OCTOBER 2016 REVISED APPLICATION FOR SITE CERTIFICATION
CHANGE HISTORY PART 1 - GENERAL

The following table is a summary of the main revisions and updates made to the May 2016 Application for Site Certification (ASC). The table indicates the source of the materials used for the revisions, as follows, and the date the sources were submitted to EFSEC.

ASC Section	Revision	Referenced From	Date Originally Submitted to EFSEC	Description of October 6, 2016 Information *(PD) indicates the Project Description was revised)*
Part 1				
1.1	Updated Applicant information.	See references	5-27-2016	Tesoro Corporation and Savage Companies descriptions were updated based on more recent corporate information available publicly.
1.2	Updated Applicant contact information.	NA	5-12-2014	
1.3	Updated Applicant's financial assurance commitments. Headings were added and new numbering	Appendix E.2	5-27-2016 8-29-2013 10-6-2016	October 2016 updates include: 1.3.1 Applicant provided a new section on regarding financial assurances. 1.3.5.2: Information was added regarding Washington State financial responsibility requirements applicable to vessel and rail operations. 1.3.6: Editorial changes to reflect the updated decommissioning discussion in Section 2.3.9.
1.4	Updated per revisions to Parts 1, 2, 3, and 4.	See Parts 1 - 4	5-27-2016 10-6-2016	Section 4 is a summary of commitments and mitigation measures which appear elsewhere in the document – see the changes to Parts 1-4.
1.4.1	Added description of Table 1.4-3.		10-6-2016	Table 1.4-3 provides a summary of all the mitigation measures included in the DEIS and the status of each measure in the ASC.

ASC Section	Revision	Referenced From	Date Originally Submitted to EFSEC	Description of October 6, 2016 Information *(PD) indicates the Project Description was revised)*
Table 1.4-3	DEIS Mitigation Measures Table	DEIS	10-6-2016	Provided a summary of all the mitigation measures included in the DEIS and the status of each measure in the ASC.
1.4.1.1	Added types of crude oil within the API gravity range that may be received, handled, stored, and loaded at the facility.		10-6-2016	"This range can include the Bakken and Dilbit."
1.4.1.2	Added additional tank car specifications.		10-6-2016	The Facility will only receive cars with 9/16-inch shell thickness and that comply with both the Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains Rule (HM-251) and the FAST Act, which amended HM-251.
1.4.1.3	Added information regarding vessel calling requirements at terminal.		10-6-2016	Added new requirement that vessels will only be permitted to arrive and load at the Facility's marine terminal that have been vetted in accordance with the Tesoro Maritime proprietary vetting process.
1.4.1.3	Added information regarding marine terminal configuration and construction mitigation measures.		10-6-2016	Clarified containment at the dock is 84 barrels. Revised containment design at the dock to increase pumping capacity and physical storage capacity of the catch basin.
1.4.1.5	Added information regarding spill prevention and control mitigation measures.		10-6-2016	Provided a description of booming activities proposed for the Facility and their compliance with applicable regulatory statues.
1.4.1.6a 1.4.1.15	Added Construction Communication Plan		10-6-2016	Detailed contents of the Construction Communication Plan that will be distributed to the public, City, County, EFSEC, and other appropriate state agencies.
1.4.1.7	Added footnote regarding compliance with 2015 IBC		10-6-2016	"Preliminary review of the facility design indicates that the Facility complies with the 2015 IBC."

