Facility Contact Information

| Facility Owner/Lessee | |
|---|---|
| Name: | Tesoro Savage Petroleum Terminal, LLC |
| Address: | 901 W Legacy Center Way |
| City, State, Zip Code | Midvale, UT 94047 |
| Telephone Number: | (801) 944-6600 |
| Fax Number: | |
| Email Address: | |
| **Property Owner** | |
| Name: | Port of Vancouver USA |
| Address: | 3103 NW Lower River Road |
| City, State, Zip Code | Vancouver, WA 98660 |
| Telephone Number: | (360) 693-3611 |
| Fax Number: | (360) 735-1565 |
| Email Address: | info@portvanusa.com |
| **Primary Operations SWPPP Contact** | |
| Name: | TBD prior to Facility start/up and operations |
| Address: | |
| City, State, Zip Code | |
| Telephone Number: | |
| Fax Number: | |
| Email Address: | |

## 1.3 Agency Information

| Responsible Agency | |
|---|---|
| Name: | Energy Facility Site Evaluation Council |
| Address: | 1300 South Evergreen Park Drive Southwest |
| City, State, Zip Code | Olympia, WA 98504-3172 |
| Telephone Number: | (360) 664-1345 |
| Fax Number: | |
| Email Address: | efsec@utc.wa.gov |
| | |
| Name: | Washington State Department of Ecology, Southwest Regional Office |
| Address: | 300 Desmond Drive |
| City, State, Zip Code | Lacey, WA 98503 |
| Telephone Number: | (360) 407-6300 |
| Fax Number: | (360) 407-6305 |
| Email Address: | |
| | |
| Name: | Washington State Department of Ecology, Vancouver Field Office |
| Address: | 2108 Grand Boulevard |
| City, State, Zip Code | Vancouver, WA 98661-4622 |
| Telephone Number: | (360) 690-7171 |
| Fax Number: | |
| Email Address: | |
| **Emergency Numbers** | |
| General Emergency: | 9-1-1 |
| Port of Vancouver Security | (360) 992-1120 |
| Ecology – to report a spill: | (360) 407-6300 |

## 1.4 Stormwater Pollution Prevention Team

| Primary Operations SWPPP Contact | |
|---|---|
| Name: | TBD prior to Facility start/up and operations |
| Address: | |
| City, State, Zip Code | |
| Telephone Number: | |
| Fax Number: | |
| Email Address: | |
| **Staff Name/Title** | **Individual Responsibilities** |
| Name TBD, Terminal Manager | Daily terminal operations, signature authority, SWPPP development, maintenance, and modification |
| Name TBD, Terminal Environmental Manager | Monthly inspections, water quality monitoring, best management practices (BMPs) implementation |
| Name TBD, Marine Operations Manager | Daily marine loading operations, including pre-booming, management of person-in-charge, vessel loading safety, maintenance of spill response equipment and compliance with 40 CFR 112. |
| Testing Agency (TBD) | Laboratory testing of stormwater samples |

# 2. Facility Description and Contact Information

## 2.1 Facility Information

Vancouver Energy (Facility) provides transloading services for pipeline quality crude oil from railcars to marine vessels. The Facility is located at 5501 NW Old Lower River Road, Vancouver, Washington; it is situated at the Port of Vancouver USA (Port) on the north bank of the Columbia River at approximately River Mile 103.5. The site is approximately 47.4[1] acres in size and comprises elements within the following "area" groupings, as illustrated in Figure 1.

- 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 in locations between areas 200, 300, and 400
- Area 600 – West Boiler Building – located at Terminal 5 of the Port
- Rail Infrastructure – located at Terminal 5 of the Port

The facility receives an average of four unit trains per day and unloads an average of 360,000 barrels (bbl) of crude per day. Six nominal capacity 380,000 bbl tanks are used to store crude oil on site. A transfer pipeline system is 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 oil from Area 200 directly to Area 400. The Terminal is operated 24 hours a day, 7 days a week.

Facility site and civil plans are included as Appendix A. Each area of the proposed Facility is described in further detail below.

Most of the site is leased from the Port and is used exclusively by Tesoro Savage Petroleum Terminal LLC (the Applicant) for the operation of the Facility. The transfer pipelines and portions of the rail improvements are located on non-exclusive easements within the port.

The site is located in the SE 1/4 of Section 18, NW 1/4 of Section 19, and the NW and NE 1/4 of Section 20, Township 2 North, Range 1 East W.M.

This operations stormwater pollution prevention plan (SWPPP) describes the site conditions and industrial activities and enumerates the mitigation measures and best management practices (BMPs) that apply to each activity. The operations SWPPP has been prepared as part of the requirements for the National Pollutant Discharge Elimination System (NPDES) stormwater permit as issued by the Washington State Energy Facility Site Evaluation Council (EFSEC) for the Vancouver Energy project.

The Facility is developed in six "areas." Figure 2 is a site plan schematic that shows the site development plan, including the location on the site of each Facility area. Table 1 lists the six Facility areas and facilities and operations within each area are discussed in detail below.

[1] Previous information submitted to EFSEC indicated an approximate site acreage of 45 acres. The addition of 2.74 acres primarily occurs relative to an increase in the transfer pipeline corridor width in locations where ground surface is currently disturbed and already subject to industrial activity. This increase in acreage does not substantively modify the analysis of environmental impacts described in the Application for Site Certification Supplement as submitted to EFSEC in January 2014. However, to present accurate conditions in this operations SWPPP, the adjusted site acreage has been used herein, as well as in the construction SWPPP and Engineering Report submitted under separate cover. The Applicant also acknowledges that final Facility design will take into account actual permit conditions that are not available at this time; such conditions could also result in further adjustments to the final site boundary.


## Figure 1 - Vicinity Map

**LEGEND**

- Project Boundary
- Vancouver_WA
- Portland,_Oregon

VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

Date: February 2015

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

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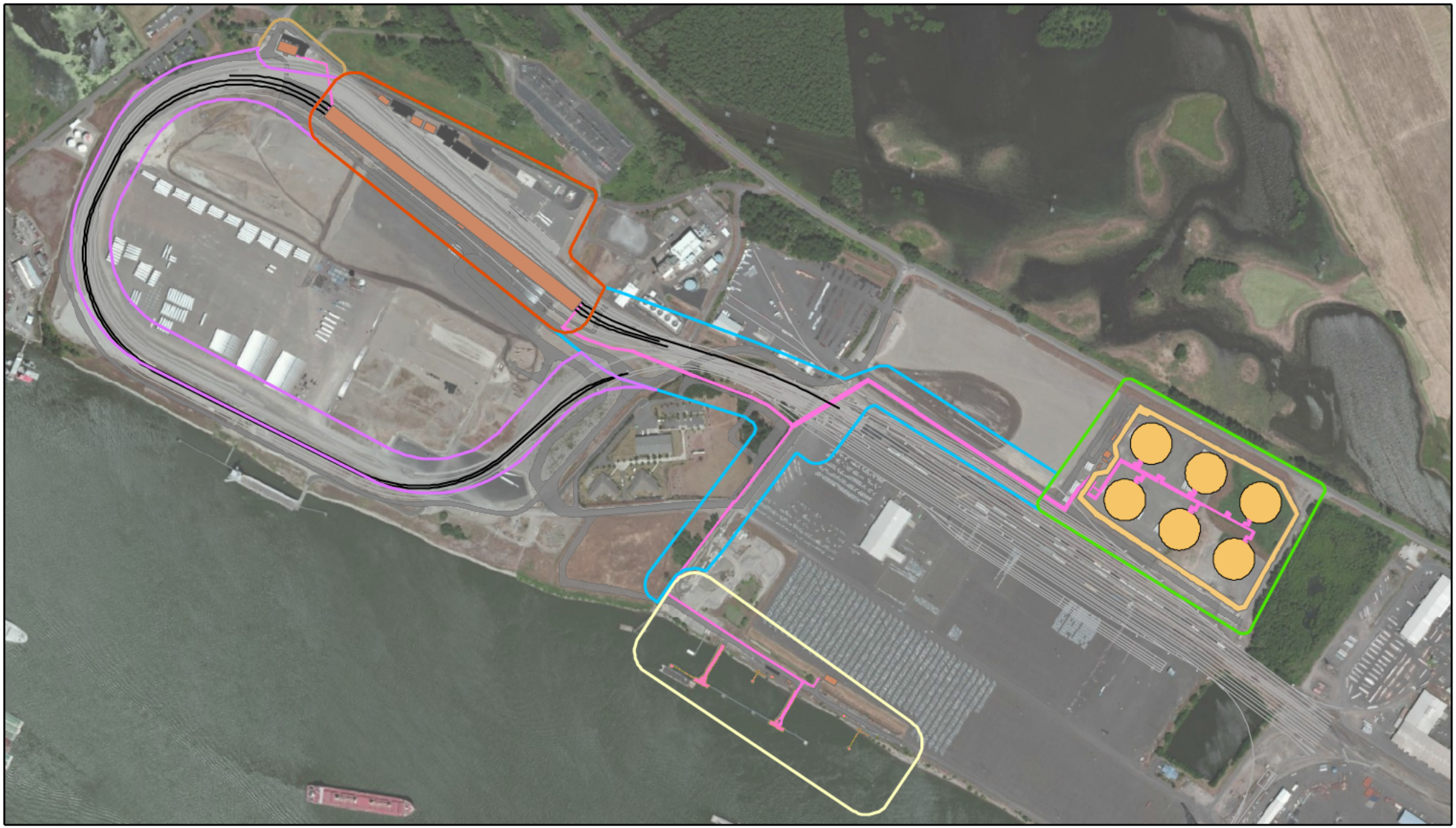

## Figure 2 - Site Plan

**Proposed Project Facilities**

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

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VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

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

# 3. Facility Assessment

## 3.1 Facility Description

### 3.1.1 Area 200 – Unloading and Office

The primary elements within Area 200 are the rail unloading facility and administrative/support buildings. 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, while the southern wall is partially enclosed with built segments near the E-houses acting as a weather break along the southern wall.

Each track includes 30 unloading stations for handling of crude oil. Each station will use a completely closed loop of piping to prevent by design any atmospheric contact with the crude oil during unloading. The entire 1,850 feet of the railcar unloading facility will include full coverage rail collection pans, and the interior ground surfaces are 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 will be located in concrete secondary containment trenches and the pump basins will be used for transferring product from the railcar unloading facility to Area 300 Storage will be in

underground concrete basins. The collection piping from the rail drip pans and rail unloading facility floor drains will also be located in these concrete trenches with discharge pumps located in the pump basins. Any water collected from within the rail unloading facility will be collected in these systems and pumped to two containment tanks located in the area of the administrative/support buildings. There is no connection to storm or sanitary sewer from within the rail unloading facility.

The rail spur located immediately south of the rail unloading building is identified for possible railcar and locomotive maintenance activities. Maintenance activities will only be performed on railcars arriving at the facility and as necessary to maintain safe rail transportation. To facilitate these activities, the portion of the spur for maintenance activities will be lined with drip pans and the surrounding areas will be concrete. The concrete area is limited to an approximate 0.3-acre area. Stormwater from this area will be collected in the rail drip pans and catch basins and treated through an oil-water separator. A monitoring manhole is located immediately downstream of the oil-water separator. A containment valve will be provided to prevent drainage of stormwater during maintenance activities. Stormwater from this area is further treated in the downstream treatment train, including water quality filters and additional monitoring, prior to discharge to the Port's stormwater system.

Several accessory structures and equipment pads will be located adjacent to the rail unloading facility. They include electrical houses (E-houses) 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 is proposed to connect the administrative/support buildings to the rail unloading facility.

The project also includes associated utility extensions and relocations for communication, electrical, water service and sanitary sewer.

### 3.1.2 Area 300 – Storage

Area 300 is the location of six storage tanks and associated containment areas. In addition, the area 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.

Each of the aboveground storage tanks (AST) for storing crude oil includes a double-bottom and internal floating-roof. The tanks are approximately 50 feet in height and 240 feet in diameter and have a shell capacity of approximately 400,000 bbl each. However, the tanks are configured such that a maximum of 380,000 bbl can be stored per tank, with sufficient freeboard available to accommodate the presence of the internal floating roof and the headspace required to allow product movement in the event of a seismic event.

An impervious liner system will be installed within the containment area to protect sub-surface native soils from any accidental discharge. The containment area includes an earthen perimeter berm approximately 6 feet in height sized to contain the release of an entire tank volume plus 10 percent and a 100-year rainfall event. Intermediate berms approximately 2 feet tall between each tank additionally segregate the containment area. This berm containment capacity reflects the most stringent of Washington spill prevention and control and National Fire Protection Association requirements.

Each tank will have a fixed roof to keep precipitation from reaching the inside of the tank and an internal floating roof to control vapor emissions from the tank to the atmosphere. The floating roof will be designed to avoid tipping during operations. The floating roof in the heated tanks will be equipped with a scraping device to maintain free movement of the roof in the event of wax buildup on the storage tank walls.

The double-bottomed tanks will include a leak detection system between the tank floors, and will be cathodically protected to prevent corrosion. The entire tank containment area will be lined with an impervious membrane to prevent any spills from leaving the containment area via the ground.

The support buildings, including a storage building, fire pump and foam building, E-houses, electrical pads, and mechanical pads, will be constructed outside the containment area on slab on grade footings. The pump basin will be isolated from the containment area by its concrete walls and basin that will serve as secondary containment.

The tank containment area will include a stormwater system segregated from the rest of the site. The system inside the containment area will include catch basins, structures, piping, control structures, and oil-water separators. All stormwater structures inside the containment area will be installed above the impervious membrane liner system. Visual confirmation that the water is free from oil or other contamination will be required before stormwater could be discharged from the containment area into the storm drainage system.

Stormwater collected in the bottom of the berm will gravity-drain to the containment area control structure. The control structure will limit the flow from the containment area to two parallel oil-water separators. After visual inspection, stormwater will be pumped to the collection system for the remainder of Area 300. If the visual inspection identified oil products, the contaminated stormwater will be pumped to a vacuum truck, and the oily water will be recycled\disposed of off site at an authorized location.

The pump basin consists of a 3,300-square–foot, cast-in-place concrete basin housing transfer pumps, valves, pipelines, and appurtenances necessary for the pumping of product from the storage tanks to the marine terminal. A sump located in the southwest corner will collect stormwater from this basin. A containment valve will be located on the pipeline that will be closed during maintenance activities within the pump basin. A downstream oil-water separator will provide treatment capacity for the 100-year, 24-hour storm event. The basin will collect approximately 7,000 gallons per day during a 100-year storm event.

A portion of the aboveground crude oil transfer piping is also installed within Area 300. This piping is used to connect the transfer pipelines described in Area 500 to each tank. The piping configurations allow for operator control of which tanks is receiving crude oil from the rail unloading area and which tank is being transferred to the vessel at the marine terminal.

### 3.1.3 Area 400 – Marine Terminal

Crude oil is transferred from the Storage Area to the Marine Terminal in a welded steel pipeline as described in more detail in Area 500.

Hoses specifically designed for crude oil loading operations will be used to transfer the crude oil from the piping system to the vessel being loaded. The hoses will be connected to the grounding grid to protect from the buildup of static electricity as the crude oil flows through the system. The loading system will incorporate automatic shutoff valves with a maximum 30-second shutoff time.

Facilities upland include fire pump and fire-fighting foam building, a combined control room and electrical house (E-house), marine vapor combustion units, and stormwater facilities, access roads and parking, and landscaping.

The face of the dock includes a containment area for the work areas, including all flanges and transfer hose areas. The containment area is sized to contain at least 3 bbl of volume within a steel- lined concrete-curbed area. The containment volume is based upon the total volume of liquid contained in the loading hoses as required by 33 CFR 154.530. Pedestrian walkways connect the dock to the dolphins and mooring points. The access trestle is a prefabricated steel deck with concrete infill.

Upland electrical gear and marine vapor combustion units are located on-grade foundations. The site includes a portion of the transfer pipelines, paved access roads and parking, and stormwater facilities.

One approximately 16- to 22-inch-diameter, 600-foot-long pipe will deliver hydrocarbon vapor captured during loading of marine vessels to the marine vapor control unit (MVCU).

### 3.1.4 Area 500 – Transfer Pipelines

A combination of above- and below-ground fully welded 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. Three pipelines, each 24 inches in diameter and approximately 5,500 feet long, will connect the railcar unloading facility to the storage tanks in Area 300; one of these pipes will be electrically heat-traced to maintain the viscosity of lower API crude oil while the oil is conveyed from the railcar unloading facility to the Storage Area.

A 36-inch-diameter, approximately 5,300-foot-long pipeline will connect the storage tanks with the marine vessel loading system in Area 400. An 8-inch-diameter pipeline will return crude oil from the marine vessel loading system to the storage tanks and serve as the return line for the pressure relief system to prevent pipe hammer during an emergency shutdown.

Aboveground pipe sections will be supported on spread footings located every 20 to 25 feet. Vertical expansion loops will be located at key locations along the pipeline and supports for the expansion loops will also be on spread footings. Underground sections of the pipelines will be located in fully sealed, welded casing sections, and transition concrete vaults.

Piping is constructed of 836 Grade B low carbon steel welded pipe. Aboveground runs of piping will be supported so that the bottom of the piping will be approximately 1 foot minimum off the ground on vertical supports located every 20 to 25 feet. The vertical supports will be fixed on concrete foundations. Where multiple pipes are placed within the routing, the pipelines may be either laid side-to-side, or stacked. Expansion loops are constructed throughout the transfer pipeline runs to accommodate the thermal expansion of the pipelines. Downstream catch basins and drainages will be retrofitted with spill control devices capable of capturing a minimum of 5 gallons of oil.

At roads or rail crossings, the piping will be housed in underground steel casings or raised aboveground for standard American Railway Engineering and Maintenance-of-Way Association clearances. The casings will be sealed and leak detection will be incorporated within the casings. Runs of aboveground pipeline are single-walled, consistent with industry for ease of inspection and maintenance, and in accordance with the applicable requirements of Washington Administrative Code (WAC) 173-180-340 and 49 CFR 195.246 through 49 CFR 195.254.

The piping system and associated supports and foundations are grounded to protect against the buildup of static electricity during crude oil conveyance. Underground pipe sections will also be cathodically protected against corrosion. Manual isolation valves will be located on the piping system at its exit from the railcar unloading facility and at its entrance to the Storage Area.

### 3.1.5 Area 600 – West Boiler

A boiler building, paved parking and access areas, aboveground steam and condensate piping, and site landscaping comprise the West Boiler Area. The building has a footprint of approximately 6,000 square feet and approximately 45 feet high. The building will house two primary and one standby natural gas-fired boilers, each with a capacity of 62 million British thermal units (MMBTU) per hour. The boilers will provide steam (two boilers operating) to heat the railcars during unloading.

The boiler building, equipment pads, E-house, and pipeline supports all use slab on grade or spread footings. The stormwater system from Area 200 is extended to Area 600 for stormwater drainage.

### 3.1.6 Rail Improvements

One additional rail loops will be constructed on approximately 1.8 acres at Terminal 5. In addition, rail infrastructure will be added in the vicinity of the Area 200 rail unloading structure to facilitate the switching and departure of trains.

To support the staging of unit trains, the Facility will operate on two existing rail lines, each approximately 7,700 feet long. The track operated by the Facility consists of railroad ballast (rock), 115-pound hardened steel rails that are continuously welded and mounted on either 8-foot x 6-inch or 8-foot x 3-inch crossties, and other miscellaneous materials. Crossties are concrete for the most part, except at crossings where timber is used. The rails are continuously welded to reduce noise and increase safety. The rail loops are be designed to comply with railroad and federal requirements.

The additional rail loop will be constructed when the Facility operations requires three rails of capacity or during the second phase of construction. Upon completion, the Facility will operate on three of the existing loop tracks on Terminal 5. At that time, the lease boundary and EFSEC jurisdictional boundary will be adjusted.

### 3.1.7 Regular Business Hours

The Facility operates 24 hours per day, 7 days per week, and 52 weeks per year.

### 3.1.8 General Layout

The general layout of the Facility is shown on Figure 2.

## 3.2 Industrial Activity, Materials Inventory, and Associated Pollutants

The entire project site was associated with previous industrial activities. Sites of the proposed Facility currently involved in industrial activities include the railcar unloading facility, storage, and marine terminal. The West Boiler, office and change rooms, and railcar unloading facility were previously on the site of the Evergreen/ALCOA aluminum plant. The former plant was dismantled and the site underwent extensive cleanup efforts in 2009 removing pollutants from the site. There are several deed restrictive environmental caps where known pollutants remain. These deed restrictive areas are shown in Figure 2.

Since the cleanup, the site has been used to transfer and store materials from railcars. Area 300 was formerly used to store dry material and cargo. Changes to the former site of the aluminum plant have been significant. New rail lines and underground utilities have been added extensive grading has occurred.

The primarily operations within the Facility are loading, unloading, storing, and transferring liquid crude oil. Minor maintenance activities necessary for railcar transportation will be completed on-site. These operations are described below in more detail.

### 3.2.1 Area 200 – Unloading and Office

The railcar unloading facility is designed to receive and unload both non-heated pipeline quality crude oil unit trains and heated pipeline quality crude oil unit trains. Two of the unloading tracks will accommodate trains carrying a higher API crude oil that can be drained and conveyed without being heated; the third unloading track will accommodate trains carrying lower API crude oils that needs to be heated prior to draining and conveying it to Area 300 for storage. It is expected that the Facility will receive an average of four unit trains per day.

The 30 unloading stations dedicated to heating and draining lower API crude oil unit trains will be equipped with steam connections to heat the crude oil to decrease its viscosity and allow it to flow more

easily. Steam will be produced in the West Boiler in Area 600 and be piped to the rail unloading facility. Tank cars that receive steam will be fitted with permanent internal steam manifolds at the bottom of the car. Inlet steam hoses will be connected to each car to allow steam to circulate in the manifold, thereby warming the contents of the tank car. Steam condensate exiting the manifolds will be collected via condensate hoses, and piped back to the steam boilers in a closed loop system.

Unloading will be accomplished with a closed-loop system, i.e., the crude oil will be contained in an enclosed system from when it leaves the railcar to when it enters the storage tanks. During the unloading process, the crude oil will never be exposed to the atmosphere. Unloading hoses will be manually connected to the valves on the cars using dry fit connectors, one hose per tank car. Dry fit connectors are designed so that the crude oil in the hose cannot come into contact with the atmosphere. Each hose will be equipped with an automatic shutoff valve. Once the dry fit connector has been secured, the crude oil will gravity-drain from the cars to a collection header.

The collection header collects the flow from a grouping of six cars. The collection headers will be housed in below grade trenches running parallel to the rail tracks. A single 9-foot-wide by 5-foot-deep trench will serve the two train tracks dedicated to higher API crude oil unloading; a 9-foot-wide by 5-foot-deep trench will serve the single track dedicated to unloading heated crude oil. Although the primary purpose of the trench is to house the product collection lines, spill collection line, and electrical and data lines, the trench can also act as secondary containment if the collection and spill lines leak.