ASC Section	Revision	Referenced From	Date Originally Submitted to EFSEC	Description of October 6, 2016 Information *(PD) indicates the Project Description was revised)*
1.4.1.7	Added information regarding flooding mitigation measures		10-6-2016	Modified design of project elements located in Area 400 to ensure the floor of the structures is at least 2 feet above the base flood elevation.
1.4.1.7	Added information regarding jet grouting mitigation measures		10-6-2016	Provided description of actions to be taken if there is a water quality exceedance in accordance with the project's NPDES Individual Construction Stormwater Permit.
1.4.1.7	Added information regarding spill prevention, control and countermeasures		10-6-2016	Clarified containment at the dock is 84 barrels. Revised containment design at Area 400 to increase pumping capacity and physical storage capacity of the catch basin. Added description of an assessment to be performed to inventory existing oil-water spill control devices at the downstream inlets adjacent to the transfer pipeline.
1.4.1.7	Added activities to be performed in the event of an expected site inundation.		10-6-2016	Added a measure that movable equipment will be relocated above the 500-year floodplain and static equipment will be secured.
1.4.1.7	Added information regarding decommissioning mitigation measures		10-6-2016	Added a measure that ground improvement locations will be covered by an impervious surface.
1.4.1.7 1.4.1.14	Added additional public water supply mitigation measure		10-6-2016	The applicant will install a water line loop.
1.4.1.7	Revised in-water work period. This revision was included throughout the ASC as applicable.		10-6-2016	The in-water work window has been revised to September 1 to January 15 to avoid peak migration and larval stages of salmonid and nonsalmonid species. The revised work window is preferred by EFSEC and WDFW. Coordination to align the USACE work window with the preferred window is ongoing.

ASC Section	Revision	Referenced From	Date Originally Submitted to EFSEC	Description of October 6, 2016 Information *(PD) indicates the Project Description was revised)*
1.4.1.7	Added construction noise mitigation measure.		10-6-2016	Sound dampening devices will be used to minimize sound of impact pile driving.
1.4.1.14	Added mitigation measures in response to VFD emergency response gaps presented in Appendix B of the DEIS		10-6-2016	Provided fire department connections on the Facility side of the fire protection systems; and provided a description of the training to be provided to emergency responders. Provided a description of the emergency response drills to be performed and potential grants that may fund first responder planning, preparedness and equipment needs identified during the drills.
1.4.1.14	Added operations safety standards compliance measure.		10-6-2016	The applicant will provide employees with fire retardant clothing in accordance with applicable state regulations.
1.4.1.16	Deleted operational transportation mitigation measure.		10-6-2016	Removed measure stating a YIELD sign will be posted at Old Lower River Road to SR 501.
1.4.1.18	Added a new section that provides additional general mitigation measures addressing performance based facility throughput, first call for Washington refiners and the mitigation fund		10-6-2016	Added new mitigation measures that discuss performance based facility throughput, first call for Washington refiners and the mitigation fund
1.4.1.19	Added decommissioning impacts and mitigation measures.	PDEIS	7-28-2014 10-6-2016	Added a measure that ground improvement locations will be covered by an impervious surface.
1.4.2	Updated Fair Treatment Discussion with analysis from PDEIS	PDEIS	7-28-2014	
1.5	Updated per revisions to Parts 1, 2, 3, and 4.	See Parts 1 - 4	5-27-2016 10-6-2016	Section 1.5 is the collection of references supporting the ASC. New references have been identified in track changes format for each section.

ASC Section	Revision	Referenced From	Date Originally Submitted to EFSEC	Description of October 6, 2016 Information *(PD) indicates the Project Description was revised)*
1.6	Updated with Applicant's ongoing consultation activities.	EFSEC EIS Data Request No. 12 (Makarow 2016b)	1-25-2016 5-27-2016 10-6-2016	Information regarding tribal consultation was added.

This page is intentionally blank.

Section 1.3 Assurances

The following sections are revised as shown in underlined text for new/added items and shown in strikethrough text for deletions. Refer to document sections for sources of revisions.

The Applicant will establish and maintain, or cause to be established and maintained, several forms of insurance during the construction and operation of the Facility. The lease agreement with the Port of Vancouver (Appendix E.2) establishes various minimum insurance coverages described in sections 1.3.2 below. Section 1.3.3 describes amounts required by applicable state law, including, specifically, amounts required of rail and marine vessel operators. ~~Insurance will be maintained as required by law and customary business practice and to satisfy third-party participants and lenders. The amounts described in sections 1.3.1 through 1.3.5.2 are the amounts required by the lease agreement with the Port of Vancouver (Appendix E.2). The amounts described in section 1.3.5.3 are amounts required by applicable state law.~~

1.3.1 EFSEC Requirements

In addition to the minimum amounts required in the Port lease, and to satisfy the Facility financial assurance provisions of RCW 80.40.025 described in section 1.3.3 below, the Applicant supports the DEIS mitigation measure that provides for a study to evaluate the appropriate level of financial assurances and the appropriate mechanism(s) to provide assurances and ensure timely access to funds if an incident occurs. This is consistent with mitigation proposed in the Grays Harbor Terminal EIS.