Each collection header will be directly connected to a dedicated pumping station, which will transfer the crude oil into a 24-inch-diameter transfer pipeline. One such pipeline will be installed per track, and will collect the flow from all five groupings of unloading stations on that track. As the crude oil flows from the offloading header to the pumping stations, it will pass through a basket strainer to remove solids. The pumping stations will monitor volumetric flow rate and crude oil density and contaminants (sediment and water), and collect regular samples of the crude for analysis. The discharge of all five unloading pumping stations will be combined into one 24-inch-diameter transfer pipeline per track, which will convey the crude oil to the storage tanks in Area 300. This transfer pipeline is part of Area 500 and is described in detail below. There will be a total of two non-heated 24-inch transfer pipelines, one per track, from the unloading stations to the inlet manifold in Area 300. The discharge of the heated unloading pumping stations will be combined into a separate heat-traced, 24-inch transfer pipe to the heated inlet manifold in Area 300.

The collection headers will convey the crude oil to pumps that will pump the crude oil to one of three 24-inch pipelines that will convey the crude oil to the tanks in Area 300. The pumps will be housed in pump basins. Each of the five pump basins serving the higher API crude oil unloading track will measure approximately 15 feet wide by 34 feet long and 15 feet deep. The five pump basins serving the track unloading non-pipeline quality crude oil will measure 10 feet wide by 34 feet long and 15 feet deep. Two pumps will serve each offloading header, with one acting as a primary and the second as an online spare on standby. During pumping, the crude oil will not come into contact with the vaults; however, the vaults are designed as secondary containment if the pumps or piping leak. The concrete trenches and pump vaults will be constructed watertight.

### 3.2.2 Area 300 – Storage

Crude oil will be pumped to and stored in the six storage tanks within the containment berm that surrounds Area 300. Two of the tanks will be equipped with electrically powered heating coils. These coils are sized to maintain temperature of the crude oil after it enters the tanks. Mixers in the tanks will keep the crude oil well mixed and keep any minor solids or water from separating out of solution. Water will not be drawn off from the bottom of the storage tanks.

The tanks will have sample ports to allow sampling and monitoring of the crude oil. The level of oil in the tanks will be controlled with telemetry systems. Additionally, a physical pump shutoff switch located on top of the floating roof will protect against overfill.

Crude oil stored in the tanks will be pumped to the dock for transfer to a marine vessel. Four variable speed pumps will pump the crude oil; three pumps will be in operation and one will be on standby. The pumps will be housed in the tank farm pump basin located on the west side of the Storage Area.

A small building at Area 300 will be used to store frequently needed spare parts and tools and the cleaners/solvents used for maintenance.

### 3.2.3 Area 400 – Marine Terminal

Crude oil will be loaded onto the marine vessels through transfer pipelines on the dock. Crude oil is pumped to Marine Terminal predominantly from Area 300 through steel transfer pipelines. The transfer pipeline delivers crude oil to two hoses. The hoses are connected to a manifold system on the receiving vessel.

Generally, the marine vessels will arrive at the berth inert and empty. While they are being loaded, vapors present in the vessels separate tanks will be captured and routed to the marine vapor control unit where they are combusted to control the emissions released to the atmosphere. Piping from the dock will convey the vapors to the MVCUs. Depending on the selected method, this unit will consist of a 100- by 50-foot concrete slab housing equipment and up to eight 4-1/2-foot-diameter steel stacks approximately 30 feet in height.

### 3.2.4 Area 500 – Transfer Pipelines

The transfer pipelines described above will convey crude oil between the different areas. A prover will be installed immediately downstream of the rail unloading facility. The prover is used to verify that the custody transfer coreolis meter is accurate. Valves will be installed near the old alignment of Gateway Avenue to allow the direct transfer of crude oils from the railcars to a berthed vessel. Direct transfer from the unloading facility to the storage tanks and transfer to the marine terminal will be the normal operation.

### 3.2.5 Areas 600 – West Boiler

Water circulates through the inside of heat transfer tubes while the outside of the tubes is heated by direct contact with the hot boiler combustion gases and radiant heat transfer. Natural gas will be supplied to the boiler building from the existing pipeline serving the area. An existing gas line in Old Lower River Road will provide service to the site. Steam from the boilers will be delivered to the point of use via insulated pipelines. The gas-fired boiler may also provide steam to pipes and ancillary equipment and space heating.

### 3.2.6 Rail Improvements

No industrial activity takes place within the rail corridor, which is used only for rail transportation. Maintenance activities necessary for rail transportation will be conducted on the rail spur located at the southeast corner of the rail unloading building. Rail containment pans and a concrete working surface will be provided around the rail spur. Stormwater from the rail spur will be collected in catch basins and containment pans along the rail line for treatment and monitoring. A containment valve, oil-water separator, and monitoring manhole will be provided for this facility. This stormwater will continue to flow through the stormwater collection system on the south side of the rail building and will eventually contribute flows to water quality vault 0200-WQV-002 for additional water quality treatment. A subsequent monitoring manhole is provided to confirm that discharges meet the NPDES permit conditions.

Rail car and locomotive maintenance activities will only be performed for equipment that is used to service this facility. No outside cars or locomotives will be serviced by Vancouver Energy on-site maintenance activities.

### 3.2.6.1 Typical On-site Rail Maintenance

A detailed assessment of possible maintenance needs was completed for this facility. The following maintenance activities may be conducted on site to maintain safe rail transportation. These most frequently conducted activities only involve use of hand tools, impact wrenches, jacks, a carpet knife, and, if necessary, a small welder to replace the placard holder.

- Wheel replacement
- Brake chains, boots, cylinder repairs, and/or replacement
- Brake pipe
- Grab iron, hand hold, sill step repairs, and replacement
- Stenciling
- Head-shield bolt tightening
- Hose replacement, hanger repair and replacement
- Placard/holder repair and replacement
- Knuckle pin replacement
- Cage chain replacement
- Rail car exterior washing

Railcar washing is not conducted on site for all vehicles. In accordance with 49 Code of Federal Regulations (CFR) 173.24(4) and 49 CFR 174.57, the Facility is prohibited to release tank cars back to the mainline carrier if there is presence of oily residue on the exterior of the cars as a result of unloading operations. Facility operators will identify cars whose exterior must be washed for this reason at the time the cars are being unloaded in Area 200. At such time, and within the Area 200 unloading facility (where there is full containment to collect wash materials), the exterior of the railcar, limited to the immediate location of any oily residue, will be spot washed. Spot washing will be accomplished by placing absorbent pads under the railcar below the location being washed, spraying the affected area with environmentally friendly detergent soap (using a hand spray bottle for example), and wiping the area clean by hand with rags/wipes. Rags/wipes and absorbent pads used for cleaning will be collected, bagged, and managed in accordance with appropriate disposal practices for this type of waste. Typically the use of additional wash water is not necessary to complete the cleaning. However, should wash water be needed, it would be applied only to the area from which oily residue is to be removed. A single pressure washer may be used. Any residual wash water not collected in the absorbent pads will be collected in the rail drip pans and discharged to the two containment tanks located at the admin/support area of Area 200. A licensed hauling and disposal company will haul off the tank contents for disposal off site at an appropriate location.

The Applicant's experience is that railcar exterior washing averages one railcar per month at facilities that receive on average one unit train per day. Thus with an average receipt capacity of four unit trains per day, this activity would occur approximately four times per month.

### 3.2.6.2 Typical Off-site Rail Maintenance

The following maintenance activities are performed with much less frequency and, because of the scope of repairs, are conducted off site when possible. For repairs conducted on site that may impact water quality, additional secondary containment measures, such as absorbent pads or temporary spill containment measures, will be installed prior to beginning work. Additionally, the control valve will be placed in the closed position to prevent an accidental release of contaminated water to the stormwater system.

- Wheel bearing maintenance, repairs, or replacement
- Brake shoe replacement

- Platform, running boards repairs and replacement
- Ladder repairs and replacement
- Manifold repairs and replacement
- Valve repairs and replacement
- Head shield repairs
- Truck inspection, repair, and replacement
- Coupler repairs
- Tank testing
- Welding and plasma cutting

### 3.2.6.3 Locomotive Maintenance

There is a possibility that a maximum of two locomotives may be on site for rail operations in the facility. Regular maintenance of the locomotives will also be conducted when necessary. The Operations Facility Safety Program submitted to EFSEC under separate cover includes detailed descriptions of locomotive operations and maintenance activities and includes operational BMPs to address water quality.

Specific, on-site railcar maintenance activities on the switching locomotives may occur less frequently for repairs to:

- Traction motors
- Main generators
- Prime mover
- Oil changes

For the maintenance activities above, these operations will be completed on the spur track or inside of the rail unloading where secondary structural containment BMPs are in place. Additional absorbent pads and/or temporary spill containment measures will be in place underneath the locomotive prior to beginning maintenance activities. Additional temporary spill prevention measures similar to those for mobile fueling will be used when completing oil changes. Replacement of the prime mover will typically be conducted off site. The following items are described in detail and are considered part of normal locomotive operations.

**Engine Blowdown**

- If the locomotive has been shut down for more than 4 consecutive hours or after a heavy rain, open cylinder test valves located on side of engine block.
- Tum engine over by turning the start button for a couple revolutions.
- Once the blowdown is complete, close all test valves and start engine.

**Drain Pollution Tank**

- Drain oil and water out of retention tank daily. Retention tank drain is located on the engineer's side of locomotive next to fuel tank.
- Dispose of waste in an approved container.

**Supply Fuel and Sand**

- Fuel locomotive per supplier and facility safety rules and regulations.
- Fill sand traps as needed. Rear sand traps are above the battery compartments. The front sand traps are located on the sides by the air compressor.
- Fuel filler necks are located on each side of unit.

### 3.2.6.4 Rail Infrastructure Maintenance

Occasionally maintenance to the rail infrastructure will be necessary. Maintenance to the rail track may include

- Welding
- Grinding
- Gas cutting

- Tamping of rail bed
- Regulating
- Placement and spreading rock/ballast
- Rail replacement

## 3.3 Materials and Pollutants

No materials or products will be stored outdoors. All crude oil within the Facility will be contained within railcars, pipelines, and storage tanks. Fire-fighting foam and diesel fuel stored on site for the fire water pump engines will be contained within double-walled storage tanks located within the fire water pump skids. Small quantities of on-site dust or particulates may be generated by the impervious surfaces, including gravel surfacing. Miscellaneous operational cleaning supplies, solvents, and chemicals will be stored indoors, protected from stormwater. Some roof runoff will be routed directly to storm drain sewers, and all the remaining stormwater runoff will be routed through water quality treatment units. Table 2 below summarizes the Facility areas and the potential stormwater pollutants in each area.

On-site wastewater treatment and storage will occur at the following locations.