The Applicant has conducted a regulatory and insurance industry assessment of probable worst case scenarios for similar crude oil storage and marine terminal operations as well as the amount of financial assurances provided by other terminals and concluded that the level of financial assurances appropriate to respond to an incident, including bodily injury, property damage, personal injury and pollution events, (including cleanup costs and natural resource damages), arising in any way from the Applicant's occupancy of and operations at the Facility site is available in the insurance market, as described in the testimony of Michelle Hollingsed during the adjudication. [Vol. 8, pp. 1708—1785 and Vol. 21, pp. 4913—4976 [Hollingsed]. The Applicant will provide the insurance industry peer incident information as part of the study to be conducted when EFSEC is ready to initiate the study. Without intending to pre-determine the outcome of that financial assurance study recommended in the DEIS, the Applicant proposes insurance coverage for these liability risks in an amount consistent with the amounts required by regulation in California for similar facilities and operations (less than or equal to a maximum of $300 million).

The Applicant commits to utilize contracts designed to confirm a seamless chain of care, custody and control so that no gaps in coverage exist between responsible parties in the supply chain (rail, Terminal, marine vessel).

All policies will include coverage for acts of terrorism and earthquake-related events. The insurance will be provided by insurance companies that have a financial strength rating of at least "A-, VII" as rated by A.M. Best. Prior to commencing work, upon each renewal and upon request, Applicant will provide to EFSEC acceptable certificates of insurance evidencing the required insurance policies.

1.3.2 Port Lease Requirements

1.3.2.1 Commercial General Liability Insurance

Pursuant to the Port lease, the Applicant must obtain and maintain in full force and effect, Commercial General Liability insurance against claims for liability and property damage arising out of the use and operation of the premises with limits not less than ten million dollars ($10,000,000) per occurrence/fifteen million dollars ($15,000,000) aggregate (Appendix E.2, Articles 1.K and 15.B), and will include contractual liability insurance coverage, coverage against claims for bodily injury, property damage, personal injury, products and completed operations, and advertising injury occurring on or about the premises leased from the Port.

The Applicant and/or its contractors and subcontractors will be required to obtain and maintain in full force and effect Commercial General Liability insurance with the same limits and same coverages during the period of construction and startup phases to be specified in the terms of those construction agreements.

Limits can be achieved through a combination of primary and Excess/Umbrella Liability coverage.

1.3.2.2 Automobile Insurance

Pursuant to the Port lease, the Applicant will obtain and maintain in full force and effect Automobile Liability insurance covering owned, non-owned, and hired automobiles during use and operations with limits not less than one million dollars ($1,000,000) (Appendix E.2, Article 1.K).

The construction contractor and subcontractors will be required to obtain and maintain in full force and effect Automobile Liability insurance with the same limits and the same coverages during the period of construction and startup phases to be specified in the terms of those construction agreements.

1.3.2.3 Property Insurance

The Applicant will obtain and maintain at all times during the term of construction, use and operation of the Facility, Property Physical Damage insurance on the buildings and improvements that are to be erected on the premises. The insurance will be provided with a maximum deductible of one million dollars ($1,000,000) and 5 percent of values per Facility area.

The Applicant will purchase and maintain Builders Risk insurance upon the work at the Facility site to the full value until final completion of Facility Construction (Appendix E.2, Article 15.A). The insurance will include coverage against the “all-risk” perils including earthquake, windstorm and flood for physical loss and damage. Upon final completion, The Applicant will maintain at all times “all-risk” property insurance (including boiler and machinery insurance) upon all Facility buildings and facilities (Appendix E.2, Article 15.A). The insurance will include coverage extension for the perils of earthquake, windstorm and flood coverage, in an amount equal to the full replacement cost thereof. The insurance will contain an agreed valuation

provision in lieu of any co-insurance clause, an ordinance and law endorsement and debris removal coverage and a waiver of subrogation endorsement.

1.3.2.4 Worker's Compensation and Washington Stop Gap Liability

The Applicant will fully comply with the statutory requirements for Worker's Compensation as required with respect to any employees performing work in the subject property and premises. The Applicant also will insure its exposure with Employer's Liability insurance (Washington Stop Gap Liability). The Applicant will provide Workers' Compensation coverage (including all coverage mandated by any federal law) pursuant to all statutory requirements as may apply and any other insurance coverage required by law. The Applicant will maintain Employer's Liability insurance or stopgap insurance coverage with limits not less than one million dollars ($1,000,000) (Appendix E.2, Article 1.K and 15.D).

In the event that the workers at the Facility are employed by one or more contractors of the Applicant rather than the Applicant directly, the Applicant will not be required to maintain such coverage, but will require such contractor or contractors to maintain such coverage for all workers at the Facility.

The Applicant will require that any construction contractor and all subcontractors working on the project comply similarly with the statutory requirements for worker's compensation with respect to their employees performing work on the subject property and premises. The Applicant also will require Employer's Liability insurance for exposure under Washington Stop Gap Liability.

1.3.2.5 Environmental Impairment

Environmental Impairment Liability coverage is intended to address liability for pollution that occurs on the facility site. Pollution Legal Liability coverage is intended to address liability for pollution that leaves the site.

Pollution Legal Liability Insurance

The Applicant and its operator(s) will be responsible, as required by law, for acts of environmental impairment related to the construction, use and operation of the Facility. Such losses may, in some circumstances, be covered by Commercial General Liability insurance, which the Applicant and the construction contractor will carry. This section describes limits specified in the Port Lease (Appendix E.2).

The Applicant and/or its contractors and subcontractors will provide Pollution Legal Liability insurance with combined limits not less than twenty-five million dollars ($25,000,000) per occurrence and provide coverage against claims for bodily injury, property damage, natural resource damages, and clean up and defense costs.

Environmental Impairment Liability

In addition, the Applicant and/or its contracted operator(s) will obtain Environmental Impairment Liability insurance with combined limits not less than twenty-five million dollars ($25,000,000) (Appendix E.2, Article 1.L) and provide coverage against claims for bodily injury, property damage, natural resource damages, and clean up and defense costs occurring on the Facility site. The policy will include coverage for sudden and accidental releases, as well as any gradual releases arising in any way from the Applicant's occupancy of and operations at the Facility site.

1.3.3 Financial Responsibility under Revised Code of Washington (RCW 88.40.025)

RCW 88.40 defines and prescribes financial responsibility requirements for facilities that store, handle, or transfer oil (including crude oil) in bulk near the navigable waters of the state. The Facility will be subject to these requirements because the structures, equipment, and devices comprising the Facility will be located near the navigable waters of the state and will transfer oil in bulk to vessels having an oil-carrying capacity of over 250 barrels, which will transport the oil in bulk. In accordance with RCW 88.40.025, the Applicant will demonstrate financial responsibility in an amount determined by the Washington State Energy Facility Site Evaluation Council (EFSEC) as necessary to compensate the state and affected local governments for damages that might occur during a reasonable worst-case spill of oil from the Facility into the navigable waters of the state. The amount of financial responsibility will consider such matters as the amount of oil that could be spilled into the navigable waters from the Facility, the cost of cleaning up the spilled oil, the frequency of operations at the Facility, the damages that could result from the spill, and the commercial availability and affordability of financial responsibility. In accordance with RCW 88.40 030, the financial responsibility required may be established by any one of, or a combination of, the following methods acceptable to EFSEC: (1) evidence of insurance; (2) surety bonds; (3) qualification as a self-insurer; or (4) other evidence of financial responsibility. To date, Ecology has not adopted regulations that specify an amount or a specific method for calculating an amount for facilities, in the same way that amounts or methods of calculation have been specified for rail transportation to and marine vessel transportation from the Facility, as described in the next paragraph.