- West Boiler – Pretreatment of West Boiler blowdown prior to disposal to the municipal sanitary sewer. The treatment process is continuous and will not require storage for treated wastewater.
- Marine Vapor Combustion – During loading of crude oil into marine vessels, vapors expelled from the vessel cargo hold are directed to the MVCUs at the dock area; the MVCUs will combust the vapors prior to their discharge to the atmosphere. The MVCUs are not a continuous source of wastewater. Bottom drawoff from condensate will produce approximately 5 gallons of wastewater every few years. This wastewater will be collected by operations staff and discharged to the containment tanks located at the administrative/ support buildings.
- Rail Car Spill Containment – In the event of an accidental oil spill within the railcar unloading area, spilled oil will drain into the rail spill pans and, into secondary containment trenches that extend the full length of the railcar unloading building. Pumping systems will transfer spilled oil to aboveground containment tanks located adjacent to the parking lot by the office and change room facilities. Liquid in the containment tanks will be hauled off site for recycling or disposal at a licensed hazardous materials handling facility.
- Miscellaneous Parts Wash – A part washing station will be located within the rail unloading building. The equipment will be used to clean miscellaneous connection parts. Runoff from the part wash will be contributed to containment collection system and pumps connected to the containment tanks.
- Foam Fire Protection Systems – The unloading building, storage tanks, and Marine Terminal are equipped with foam retardant fire suppressing systems. Environmentally friendly foam (fluorosurfactant free) will be used for this Facility. This type of foam does not contain surfactants that persist and bioaccumulate in the environment. Fire pumps are operated weekly to confirm proper operation but no foam is discharged. When foam system is tested, any foam discharge will be collected and disposed off site. Biodegradable foam may be collected and allowed to degrade, tested to meet water quality standards and released to stormwater.

**Table 2. Industrial Activities and Potential Pollutants**

| Facility Areas, Industrial Activity, and Potential Sources of Pollutants | Project Elements | Likelihood of Contact with Stormwater (if yes, describe reason) |
|---|---|---|
| 200 – Unloading and Office | | |
| Crude Oil | Rail Unloading Area | None; railcars, drainage header, pump basins, and transfer pipelines located within rail building |
| Fire Retardant Foam | Fire Pump and Foam Building | None; double-walled AST located within fire pump and foam building |
| Diesel Fuel | Fire Pump and Foam Building | None; double-walled AST located within fire pump and foam building |
| Mineral Oil | Electrical Transformers | Leaks could be mobilized during precipitation events |

| Facility Areas, Industrial Activity, and Potential Sources of Pollutants | Project Elements | Likelihood of Contact with Stormwater (if yes, describe reason) |
|---|---|---|
| Equipment Lubricants | Rail Unloading Area<br><br>Air Compressor | None; valving and fittings located within rail building<br>Leaks could be mobilized during precipitation events |
| Cleaners & Solvents | Unloading Area | None; indoor storage provided |
| Vehicle Parking & Maneuvering | Admin/Support Buildings - Parking & Drive Aisles | Vehicle leaks (gas, oil, and anti-freeze) and brake dust (zinc and copper) could be mobilized during precipitation events. |
| Rail Transportation | Unloading Building | None; located within structure; will be collected and hauled off site for disposal |
| 300 – Storage | | |
| Crude Oil | Storage Tanks | None; stored within double-bottomed AST with internal floating roof and fixed roof |
| Fire Retardant | Fire Pump and Foam Building | None; double-walled AST located within fire pump and foam building |
| Diesel Fuel | Fire Pump and Foam Building | None; Double-walled AST located within fire pump and foam building |
| Mineral Oil | Electrical Transformers | Leaks could be mobilized during precipitation events |
| Equipment Lubricants | Storage Building<br>Air Compressor | None; indoor storage provided<br>Leaks could be mobilized during precipitation events |
| Cleaners & Solvents | Storage Building | None; indoor storage provided |
| Vehicle Parking & Maneuvering | Parking and Driveway | Vehicle leaks (gas, oil, and anti-freeze) and brake dust (zinc and copper) could be mobilized during precipitation events. |
| 400 – Marine Terminal | | |
| Crude Oil | Transfer Pipelines | None; fully contained within transfer pipelines. |
| Fire Retardant | Fire Pump Building | None; double-walled AST located within fire pump building |
| Diesel Fuel | Fire Pump Building | None; double-walled AST located within fire pump building |
| Mineral Oil | Electrical Transformers | Leaks could be mobilized during precipitation events |
| Equipment Lubricants | Control Room/E-house<br>Marine Vapor System | None; indoor storage provided<br>Leaks could be mobilized during precipitation events |
| Cleaners & Solvents | Control Room/E-house | None; indoor storage provided |
| Vehicle Parking & Maneuvering | Parking and Driveway | Vehicle leaks (gas, oil, and anti-freeze) and brake dust (zinc and copper) could be mobilized during precipitation events. |
| 500 – Transfer Pipelines | | |
| Crude Oil | Transfer Pipelines | None; fully contained within transfer pipelines |
| 600 – West Boiler | | |
| Equipment Lubricants | Boiler Building<br>Air Compressor | None; indoor storage provided<br>Leaks could be mobilized during precipitation events |
| Cleaners & Solvents | Boiler Building | None; indoor storage provided |

| Facility Areas, Industrial Activity, and Potential Sources of Pollutants | Project Elements | Likelihood of Contact with Stormwater (if yes, describe reason) |
|---|---|---|
| Boiler Additives & Treatment | Boiler Building | None; indoor storage provided |
| Vehicle Parking & Maneuvering | Parking and Driveway | Vehicle leaks (gas, oil, and anti-freeze) and brake dust (zinc and copper) could be mobilized during precipitation events. |
| Rail Improvements | | |
| Rail Transportation | Terminal 5 Loop Track | Rail transportation leaks (lubricants, oil, fuel, anti-freeze) and brake dust (zinc and copper) could be mobilized during precipitation events |

## 3.4 Spills and Leaks

Terminal operations do not use a significant of amount of liquid fuels, lubricants, cleaners, solvents, boiler additives, or other hazardous substances that could contribute significant volumes to the stormwater system. Where sources of crude oil could contribute to the stormwater system, containment and monitoring measures will be installed. Table 3 summarizes the Facility areas and downstream outfalls.

**Table 3. Facility Areas Where Potential Spills/Leaks Could Occur**

| Location | Outfalls |
|---|---|
| 200 – Unloading and Office | Terminal 5 Outfall |
| 300 – Storage | Terminal 4 Outfall |
| 400 – Marine Terminal | Bio-infiltration Swales |
| 500 – Transfer Pipelines | Terminal 4 and Terminal 5 Outfalls |
| 600 – West Boiler | Terminal 5 Outfall |
| Rail Improvements | NA |

Table 4 summarizes the potential stormwater pollutants and the likelihood of the pollutant being present in stormwater discharges from the Facility.

**Table 4. Potential Stormwater Pollutants, Sources, and Likelihood**

| Potential Stormwater Pollutant | Pollutant Sources | Likelihood of Pollutant Being Present in Stormwater Discharge |
|---|---|---|
| Crude Oil | Rail Cars, Transfer Pipelines, & Storage Tanks | Not likely; crude oil unloading operations fully contained within protective building, pipelines constructed to meet all industry and agency standards for safety, and storage tanks fully contained within protective containment berm |
| Diesel Fuel | Three 500-Gal Double-Walled ASTs | Not likely; AST located within fire pump building |
| Fire Foam | Three 1,000-Gal Double-Walled ASTs | Not likely; AST located within fire pump building |
| Mineral Oil | Electric Transformers | Not likely; transformers located on concrete pads to facilitate inspection and maintenance |
| Equipment Lubricants | Indoor Storage, Air Compressors, & MVCUs | Not likely; indoor storage provided; equipment located on concrete pads to facilitate inspection and maintenance |
| Cleaners and Solvents | Indoor Storage | Not likely; indoor storage provided |
| Boiler Additives | Indoor Storage | Not likely; indoor storage provided |
| Leaks and Drips | Parking, Driveway, & Rail Corridor | Not likely; vehicle areas considered low volume; rail transportation corridor unchanged from existing condition |
| Turbidity and Suspended Solids | Gravel Industrial Yard Areas | Not likely; foot traffic only; vehicle areas used only for required maintenance |

# 4. Best Management Practices

## 4.1 Operational Source Control BMPs

### 4.1.1 Good Housekeeping

- Vacuum paved parking and driveway surfaces with a vacuum sweeper (or a sweeper with a vacuum appendix) to remove accumulated pollutants a minimum of once per quarter.
- Identify and control all on-site sources of dust to minimize stormwater contamination from the deposition of dust on areas exposed to precipitation.
- Keep all dumpsters under cover or fit with a lid that must remain closed when not in use.

### 4.1.2 Docks and Vessels

- Clean regularly all accessible work, service, and storage areas to remove debris and any other potential stormwater pollutants.
- Sweep rather than hose debris on the dock. If hosing is unavoidable, collect the hose water and convey it to treatment.
- Dispose of greasy rags and degreasers properly in trash receptacles. Trash will be hauled daily from the Marine Terminal to the Admin/Support areas for disposal in the dumpsters.
- Immediately repair or replace leaking connections, valves, pipes, hoses, and equipment that could cause the contamination of stormwater.
- Use drip pans, drop cloths, tarpaulins, or other protective devices in all paint mixing and solvent operations unless carried out in impervious contained and covered areas.
- Prohibit uncontained spray painting, blasting, or sanding activities over open water.
- Do not dump or pour waste materials down floor drains, sinks, or outdoor storm drain inlets that discharge to surface water. Plug floor drains that are connected to storm drains or to surface water. If necessary, install a sump that is pumped regularly.
- Prohibit outside spray painting, blasting, or sanding activities during windy conditions that render containment ineffective.
- Do not burn paint and/or use spray guns on topsides or above decks.
- Immediately clean up any spillage on dock, boat, or ship deck areas and dispose of the wastes properly.
- Implement BMPs and operational measures described in the Facility Oil Spill Contingency Plan and Facility Oil Handling Operations Manual. In the event of an accidental discharge of oil or hazardous material into waters of the state or onto land with a potential for entry into state waters, immediately notify Facility management, the Port, EFSEC, Washington State Department of Ecology (Ecology), and the National Response Center at 1-800-424-8802 (24-hour). If the spill can reach or has reached marine water, call the U.S. Coast Guard at (206) 217-6232.

### 4.1.3 Landscaping and Lawn/Vegetation Management

#### 4.1.3.1 Landscaping

- Landscape and soil installed outside cap limits will be engineered soil/landscape systems to improve the infiltration and regulation of stormwater in landscaped areas.
- Vegetation and clippings collected as a result of landscape vegetation maintenances will not be disposed of into waterways or storm drainage systems.

#### 4.1.3.2 Pesticides

- Pesticide use will be restricted to use as a last resort and will consider the following steps to treat pest infestations:

  Step 1: Correctly identify problem pests and understand their life cycle.

  Step 2: Establish tolerance thresholds for pests.

  Step 3: Monitor to detect and prevent pest problems.

  Step 4: Modify the maintenance program to promote healthy plants and discourage pests.

  Step 5: Use cultural, physical, mechanical, or biological controls first if pests exceed the tolerance thresholds.

Step 6: Evaluate and record the effectiveness of the control and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.

- Choose the least toxic pesticide available that is capable of reducing the infestation to acceptable levels. The pesticide should degrade readily in the environment and/or have properties that strongly bind it to the soil. Any pest control used should be conducted at the life stage when the pest is most vulnerable. For example, if it is necessary to use a *Bacillus thuringiens* as application to control tent caterpillars, it must be applied before the caterpillars cocoon or it will be ineffective. Any method used should be site-specific and not used wholesale over a wide area.
- Apply the pesticide according to label directions. Under no conditions will pesticides be applied in quantities that exceed manufacturer's instructions.
- Mix the pesticides and clean the application equipment in an area where accidental spills will not enter surface or ground waters, and will not contaminate the soil.
- Store pesticides in enclosed areas or in covered impervious containment. Maintain that pesticide contaminated stormwater or spills/leaks of pesticides are not discharged to storm drains. Do not hose down the paved areas to a storm drain or conveyance ditch. Store and maintain appropriate spill cleanup materials in a location known to all near the storage area.
- Clean up any spilled pesticides and keep any pesticide contaminated waste materials are kept in designated covered and contained areas.
- The pesticide application equipment must be capable of immediate shutoff in the event of an emergency.
- Do not spray pesticides within 100 feet of open waters (including wetlands, ponds, and streams), sloughs, or any drainage ditch or channel that leads to open water except when approved by Ecology or the local jurisdiction. All sensitive areas, including wells, creeks, and wetlands, must be flagged prior to spraying.
- If public notification is required by the local jurisdiction or by Ecology, complete public posting of the area to be sprayed prior to the application.
- Conduct spray applications only during weather conditions as specified in the label direction and applicable local and state regulations. Do not apply during rain or immediately before expected rain.

### 4.1.3.3 Vegetation Management

- Use at least an 8-inch "topsoil" layer with at least 8 percent organic matter to provide a sufficient vegetation-growing medium. Amending existing landscapes and turf systems by increasing the percent organic matter and depth of topsoil can substantially improve the permeability of the soil and the disease and drought resistance of the vegetation, and reduce fertilizer demand. This reduces the demand for fertilizers, herbicides, and pesticides. Organic matter is the least water-soluble form of nutrients that can be added to the soil. Composted organic matter generally releases only between 2 and 10 percent of its total nitrogen annually, and this release corresponds closely to the plant growth cycle. If natural plant debris and mulch are returned to the soil, this system can continue recycling nutrients indefinitely.
- Select the appropriate turfgrass mixture for the climate and soil type. Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem-eating lawn insects. They do not, however, repel root-feeding lawn pests, such as crane fly larvae, and are toxic to ruminants, such as cattle and sheep. The fungus causes no known adverse effects to the host plant or to humans.
- Use the following seeding and planting BMPs, or equivalent BMPs, to obtain information on grass mixtures, temporary and permanent seeding procedures, maintenance of a recently planted area, and fertilizer application rates: temporary seeding, mulching and matting, clear plastic covering, permanent seeding and planting, and sodding as described in Volume II of the stormwater manual.
- Desired plant species can be selected by adjusting the soil properties of the subject site.

### 4.1.3.4 Irrigation

- Landscape irrigation or establishment watering is provided to new trees, shrubs, and ground cover plantings to accelerate plant establishment and to provide supplemental water for plant maintenance. Irrigation is important during the establishment period to maximize plant survival and encourage strong root development during the formative years. The plantings are native and drought tolerant to minimize irrigation demand. Native seed areas are established and maintained with seasonal rainfall and irrigation beyond established is not necessary. Irrigation at the site is a combination of efficient overhead rotary spray and point-source drip irrigation to promote plant growth, maximize water efficiency, and minimize maintenance. Water is sourced from a municipal water supply and an

automatic irrigation control system will control the irrigation zones and includes sensors to turn off the system when weather conditions dictate.

#### 4.1.3.5 Fertilizer Management

- Top soil and amendments provides a proper growing medium, nutrients for plant growth, improve soil structure and improve water retention. The correct application of soil amendments and fertilizer promotes plant growth and survival. Exact fertilization and soil amendment application rates will be based on the recommendations provided by the testing laboratory. Three inches of organic bark mulch is maintained over planting beds to increase water retention, provide nutrients and provide weed control.

### 4.1.4 Loading and Unloading Areas for Liquid Material

#### 4.1.4.1 All Loading/Unloading Areas

- Place drip pans, or another appropriate temporary containment device, at locations susceptible to leaks or spills such as hose connections, flanges, fittings, hose reels, and filler nozzles. Drip pans must always be used when making and breaking connections. Check loading/unloading equipment such as valves, pumps, flanges, and connections regularly for leaks and repair them as needed.

#### 4.1.4.2 Rail Transfer Areas to Storage Tanks

- Implement the Facility Operations Manual
- Report spills of reportable quantities as described in section 1.3
- Prepare and implement the Facility Oil Spill Contingency Plan
- Install a containment pan system within the rails to collect spills/leaks from tank cars and hose connections, hose reels, and filler nozzles

#### 4.1.4.3 Loading/Unloading from/to Marine Vessels

- Facilities and procedures for the loading of crude oil must comply with measures described in the Oil Spill Contingency Plan and the Operations Facility Oil Handling Manual.

#### 4.1.4.4 Transfer of Small Quantities from Tanks

- Refer to section 4.1.13 for BMPs for the storage of liquids in permanent aboveground tanks, and section 4.2.2 for BMPs for storage of liquid or dangerous waste containers, for requirements on the transfer of small quantities from tanks and containers, respectively.

### 4.1.5 Maintenance and Repair of Vehicles and Equipment

Maintenance and repair facilities for road and highway vehicles are not provided on-site. Those vehicles will be maintained at existing off-site vehicle repair shops. This BMP specifically addresses railcar and locomotive equipment maintenance.

- Inspect all incoming vehicles, parts, and equipment stored temporarily for visible leaks
- Use drip pans or containers under parts or vehicles that drip or that are likely to drip liquids, such as dismantling of liquid containing parts or removal or transfer of liquids.
- Remove batteries and liquids from vehicles in designated areas designed to prevent stormwater contamination (rail unloading building). Temporarily store and then dispose of cracked batteries in a covered, non-leaking secondary containment system.
- Empty oil and fuel filters before disposal. Provide for proper disposal of waste oil and fuel.
- Do not pour/convey wash water, liquid waste, or other pollutants into storm drains or to surface water. Wash water, and liquid waste will be hauled off site for disposal.

### 4.1.6 Maintenance of Utility Corridors and Facilities

- Within transfer pipeline corridors, surfacing will be gravel to prevent the erosion of soil.
- Stormwater will be conveyed through rail/roadside ditches and culverts. The adjacent road is crowned and utility corridor and access roads are shed sections to sheet flow runoff to existing port stormwater systems. The corridors

will be appropriately maintained and grassy roadside ditches discharging to surface waters is an effective way of removing some pollutants associated with sediments carried by stormwater.
- Maintain any adjacent ditches.

### 4.1.7 Maintenance of Stormwater Drainage and Treatment Systems

- Inspect and clean treatment BMPs, conveyance systems, and catch basins as needed or directed in this plan, and determine whether improvements in operations and maintenance are needed.
- Promptly repair any deterioration threatening the structural integrity of the Facility or its components. These include replacing clean-out gates, catch basin lids, and rock in emergency spillways.
- Verify that storm sewer capacities are not exceeded and that heavy sediment discharges to the sewer system are prevented.
- Regularly remove debris and sludge from BMPs used for peak-rate control, treatment, etc., and truck it to a disposal site approved by the local or state government.
- Clean catch basins when the depth of deposits reaches 60 percent of the sump depth as measured from the bottom of basin to the invert of the lowest pipe into or out of the basin. However, in no case should there be less than 6 inches clearance from the debris surface to the invert of the lowest pipe.
- Clean woody debris in a catch basin as frequently as needed to maintain proper operation of the catch basin.
- Post warning signs that say “Dump No Waste - Drains to Surface Water” or emboss this wording on or adjacent to all storm drain inlets where practical.
- Disposal of sediments and liquids from the catch basins must comply with “Recommendations for Management of Street Wastes” described in Appendix IV-G of the stormwater manual.
- Operational source control BMPs for soil erosion and sediment control at industrial sites can be found in section 4.1.11, for storage of liquid in section 4.1.12, for spills of oil and hazardous substances in section 4.1.17, and for illicit connections to storm drains in section 4.1.18.

### 4.1.8 Parking and Storage of Vehicles and Equipment

- Do not hose down the area to a storm drain or to a receiving water. Sweep parking lots, storage areas, and driveways regularly to collect dirt, waste, and debris.
- If water must be used secure sediment traps and filter socks or inserts at all drainage entrances to prevent debris from entering the stormwater system.

### 4.1.9 Railroad Yards

- Do not discharge to outside areas from toilets while a train is in transit. Use designated off-site pumpout facilities to service these units.
- During liquid transfer, use drip pans at hose/pipe connections and flanges and fittings that could be susceptible to leaks.

### 4.1.10 Roof/Building Drains at Manufacturing and Commercial Buildings

- If a roof/building stormwater pollutant source is identified, implement appropriate source control measures, such as air pollution control equipment, selection of materials, painting galvanized surfaces, operational changes, material recycle, process changes, etc.

### 4.1.11 Soil Erosion and Sediment Control at Industrial Sites

- Maintain gravel surfacing in the rail yard areas. Where denuded or disturbed soils are exposed, replace it with gravel surfacing or equal to prevent soil erosion.

### 4.1.12 Storage of Liquid

- Place drip pans beneath all mounted container taps and at all potential drip and spill locations during filling and unloading of containers.

- Inspect tanks or container storage areas regularly for corrosion, structural failure, spills, leaks, overfills, and failure of piping systems. Check containers daily for leaks/spills. Replace containers, and replace and tighten bungs in drums as needed.
- Keep all liquid storage within closed and locked storage areas and buildings.
- Storage of reactive, ignitable, or flammable liquids must comply with the Uniform Fire Code.
- Cover dumpsters, or keep them under cover such as a lean-to, to prevent the entry of stormwater. Replace or repair leaking garbage dumpsters.
- Maintain lids on dumpsters in closed position. Schedule regular pick up so dumpster lids do not become propped open.

### 4.1.13 Storage of Liquids in Permanent Aboveground Tanks

- Inspect the tank containment areas regularly to identify problem components such as fittings, pipe connections, and valves for leaks/spills, cracks, corrosion, etc.
- Place adequately sized drip pans beneath all mounted taps and drip/spill locations during sampling or maintenance of tanks. Valved drain tubing may be needed in mounted drip pans.
- Pick up trash, debris and other deleterious material.
- Repair tanks that are leaking, corroded, or otherwise deteriorating.
- All installations must comply with the applicable API, Uniform Fire Code, and the National Electric Code.

### 4.1.14 Washing and Steam Cleaning Vehicles/Equipment/Building Structures

- Wash vehicles at an off-site commercial washing facility where the washing occurs in an enclosure and drains to the sanitary sewer.
- Wash miscellaneous parts/equipment within the rail unloading facility at a designated location which drains to containment storage for recycling/disposal.

### 4.1.15 Preventive Maintenance:

The preventive maintenance program includes (1) regular inspection and maintenance of stormwater management system BMPs and (2) routine inspection of vehicles and machinery/equipment, transfer pipelines, vessel loading systems, air compressors and electrical equipment.

The following additional preventive BMPs are implemented at Vancouver Energy.

- All crude handling facilities are inspected and maintained in accordance with applicable API standards.
- Catch basins will be inspected monthly and cleaned as specified in section 4.3 by collecting any accumulated debris or sediments from the catch basin and surrounding areas.
- Catch basin filters will be inspected monthly or after storm events greater than 1 inch of rainfall. Catch basin insert filters will be replaced when the filter capacity is reduced by 60 percent or at least annually.
- Place catch basin solids in a dumpster and dispose as solid waste.
- Water quality filters and oil-water separators will be inspected monthly during the wet weather season, and quarterly during the dry season. Systems will be fully cleaned and media changed at a frequency of once per year or as recommended by the vendor.
- Promptly repair any deterioration threatening the structural integrity of the stormwater facilities.
- Inspect ponds for accumulation of sediments and debris which reduce overall storage and treatment volumes.
- Inspect all equipment and vehicles monthly for leaking fluids, such as oil, antifreeze, lubricants, hydraulic fluid etc. Take leaking equipment and vehicles out of service or prevent leaks from spilling on the ground until they are repaired.
- Immediately clean up spills and leaks (e.g., using absorbents, vacuuming, etc.) to prevent the discharge of pollutants.