There are laws and regulations (already in place or recently put in place), for Financial Responsibility for those parties responsible for transportation of crude oil to and from the Facility. The Applicant will not source, own or transport the crude oil to or from the Facility. The Applicant will receive its customer's crude oil by rail, unload and stage that crude oil in the on-site tanks, and load the crude oil onto vessels provided by those customers. Rail carrier and vessel operators are required to maintain financial responsibility in accordance with RCW 80.40. The Applicant is not responsible for providing such financial responsibility for transportation of crude oil to or from the facility; however the following information is presented to describe the existing regulatory requirements for rail and marine vessel operators.

Cargo vessels transporting crude oil must provide evidence of financial responsibility pursuant to RCW 80.40.020[1]. For vessels operating in Washington, financial responsibility is based on the type of vessel and the total capacity for storage of product, and range between $5 million and $1 billion, with the vessels expected to call at the Facility predominantly in the latter category (Ecology 2015).

Washington Utilities and Transportation Committee recently adopted financial assurance requirements for rail transportation of crude oil, applying a formula that includes volume of crude oil being transported by rail, maximum train speed and a cost per barrel for cleanup. WAC 480-62-300. For a typical unit train of crude oil, the amount specified in this regulation is approximately $800 million to $1 billion, depending on tank car volume.

[1] Vessels transporting crude oil are also required to demonstrate financial responsibility under National Contingency Plan (NCP) as found in 40 CFR Part 300.

1.3.4 Site Closure Bond (Ch. 463-72 WAC)

No set-aside from operating funds is anticipated for site abandonment, but the Applicant will obtain a site closure bond in an amount to be determined by EFSEC upon approval of an initial site restoration plan. Decommissioning is addressed in additional detail in section 2.3.9.

This is intentionally blank.

Section 1.4 Mitigation Measures

The following sections are revised as shown in underlined text for new/added items and shown as strikethrough text for deletions. Refer to document sections for sources of revisions.

1.4.1 Mitigation Measures

This section summarizes impacts to the elements of the natural and built environment potentially resulting from the Facility and the measures identified in this application to avoid, minimize, and mitigate such impacts. Each element addresses construction and operation mitigation, and notes where appropriate if mitigation is not required. The section number associated with the element corresponds to the section in this application where additional information can be found.

Impacts and mitigation measures from decommissioning of the Facility are described in section 1.4.1.19 below.

For purposes of consistency with the ongoing environmental review, Section 1.4 concludes with Table 1.4-3, which summarizes all of the mitigation measures included in the DEIS. The table describes the status of each DEIS mitigation measure in the Application. Specifically, the table identifies those measures that have been included in the ASC (and their location in the ASC). The table also lists those measures that have not been included in the ASC, but identifies any alternative mitigation included in the ASC that is designed to address the same issue or subject matter. To the extent that the summary of the "Applicant's Response" in Table 1.4-3 includes discussion of mitigation concepts that are not otherwise addressed in the narrative text in this Section, it is the Applicants' intent that the discussion in Table 1.4-3 accurately represents the Applicant's position with respect to that subject matter.

1.4.1.1 Section 2.3.1 Project Overview

The Facility will receive, handle, temporarily store, and load pipeline quality ~~light, medium, and heavy~~ crude oils with an American Petroleum Institute (API) gravity ranging from 15 to 45 ~~degrees~~.

1.4.1.2 Section 2.3.3.1 Rail Car Unloading

The Applicant will impose standard requirements on crude oil specifications (specs) and quality with all shippers in order to manage the integrity of the crude oil received at the Facility (Wright 2016).

Vancouver Energy had previously agreed to accept only tank cars for crude oil shipment into the Facility that meet or exceed the U.S. DOT-117 standards specified in Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains Rule (HM-251) as amended by the FAST Act and codified at 49 CFR 179.202 (including any related federal agency or congressional modifications to those standards). As stated in the May 2016 ASC, the Applicant's commitment applies to all tanks cars received at the Facility from start of operations, thus advancing the phase-in schedule authorized by the rule.

In addition the Applicant agrees to receive only cars with 9/16-inch shell thickness and that comply with the Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains Rule (HM-251) as amended by the FAST Act, and codified at 49 CFR 179.202.

Finally, in section 1.4.1.18 of the ASC, Applicant has identified a plan for performance based facility throughput limitations that can be imposed to further reduce the probability of the transportation risk pending demonstration of specified performance measures.

~~Vancouver Energy will only accept tank cars for crude oil shipment into the Facility that meet or exceed the U.S. DOT-117 standards specified in 49 CFR 179.202 (including any related federal agency or congressional modifications to those standards). All Facility customers will be required to ship crude oil using tank cars that meet or exceed these standards. Vancouver Energy is committed to making this requirement for all customers concurrent with startup of the Facility and in advance of the phase-out schedule allowed by the U.S. DOT.~~

1.4.1.3 ~~Section 2.3.7.1 Marine Terminal Operations~~ Section 2.3.7 Area 400 Marine Terminal

Section 2.3.7.1 Marine Terminal Operations

Vessels Calling at Vancouver Energy Terminal

Only vessels vetted in accordance with the Tesoro Maritime proprietary vetting process will be permitted to arrive and load at the Facility's marine terminal. This vetting system, "Tesoro Assessment and Ship Clearance" (TASC), is used to review and evaluate the vessel, vessel systems, management company, and vessel crews to insure all safety and environmental standards are met by the ship, ship owner, and crew. Tesoro's vessel vetting system, TASC, goes above international and federal standards. Tesoro's most current vessel vetting system is provided at Appendix D.5, along with Tesoro's commitment to safe operating procedures for vessel loading activities (Worley Parsons and DNVGL 2014[2], Bayer 2016a, 2016b). These vetting procedures will be updated as appropriate to reflect conformance with applicable federal standards.

Vessel Departure and Transit

Loaded vessels departing from the Facility will be escorted by a suitably matched tug until the escorted vessel arrives in the vicinity of the river mouth. Once in the vicinity of the river mouth the tug will be released from the escorted vessel and will standby as a sentinel tug until the vessel crosses the Bar and is safely underway in the open ocean.

The Applicant will implement procedures that will only allow vessels calling at the Facility to depart a dock or enter the river when they can make the transit of the entire river with a minimum 2 feet of under-keel clearance and 10 feet across the bar.

See section 2.3.7.1 for additional detail on vessel departure and transit.

[2] Also included as Appendix N to the PDEIS.

Section 2.3.7.2, Marine Terminal Configuration and Construction

The Applicant will increase the volume of containment available to capture potential releases at the dock during vessel loading activities.

Federal regulations require a catch basin at the dock that can contain 3 bbl in the event of a spill. The current design has a catch basin with a capacity to contain 84 bbl.

In addition to the catch basin design, the Applicant is committing to change the design to further increase that physical storage capacity of the catch basin by pumping oil out of the catch basin in the event of a spill. This change involves two components. First, the Applicant would use the existing pump and return pipeline already depicted in plans that are used to strip the loading hoses of any residual crude oil and return that crude oil to the Area 300 storage tanks. The Applicant proposes to connect the containment area into this system and implement an automatic trigger that would turn the pump on in the event of a system shutdown, as would occur during a rupture of the loading hoses (further described below). When engaged, that pump operates at a rate of approximately 286 bbl/hr. Second, to further increase the pumping capacity in the event of a larger spill at the dock, the Applicant proposes to install an additional larger landside pump that will connect to the same return piping and catch basin. The additional pump would be of the same size as the ones proposed in the rail unloading area and would pump approximately 2,800 bbl/hr (46 bbl/min). Collectively, this improved system far exceeds the 3-bbl regulatory requirement.