### 4.1.16 Spill Prevention and Emergency Cleanup

Implement the provisions of the operations spill prevention, control, and countermeasures plan (SPCCP) and Oil Spill Contingency Plan.

## 4.1.17 BMPs for Spills of Oil and Hazardous Substances

- Implement the provision of the Facility Operations SPCCP and an Oil Spill Contingency Plan.
- Locate emergency spill containment and cleanup kit(s) in each facility area and where transfers of liquids. The contents of the kit must be appropriate for the type and quantities of chemical liquids stored at the Facility.

## 4.1.18 Illicit Connections to Storm Drains

Water from washing vehicles or equipment, steam cleaning and/or pressure washing is considered process wastewater. The Permittee must not allow this process wastewater to comingle with stormwater or enter storm drains; and must collect in a tank for off-site disposal, or discharge it to a sanitary sewer, with written approval from the local sewage authority.

During each monthly site inspection, look for signs of illicit discharges, especially during dry weather when stormwater is not discharging from the site. Each monthly site inspection will include the following.

- Observations made at stormwater sampling locations and areas where stormwater associated with industrial activity is discharged off site, or discharged to waters of the state, or to a storm sewer system that drains to waters of the state.
- Observations for the presence of floating materials, visible oil sheen, discoloration, turbidity, odor, etc. in the stormwater discharge(s).
- Observations for the presence of illicit discharges, such as domestic wastewater, noncontact cooling water, or process wastewater.
- If an illicit discharge is discovered, Vancouver Energy will notify Ecology within 7 days, as required.
- Ecology requires the permittee to eliminate the illicit discharge within 30 days.

## 4.1.19 Employee Training

Vancouver Energy trains employees responsible for overseeing and maintaining the activities described in this document consistent with this section. Training will be conducted by qualified personnel once per year and will typically involve an on-site meeting and a tour of the Facility. Table 5 summarizes the training topics, Vancouver Energy staff to be trained, and the frequency of trainings. A training log (Appendix B) that identifies the date and a summary of the training, any special issues or events discussed, and names and titles of the staff members in attendance will be maintained at the Facility. The training identified below can be combined with training associated with other spill prevention and preparedness activities at the Facility.

**Table 5. Training Schedule and Implementation**

| Training Topics | Brief Description of Training Program/Materials | Schedule for Training (Dates) |
|---|---|---|
| All Site Employees | | |
| NPDES Permit | Summarize the purpose and intent of the NPDES program and the role of the SWPPP<br>Provide site map of key stormwater features, including catch basin and outfall locations<br>Highlight how employees are key to SWPPP compliance and prevention of stormwater contamination | Once per year |
| Spill Prevention and Response | Present and explain spill prevention<br>Describe spill response procedures<br>Give examples of spills and responses needed | Once per year |
| Good Housekeeping | Demonstrate acceptable procedures | Once per year |
| Maintenance Requirements | Present and explain maintenance procedures for stormwater and spill control facilities | Once per year |

| Training Topics | Brief Description of Training Program/Materials | Schedule for Training (Dates) |
|---|---|---|
| Material Management Practices | Discuss labeling (hazardous and nonhazardous)<br>Discuss proper fueling practices | Once per year |
| SWPPP Team | | |
| SWPPP Implementation | Discuss elements of the SWPPP<br>Discuss results of quarterly inspections<br>Discuss possible recommendations | Once per quarter |
| Monitoring Procedures | Discuss sampling location and procedures | Once per year |
| Special Issues | Results of any Ecology inspections<br>Level 1, 2, or 3 responses complete<br>Specific maintenance issues<br>Specific incidents/spills and response taken | Once per quarter as needed |

## 4.1.20 Inspections, Reporting, and Recordkeeping

### 4.1.20.1 Site Inspections

Qualified Vancouver Energy SWPPP team members who are familiar with the SWPPP and the requirements of the NPDES permit will be assigned to conduct monthly visual inspections. Inspections will be conducted separately from typical day-to-day terminal responsibilities.

The following inspection procedure will be followed.

1. Obtain a copy of the inspection checklist (Appendix C).
2. Enter the inspection date and the inspector's name.
3. Conduct visual observations of all the items identified in the checklist. Check off each of the items listed as the inspection is completed. Make an appropriate check as to whether the observation is in compliance with the SWPPP. In the notes section, note any observations along with the identification of any necessary follow-up tasks, such as any maintenance activity that needs to be conducted.
4. If a violation is found that cannot be corrected immediately, such as those requiring replacement parts that are not available or capital improvements, or a need for engineered controls is identified, note the recommended corrective action on the inspection form and discuss it with the Vancouver Energy manager.
5. When recommended actions have been completed, indicate the date that the areas for corrective actions was addressed.
6. Sign and date the completed inspection form and place it within the inspection notebook maintained at the Facility. In addition, take a scan of the inspection form and store it electronically.

### 4.1.20.2 Reporting

Vancouver Energy SWPPP team personnel will file all required reports with EFSEC and any state or local agencies designated by EFSEC.

Table 6 lists the necessary reports, their frequency, and due date. All reports must be signed by a corporate officer of at least the level of vice president or other Vancouver Energy staff member responsible for the overall operation of or environmental matters at the terminal.

**Table 6. Reporting Requirements**

| Report | Frequency | Due Date | Format |
|---|---|---|---|
| DMRs | Quarterly | Within 45 days of the end of the quarter (May 15, Aug 15, Nov 14, Feb 14) | Ecology online submittal |
| Annual Report | Yearly | May 15 | Ecology-provided |
| SWPPP | If requested by Ecology | Within 14 days of request | Document from Vancouver Energy |
| Noncompliance Notification | As necessary | Within 30 days of event that triggers the notice. | Written report with the description, date, and time of event; corrective actions and date and additional steps taken to reduce, eliminate, and prevent reoccurrence. |

If changes to the Facility will result in different or increased pollutants, if new industrial activity is added, or if stormwater volumes increase by 25 percent or more, a "Request Modification of Permit Coverage" will be submitted to Ecology.

#### 4.1.20.3 Record Keeping

The Vancouver Energy SWPPP team will maintain paper and electronic copies of the records as indicated in Table 7.

**Table 7. Required Record Keeping**

| Report/Record | Notes |
|---|---|
| Individual Industrial Stormwater Permit | As issued by EFSEC (included as Appendix D to this document). |
| SWPPP | As amended. Must be made available to the public upon written request. |
| Original Sampling Records | Include field notes and laboratory results. See section 5.3 for details. |
| Discharge Monitoring Reports | As provided to EFSEC on a quarterly basis. |
| Annual Report | As provided to EFSEC |
| Inspection Reports | As completed (see Appendix C for template). |
| BMP Maintenance Records | Sections 4.2 through 3.4 identify applicable BMPs with maintenance requirements. |
| Corrective Action | Documentation of Level One, Two, or Three corrective actions taken in response to exceeding benchmark values for discharge. |

### 4.1.21 Illicit Discharges

The Vancouver Energy Terminal will not conduct activities that will result in discharge of process wastewater, domestic wastewater, cooling water, or other prohibited discharges to the stormwater system or to surface waters and groundwaters of the state that have not been approved under the Site Certification Agreement or permits attached there-to.

Signs of illicit discharges will be monitored during monthly site inspections to verify that illicit discharges do not occur, especially during dry weather when stormwater is not discharging from the site.

Each monthly site inspection will include the following.

- Observations made at stormwater sampling locations and areas where stormwater associated with industrial activity is discharged off site, or discharged to waters of the state, or to a storm sewer system that drains to waters of the state.
- Observations for the presence of floating materials, visible oil sheen, discoloration, turbidity, odor, etc., in the stormwater discharge(s).

- Observations for the presence of illicit discharges such as domestic wastewater, noncontact cooling water, or process wastewater (including leachate).
- If an illicit discharge is discovered, Vancouver Energy will notify EFSEC within 7 days and implement appropriate corrective actions in accordance with the Facility NPDES stormwater permit.

## 4.2 Structural Source Control BMPs

Mandatory structural source control BMPs required by Condition S3 of the Industrial Stormwater General Permit include the following.

- Provide a containment berm around the storage tanks capable of containing 110 percent of the largest tank plus a 100-year, 24-hour stormwater event.
- Contain the rail unloading facility fully within a rain sheltering structure complete with rail drip pans, containment trenches, spill evacuation pumps, and a curbed exterior. Pumps and connected containment tanks capable of storing 110 percent of the largest design railcar.
- Complete miscellaneous part cleaning within the rail unloading building in an area designed to collect wash water and pumping it to the containment tanks for recycling/disposal.
- Drain all wash water to a collection system that directs the wash water to containment tanks for haul off by licensed disposal companies for treatment and discharge.

### 4.2.1 Loading and Unloading Areas for Liquid Material

#### 4.2.1.1 All Loading/Unloading Areas

- Consistent with UFC requirements (Appendix IV-D R.2) and to the extent practicable, all unloading is will be conducted within a covered building to isolate stormwater.
- Use hoses and hard piping during loading operations to maintain no exposure to the atmosphere.
- Unloading area/building to prevent run-on of stormwater and to direct any runoff or spills in the area to the interior containment systems.
- Conduct the loading operations at the berth in an area with containment curbing. Containment area slopes to inlets that drains system to upland treatment BMPs.

### 4.2.2 Storage of Liquid or Dangerous Waste Containers

- Containers with liquid or dangerous waste will be stored inside the rail unloading facility, the storage building, or at the E-house, or control room at the Marine Terminal unless this is impracticable because of site constraints or UFC requirements.
- Store containers in a designated area, which is covered, bermed or diked, paved and impervious in order to contain leaks and spills. Slope the secondary containment to drain into a dead-end sump for the collection of leaks and small spills.
- Store liquid wastes in containers within the rail unloading facility, storage building, or at the containment area. Where material is temporarily stored in drums, use a containment system in lieu of the above system.
- Place containers mounted for direct removal of a liquid chemical for use by employees inside a containment area as described above. Use a drip pan during liquid transfer.

### 4.2.3 Storage of Liquids in Permanent Aboveground Tanks

- Permanent tanks will be located in impervious secondary containment surrounded by dike or UL-approved double-walled. The containment berm will be designed to provide a containment volume of 110 percent of the largest tank plus the 100-year, 24-hour storm event.
- Each of the six crude oil tanks will be located in an intermediate berm and is sloped to a sump for the collection of small spills.
- Tank overfill protection, including level control and physical shut-off switches, will be provided to minimize the risk of spillage during loading.
- Diesel fuel and fire suppression foam will be stored in double-walled storage tanks located in the Fire Foam Buildings.

## 4.3 Treatment BMPs

Table 8 lists BMPs employed on site to treat stormwater to remove pollutants prior to discharge of stormwater off site.