In addition to the improvements described above, several of the design features proposed in the submitted plans are engaged in the event of a spill during vessel loading to limit the volume released. First, the pump electrical drives that power the positive displacement pumps (the pumps responsible for moving oil from the storage tanks to the vessel) include a "safe torque off" feature. This feature removes rotational power from the motor of the positive displacement pumps instantly when pressure in the line drops or if the gas detection system is activated (as would occur in the event of a release), thus stopping additional flow of material to the pipelines. Additionally, the pipelines at the dock have 30-second shutoff valves. In the event of a release, the valves are actuated and complete closure will occur within 30 seconds. During those 30 seconds, the valves are incrementally restricting the flow such that it is decreasing over that span of time.

If one assumes it takes 5 seconds for the positive displacement pumps to stop when the "safe torque off" is engaged, and one does not take into consideration any incremental decrease of flow that would be expected when the valve closes during the 30-second shutoff time (both of which are conservative assumptions and tend to underestimate the expected performance), the resulting volume that would flow past the valve during the 30 seconds is approximately 44 bbl.

By comparison, the improvements to the containment design at the dock would provide for the 84 bbl of physical storage capacity and would also remove an additional 48 bbl via pumping in that span of time. More generally, the containment system as described above would take roughly 1 minute to empty the 84-bbl containment area back to the aboveground storage tanks.

1.4.1.4 Section 2.6, Water Supply System

Mitigation measures for the water supply consist of the monetary contribution required by the City for water connections and new services. Service connection fees, system development charges, and industrial water use billing will be paid to the City. Connection fees and system

development charges paid at the time of building permit application and application for water service is compensatory mitigation paid to the City for the long-term impacts to water rights, source development, system storage, and distribution piping.

The connection to the City water supply system will be made consistent with standard specifications adopted by the City. Backflow devices will be tested yearly per State requirements.

As an additional mitigation measure, the Applicant has committed to installing a water line loop, at no cost to the City, to address available flow, as explained in Section 1.4.1.14.

The Applicant will verify these preliminary off-site water system conclusions during the development of final project design.

1.4.1.5 Section 2.10, Spill Prevention and Control

The Facility proposes to only receive, handle, store, and load Groups 2, 3, and 4 persistent oils as defined in WAC 173-182-030 (24) with a specific gravity less than 1 (meaning they will float on water), and an API gravity ranging from 15 to 45. The Facility will not receive, store, or load Group 5 persistent oils, those with a specific gravity greater than 1.0000 and ~~an API gravity equal to or less than 15.0,~~ which are heavier than water.

The Applicant will comply with the pre-booming requirements of WAC 173-180-224 and provide spill response equipment at Area 400 Marine Terminal as described in detail in section 2.10.2.6.

The Facility boom boat will be deployed during the entire duration of vessel loading operations, including when pre-booming cannot be conducted due to conditions identified in the pre-booming safe and effective threshold determination.

The Applicant will retain a licensed professional to gather and assess relevant weather and current data to determine, to the best extent possible and based on historical trends, the number of days per year conditions are projected to exceed two thresholds relevant to transfer operations: (1) the "safe and effective threshold" identified in Table 1 and Figure 2 of Appendix K (Safe and Effective Threshold Determination Report) of the Preliminary Operations Facility Oil Handling Manual; and (2) the conditions that determine when transfer operations must cease, as specified in Table 4 of the preliminary Operations Facility Oil Handling Manual. Additionally, Applicant will install equipment at the dock that measures wind speed, wind direction and current speed to facilitate ongoing compliance with these thresholds and to continue monitoring frequency with which conditions exceed these thresholds after Project construction. That data may be incorporated when assessing regularly required updates of the Operations Facility Oil Handling Manual and other spill planning documents.

The Applicant believes that this alternate mitigation will provide requested data and conforms to the federal and state regulatory framework governing pre-booming.