**Table 8. Treatment BMPs**

| | |
|---|---|
| **Structure:** | Coalescing Plate Separator Bay |
| **Date of Implementation:** | 2016 |
| **Discharge Point:** | Area 300 – Containment Control Structure, Area 300 – Sanitary Sewer |
| **Area(s) Treated:** | Area 300 – Containment Area, Area 300 – Pump Basin |
| **Pollutants Removed:** | Oil |
| **Maintenance Requirement(s):** | **Frequency or Conditions When Maintenance is Needed:** |
| Regular inspections | Inspect oil/water separators monthly during wet season and immediately after storm events ≥ 1 inch per 24 hours. |
| Clean accumulated oil | Cleaning must occur before October 15 to remove material accumulated during dry season, or if oil thickness reaches 1 inch. |
| Remove accumulated sludge | Cleaning must occur before October 15 to remove material accumulated during dry season, or if sludge reaches 6 inches. |
| Remove trash and debris from inlet and outlet pipes | When trash and debris in any inlet or outlet pipe blocks more than 1/3 of its height. |
| Inspect the basin walls/bottom for fractures or cracks | If maintenance personnel determine the structure is unsound, replace or repair basin to design standards. |
| Inspect grout | When a grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks. Pipe should be regrouted and secure at basin wall. |
| Inspect for settlement/misalignment | Maintenance is required if failure of basin has created a safety, function, or design problem. Basin should be replaced or repaired to design standards. |
| Remove vegetation blocking opening to basin | When vegetation is growing across and blocks more than 10% of the basin opening. |
| Remove vegetation at inlet/ outlet pipe joints | When vegetation is growing in inlet/outlet pipe joints and is more than 6 inches tall and less than 6 inches apart. |

| | |
|---|---|
| **Structure:** | API (Baffle Type) Separator Bay |
| **Date of Implementation:** | 2016 |
| **Discharge Point:** | Area 300 – Containment Coalescing Plate Separatory Bay |
| **Area(s) Treated:** | Area 300 – Containment Area |
| **Pollutants Removed:** | Oil |
| **Maintenance Requirement(s):** | **Frequency or Conditions When Maintenance is Needed:** |
| Regular inspections | Inspect oil/water separators monthly during wet season and immediately after storm events ≥ 1 inch per 24 hours. |
| Clean accumulated oil | Cleaning must occur before October 15 to remove material accumulated during dry season, or if oil thickness reaches 1 inch. |
| Remove accumulated sludge | Cleaning must occur before October 15 to remove material accumulated during dry season, or if sludge reaches 6 inches. |

| | |
|---|---|
| Remove trash and debris from inlet and outlet pipes | When trash and debris in any inlet or outlet pipe blocks more than 1/3 of its height. |
| Inspect the basin walls/bottom for fractures or cracks | If maintenance personnel determines the structure is unsound, replace or repair basin to design standards. |
| Inspect grout | When a grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks. Pipe should be regrouted and secure at basin wall. |
| Inspect for settlement/misalignment | Maintenance is required if failure of basin has created a safety, function, or design problem. Basin should be replaced or repaired to design standards. |
| Remove vegetation blocking opening to basin | When vegetation is growing across and blocks more than 10% of the basin opening. |
| Remove vegetation at inlet/ outlet pipe joints | When vegetation is growing in inlet/outlet pipe joints that is more than six inches tall and less than 6 inches apart. |

| **Structure:** | Water Quality Vaults (0200-WQV-001, 0200-WQV-002, 0300-WQV-001, 0300-WQV-002, 0400-WQV-001, and 0400-WQV-002) |
|---|---|
| **Date of Implementation:** | 2016 |
| **Discharge Point:** | 0200-WQV-001: Discharge Location #1, Monitoring Point #1<br>0200-WQV-002: Discharge Location #2, Monitoring Point #2<br>0300-WQV-001: Discharge Location #4, Monitoring Point #3<br>0300-WQV-002: Upstream of 0300-WQV-002<br>0400-WQV-001: 0400-WQV-002<br>0400-WQV-002: Discharge Location #6, Monitoring Point #4 |
| **Area(s) Treated:** | 0200-WQV-001: Administration & Support Area, West Boiler, and western half of Rail Unloading Area<br>0200-WQV-002: Eastern half of Rail Unloading Area<br>0300-WQV-001: Area 300 Support & Containment Area<br>0300-WQV-002: Area 300 Containment Area<br>0400-WQV-001: Dock Containment Area<br>0400-WQV-002: Dock Containment Area |
| **Pollutants Removed:** | Turbidity, suspended solids, volatile organics (BTEX), metals |
| **Maintenance Requirement(s):** | **Frequency or Conditions When Maintenance is Needed:** |
| Regular Inspections | Inspect water quality vaults monthly during wet season and immediately after storm events ≥ 1 inch per 24 hours. |
| Replace StormFilter media | Completely replace all cartridges and media annually or as recommended by the manufacturer |
| Removed sediments and pressure wash vault | Complete annually or as needed. |
| Replace filters inserts | Quarterly or as needed (monthly inspections) |
| Remove trash and debris in forebay | When trash or debris is located immediately in the forebay or is blocking flow separator of the basin by more than 10%. |
| Remove trash and debris from inlet and outlet pipes | When trash and debris in any inlet or outlet pipe blocking more than 1/3 of its height. |
| Inspect the top slab for holes and cracks | Maintenance is required when top slab has holes larger than 2 inches or cracks wider than 1/4 inch. |
| Inspect frames to verify it is sitting flush on the riser rings or top slab and firmly attached | Maintenance is required if there is a separation of more than ¾ inch of the frame from the top slab or if the frame is not securely attached. |
| Inspect the basin walls/bottom for fractures or cracks | If maintenance personnel determines the structure is unsound, replace or repair basin to design standards. |

| | |
|---|---|
| Inspect grout | When a grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks. Pipe should be regrouted and secure at basin wall. |
| Inspect for settlement/misalignment | Maintenance is required if failure of basin has created a safety, function, or design problem. Basin should be replaced or repaired to design standards. |
| Inspect for any evidence of oil, gasoline, contaminants, or other pollutants | If evidence of contaminants, coordinate removal/cleanup with local water quality response agency. |
| Replace or repair metal grate | If grate is missing or has a broken member(s) on the grate or if the grate has an opening wider than 7/8 inch. |

| **Structure:** | Media Filter Drain |
|---|---|
| **Date of Implementation:** | 2016 |
| **Discharge Point:** | Bio-infiltration swales at Area 400 |
| **Area(s) Treated:** | Area 400 Parking and support areas |
| **Pollutants Removed:** | Turbidity, suspended solids, volatile organics (BTEX), metals. |
| **Maintenance Requirement(s):** | **Frequency or Conditions When Maintenance is Needed:** |
| Regular Inspections | Inspect media filter drain monthly during wet season and immediately after storm events ≥ 1 inch per 24 hours. |
| Control Noxious Weeds | When needed during inspections. |

| **Structure:** | Bio-filtration & Bio-infiltration Swales |
|---|---|
| **Date of Implementation:** | 1995 |
| **Discharge Point:** | Infiltration to groundwater |
| **Area(s) Treated:** | "Marine Terminal" drainage area including Facility Parking and Support areas at Area 400, portions of the Auto Terminal north of the Facility, and CalPortland west of the Facility. |
| **Pollutants Removed:** | Turbidity, suspended solids, volatile organics (BTEX), metals. |
| **Maintenance Requirement(s):** | **Frequency or Conditions When Maintenance is Needed:** |
| Regular Inspections | Inspect bio-filtration and bio-infiltration swales monthly during wet season and immediately after storm events ≥ 1 inch per 24 hours. |
| Mow grasses | Maintain grasses between 4 and 9-inches |
| Remove debris, leaves, litter, and oils | When needed during inspections |
| Control Noxious Weeds & Perform weed removal | When needed during inspections |
| Remove Sediments | When needed during inspections |
| Replace Planting | When needed during inspections |
| Replace Mulch | Annually where heavy metal deposition is high |

| Structure: | Stormwater catch basins & area inlets |
|---|---|
| Date of Implementation: | 2016 |
| Discharge Point: | See Civil Plans |
| Area(s) Treated: | Paved areas on the west side of the grain silos |
| Pollutants Removed: | Turbidity, suspended solids |
| **Maintenance Requirement(s):** | **Frequency or Conditions When Maintenance is Needed:** |
| Replace filters inserts | Quarterly or as needed (monthly inspections) |
| Clean out catch basin sumps monthly | Quarterly or as needed (monthly inspections) |
| Remove trash and debris in front of catch basin or on grate opening | When trash or debris is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%. |
| Remove sediment, trash, and debris in the catch basin | When trash or debris exceeds 60% of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the debris surface to the invert of the lowest pipe. |
| Remove trash and debris from inlet and outlet pipes | When trash and debris in any inlet or outlet pipe blocking more than 1/3 of its height. |
| Remove dead animals or vegetation within the catch basin | When dead animals or vegetation could generate odors that could cause complaints or dangerous gases (e.g. methane). |
| Inspect the top slab for holes and cracks | Maintenance is required when top slab has holes larger than 2 inches or cracks wider than 1/4 inch. |
| Inspect the frame to verify it is sitting flush on the riser rings or top slab and firmly attached | Maintenance is required if there is a separation of more than ¾ inch of the frame from the top slab or if the frame is not securely attached. |
| Inspect the basin walls/bottom for fractures or cracks | If maintenance personnel determines the structure is unsound, replace or repair basin to design standards. |
| Inspect grout | When a grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks. Pipe should be regrouted and secure at basin wall. |
| Inspect for settlement/misalignment | Maintenance is required if failure of basin has created a safety, function, or design problem. Basin should be replaced or repaired to design standards. |
| Remove vegetation blocking opening to basin | When vegetation is growing across and blocking more than 10% of the basin opening. |
| Remove vegetation at inlet/ outlet pipe joints | When vegetation is growing in inlet/outlet pipe joints that is more than six inches tall and less than 6 inches apart. |
| Inspect for any evidence of oil, gasoline, contaminants, or other pollutants | If evidence of contaminants, coordinate removal/cleanup with local water quality response agency. |
| Close catch basin cover | If the cover is missing or only partially in place. |
| Test catch basin cover removal to allow for maintenance | If one maintenance person cannot remove the lid, perform maintenance on the cover. |
| Replace or repair metal grate | If grate is missing or has a broken member(s) on the grate or if the grate has an opening wider than 7/8 inch. |
| Remove trash or debris from metal grate | When trash and debris is blocking more than 20% of the grate surface inletting capacity. |

## 4.4 Stormwater Peak Runoff and Volume Control BMPs

The Facility will discharge to existing Columbia River outfalls through existing manmade conveyance pipelines. This waterbody is categorically exempt from the flow control provisions of Ecology's *2012*

*Stormwater Management Manual for Western Washington*. According to Appendix I-E of the manual, the Columbia River is listed as a flow control-exempt water body. Redevelopment is proposed within the existing drainage areas of developed storm drain systems that discharge through manmade conveyances directly to the Columbia River.

Redevelopment of the existing brownfield Facility location will not result in the diversion of drainage from any perennial stream or from any category of wetland and will not discharge stormwater to streams or wetlands.

Stormwater will be collected on site, and stormwater exposed to pollution-generating surfaces will be treated. Where feasible, stormwater from roof areas considered to be non-pollution generating will be discharged directly to the existing stormwater systems. Project areas handling crude oil, specifically rail unloading building, and storage tank areas are equipped with additional structural controls for containment.

Stormwater from surface improvements will be collected through a series of inlets and storm drain systems, routed through on-site treatment, and discharged to existing on-site manmade pipelines. These pipelines continue through manmade conveyance and/or treatment systems before discharging through piped outfalls to the Columbia River. Area 400 – Marine Terminal will use constructed bio-infiltration swales to discharge stormwater. Due to the proximity of the swales to the Columbia River and groundwater, stormwater will be treated through media filter drains and stormfilter units.

## 4.5 Erosion and Sediment Control BMPs

Erosion and sediment control BMPs will prevent the sedimentation of adjacent properties and the discharge of sediment-laden stormwater to the receiving water. Most of the Vancouver Energy site is developed and, where possible, unused areas will be landscaped. The Facility will be constructed in an area with little to no slope, and the potential for erosion therefore is quite low. Table 9 lists BMPs used at the Facility to minimize erosion or remove sediments from stormwater.

**Table 9. Erosion and Sediment Control BMPs**

| | |
|---|---|
| **Structure:** | Undeveloped areas of the site will be maintained with existing vegetation or gravel surfacing |
| **Date of Implementation:** | Unknown |
| **Discharge Point:** | N/A |
| **Area(s) Treated:** | Adjacent parking, maneuvering, and Facility activity |
| **Pollutants Removed:** | Turbidity, metals, oil residue from vehicles using or parking at the Facility |
| **Maintenance Requirement(s):** | **Frequency or Conditions When Maintenance is Needed:** |
| Brush and grass is cut to maintain safety. | As necessary |

# 5. Sampling Plan

## 5.1 Discharge Location(s)

The Vancouver Energy Terminal discharges stormwater at the following locations.

1. Discharge Location 1 is at the west end of the rail unloading building and is a manhole located on a 24-inch storm drain that is part of the Port's existing stormwater system. This connection is for the Administration and Office Area, West Boiler Building, and the western portions of the yard on the south-side of the rail unloading building and the western portion of the rail unloading building roof.
2. Discharge Location 2 is located approximately at the midpoint of the rail unloading area at a manhole located on a 24-inch storm drain that is part of the Port's existing stormwater system. This is a manhole connection to the existing stormwater system at Terminal 5. This connection is for a portion of rerouted runoff from the top of the Vanexco Cap, and from collected yard area on the southeast portion of the rail unloading area.
3. Discharge Location 3 is at the east end of the rail unloading building at a manhole located on a 24-inch storm drain that is part of the Port's existing stormwater system. This is a manhole connection to the existing system at Terminal 5. This connection is for the upstream NGL Energy stormwater, rerouted runoff from the top of the Vanexco Cap, and runoff from the eastern half of the Rail Unloading Building.
4. Discharge Location 4 is located at the west end of the Storage Area located at an existing manhole on a 36-inch storm drain that is part of the Port's existing stormwater system. This connection is to an existing stormwater system in Terminal 4 constructed for the sole use of Port tenant stormwater. This connection includes all collected pollution generating surfaces, as well as the containment area. Discharges are also comingled with roof runoff.
5. Discharge Location 5 is located at the east end of the Storage Area at a manhole located on a 42-inch storm drain that is part of the Port's existing stormwater system. This connection is to an existing stormwater system in Terminal 4 constructed for the sole use of Port tenant stormwater. This connection is for tank roof runoff only.
6. Discharge Location 6 is located immediately west of the MVCU and has its discharge to the existing biofiltration and bioinfiltration swales.

Identify all points of discharge to surface water, storm sewers, or discrete groundwater infiltration locations, such as dry wells or detention ponds (see Table 10).

**Table 10. Discharge Location Summary**

| Discharge ID | Common Description | Latitude (optional) | Longitude (optional) | Discharge Type | Comments |
|---|---|---|---|---|---|
| DL: 1 | Storm connection to existing storm sewer at Unloading Area (West) | 45°39'05" | 122°44'00" | Existing storm sewer | Existing storm drain discharges to Columbia River |
| DL: 2 | Storm connection to existing storm sewer at Unloading Area (Central) | 45°39'00" | 122°43'50" | Existing storm sewer | Existing storm drain discharges to Columbia River |
| DL: 3 | Storm connection to existing storm sewer at Unloading Area (East) | 45°38'57" | 122°43'43" | Existing storm sewer | Existing storm drain discharges to Columbia River |
| DL: 4 | Storm connection to existing storm sewer at Storage Area (West) | 45°38'47" | 122°42'55" | Existing storm sewer | Existing storm drain discharges to Columbia River |
| DL: 5 | Storm connection to existing storm sewer at Storage Area (East) | 45°38'41" | 122°42'42" | Existing storm sewer | Existing storm drain discharges to Columbia River |
| DL: 6 | Storm connection to existing catch basin at Marine Terminal | 45°38'37" | 122°43'18" | Existing bio-filtration swale | Existing bio-filtration swale discharges to bio-infiltration swale |

## 5.2 Identify Each Sampling Location

Identify each sampling location by its unique identifying number such as A1, A2, etc. Include these sampling locations on site map (see Table 11).

**Table 11. Sampling Location Summary**

| Discharge ID | Common Description | Latitude (optional) | Longitude (optional) | Discharge Type | Comments |
|---|---|---|---|---|---|
| MP: 1 | Storm connection to existing storm sewer at Office Area | 45°39'05" | 122°44'00" | Existing storm sewer | Existing storm drain discharges to Columbia River |
| MP: 2 | Storm connection to existing storm sewer at Unloading Area | 45°39'00" | 122°43'50" | Existing storm sewer | Existing storm drain discharges to Columbia River |
| MP: 3 | Storm connection to existing storm sewer at Tank Farm | 45°38'47" | 122°42'55" | Existing storm sewer | Existing storm drain discharges to Columbia River |
| MP: 4 | Storm connection to existing catch basin at Marine Terminal | 45°38'37" | 122°43'18" | Existing storm sewer | Existing storm drain discharges to upland swales |
| MP:5 | Discharge of OWS at Rail Spur | 45°38'57" | 122°43'40" | Proposed on-site stormwater | Discharge to proposed on-site stormwater upstream of MP:2 |

### 5.2.1 Staff Responsible for Sampling

Collection of samples for testing is conducted by Terminal maintenance staff. Typically, the Environmental or Terminal Manager conducts all sampling activities.

### 5.2.2 Sample Collection and Handling

Timing: Samples are collected at least once per quarter for the parameters shown in Table 12 below.

**Table 12. Benchmarks and Sampling Requirements Applicable to All Facilities**

| Parameter | Units | Benchmark Value | Analytical Method | Laboratory Quantitation Level [a] | Minimum Sampling Frequency [b] |
|---|---|---|---|---|---|
| Oil and Grease | mg/L | 15 | EPA 1664A | 5.0 | Monthly |
| Total Suspended Solids | mg/L | 30 | EPA 180.1 Meter | 0.5 | Monthly |
| BTEX | µg/L | 100 | EPA SW 846 8021/8260 | 2.0 | Monthly |
| Benzene | µg/L | 1.2 | EPA 624 | 2.0 | Monthly |
| pH | Standard Units | Between 5.0 and 9.0 | Meter | ±0.5 | Metered |
| Copper, Total | µg/L | 14 | EPA 200.8 | 2.0 | Monthly |
| Zinc, Total | µg/L | 117 | EPA 200.8 | 2.5 | Monthly |

a The Permittee will is responsible to verify laboratory results comply with the quantitation level (QL) specified in the table. However, if an alternate method from 40 CFR Part 136 is sufficient to produce measurable results in the sample, the Permittee may use that method for analysis. If the Permittee uses an alternative method it must report the test method and QL on the discharge monitoring report.

b 1/quarter means at least one sample taken each quarter, year round.

During the quarter, samples are taken during precipitation events that result in a discharge at the outfall. Samples are taken within the first 12 hours of a stormwater discharge event. Sampling will occur at any time during the quarter with the exception of the fourth quarter. During the fourth quarter, samples are taken during the first discharge event occurring after 1 October.

Method of Collection: Sampling will be conducted as a grab sample at all Discharge Locations. Using bottles supplied by the lab, samples will be taken by hand (using powder-free nitrile or latex gloves) by placing the open container within the flow as it falls from the outfall pipe. Bottles will be filled to the marked level and care will be taken to not overfill.

Sample Documentation: Staff responsible for sample collection must record the following information on the form contained in Appendix F.

- Date and time the sample was taken
- Notation on whether the sample was taken within the first 30 minutes of stormwater discharge event and if not taken during this time, an explanation of the factors preventing sampling within the first 30 minutes
- Location of sample
- Method of sampling and preservation
- Date and time of testing and/or shipment to the laboratory
- Name of the individual performing the sampling
- Results of the visual oil sheen observation

## 5.3 Discharge Monitoring Reports

Discharge monitoring reports (DMRs) must be submitted to Ecology within 45 days of the end of the quarter as specified in Table 13. DMRs must be submitted to Ecology by using the web-based reporting system (http://www.ecy.wa.gov/programs/wq/permits/paris/index.html) or by mail.

- Department of Ecology

  Water Quality Program – Industrial Stormwater
  P.O. Box 47696
  Olympia, WA 98504-7696

**Table 13. Discharge Monitoring Report Submission Dates**

| Quarter | Months Covered | Discharge Monitoring Report Due Date |
|---|---|---|
| 1st Quarter | January, February, and March | May 15 |
| 2nd Quarter | April, May, and June | August 14 |
| 3rd Quarter | July, August, and September | November 14 |
| 4th Quarter | October, November, and December | February 14 |

A DMR must be sent during each quarter regardless of whether or not the Facility has discharged stormwater from the site. If discharge(s) occurred during normal working hours and during safe conditions, but no sample was collected during the entire quarter, the permittee must submit a DMR indicating “no sample obtained.” If no discharge(s) occurred during the entire quarter or the discharges during the quarter occurred outside normal working hours or during unsafe conditions, the permittee must submit a DMR indicating “no discharge.”

If discharge(s) occurred during normal working hours, and during safe conditions; but no sample was collected during the entire quarter, the Permittee will submit a DMR form indicating “no sample obtained.” If no discharge(s) occurred during the entire quarter or the discharges during the quarter occurred outside

normal working hours or during unsafe conditions, the Permittee will submit a DMR indicating “no discharge.”

If a Permittee has suspended sampling for a parameter due to consistent attainment, the Permittee will submit a DMR and indicate that it has achieved Consistent Attainment for that parameter(s).

## 5.4 Sampling Parameters

Testing of the collected samples must be done for the parameters identified in Table 12. All of the testing of these parameters will be accomplished by sending the collected samples to an Ecology accredited laboratory. The samples will be properly preserved (as specified by the laboratory) and will be sent to the laboratory within their hold times.

**Visible Oil Sheen:** Operationally a check for a visible oil sheen is required prior to release of stormwater collected at the following locations:

1. Area 300 – Stormwater Pump Station. Check for oil sheen is required prior to manual operation of the stormwater pump station. A visual check for an oil sheen will be completed. Downstream treatment includes water quality treatment. Oil-water separation is installed upstream of this facility.
2. Area 400 – Containment area located at the face of the dock. Check for oil sheen is required following loading operations and prior to releasing collected stormwater upland for treatment and discharge. Upstream treatment includes oil-water separation, and water quality treatment.

# 6. SWPPP Certification

The Industrial General Stormwater Permit requires that this document and any modification be certified by a corporate officer of at least the level of vice president or other Vancouver Energy personnel who are responsible for the overall operation or environmental matters at the terminal. Currently, (Staff Names to be Determined), have been granted signature authority. Each time a Level 1, 2, or 3 Corrective Action is required, this form needs to be resigned and recertified and attached to the SWPPP. The certification form is included as Appendix G.

# 7. List of Acronyms and Abbreviations

Applicant: Tesoro Savage Petroleum Terminal LLC

AST: aboveground storage tank

bbl: barrel and barrels

BMP: best management practice

BTEX: benzene, toluene, ethylbenzene, and xylenes

CFR: Code of Federal Regulations

City: City of Vancouver

DMR: discharge monitoring report

Ecology: Washington State Department of Ecology

EFSEC: Energy Facility Site Evaluation Council

Facility: Vancouver Energy Terminal

MMBTU: million British thermal unit

MVCU: marine vapor control unit

NPDES: National Pollutant Discharge Elimination System

Port: Port of Vancouver USA

SPCCP: spill prevention, control, and countermeasures plan

SWPPP: stormwater pollution prevention plan

WAC: Washington Administrative Code