The safe and effective threshold in the preliminary planning documents is set at 1.5 knots and is based on site-specific conditions and the capacity of the boom technology that will be used for pre-booming to withstand currents. The threshold of 1.5 knots is in excess of the average current

on the Columbia River for most of a calendar year. Based on experiences at Tesoro's nearby existing transfer facility, it is anticipated that the study contemplated by the proposed mitigation will confirm that conditions at the Facility site are regularly below the safe and effective threshold. Importantly, the regulations expressly permit operators of transfer facilities to continue transfer operations when conditions exceed the safe and effective threshold, so long as alternative measures are in place. *See* WAC 173-180-221; WAC 173-180-222.

To address unlikely situations in which the current or wind speeds exceed the safe and effective threshold such that pre-booming will not occur but do not exceed the threshold at which Applicant must cease operations, the Applicant will comply with regulatory requirements to ensure that alternative measures are in place to respond to a spill when conditions prevent safe and effective pre-booming. Compliance with these requirements is explained in item PD-34 in the Applicants' response to DR 11. In addition to the requirements set forth in regulations, the Applicant has bolstered the ability to respond to a spill in currents that exceed the safe and effective threshold by purchasing and making available a "current buster" boom that can be operated in currents up to 5 knots.

1.4.1.6 Section 2.13, Carbon Dioxide Mitigation

While the legal requirement to comply with the mitigation obligation applicable to new fossil-fueled thermal electric generating facilities does not apply to the Facility, the Applicant proposes to voluntarily implement these mitigation requirements. Note that the mitigation program in WAC 463-80 applies exclusively to stationary sources based on CO_2 emissions (i.e., not to all greenhouse gases [GHGs] as CO_2e). The Applicant has, however, agreed to implement the mitigation requirements of WAC 463-80 based on CO_2e emissions from stationary source operations at the Facility. With total annual operational GHG emissions of about 86,172 metric tons (Table 2.13-1), ~~over~~ assuming a 30-year life of the Facility (which tends to overstate the likely emissions because the Applicant's lease is for 20 years) at 12 percent of the total CO_2e emissions (i.e., based on the WAC 463-80 mitigation formula that assumes 60 percent capacity operations and 20 percent of total emissions), this amounts to mitigation of 310,270 metric tons of GHGs. This obligation would be met by payment of $496,440 to the Climate Trust for the implementation of projects to reduce GHG emissions. This commitment fully meets the Applicant's voluntarily assumed obligation to mitigate Facility operations GHG emissions.

1.4.1.6a Section 2.16.6, Construction Communication Plan

Before the beginning of construction, the Applicant will develop and implement a Construction Communication Plan. The propose of the plan is to provide timely communication to the public, City, County, EFSEC, and other appropriate state agencies (e.g., Parks and Recreation Commission, WSDOT) of major construction phases and the duration of temporary noise and surface transportation impacts. As part of this plan, the Applicant will distribute the proposed schedule of construction activities to all potentially affected recreational sites within 2 miles of the Facility so recreational users are aware of construction-related disruptions and can schedule activities accordingly to avoid disruption.

1.4.1.7 Section 2.18, Protection from Natural Hazards

The potential impacts of earthquakes and seismicity include ground motion, soil liquefaction, lateral spreading, and volcanic eruptions with related ash fall. The potential impacts of flooding include soil erosion of unprotected soils and contamination of floodwater.

Earthquake Hazards

A preliminary ground improvement design was submitted to EFSEC for review (Appendix L.3). The design proposes the use of deep soil mixing (DSM) columns, jet grout columns, and wick drains to mitigate the liquefiable soils at the Facility site. Combinations of these methods have been selected as appropriate to the subsurface soils present within each area of the Facility. These methods are described above and in greater detail in section 2.18.1 for each Facility area. The Applicant continues to actively evaluate ground improvement design alternatives and will consult with EFSEC to review and evaluate the various options to best address the need to provide adequate seismic protection and to minimize the risk to water quality from ground improvement activity.

The Applicant believes that whatever ground improvement design alternative is selected after consultation with EFSEC, it would not pose impacts beyond the range of those already identified in this application. ~~The Applicant has committed to conducting 3-D modeling to verify efficacy of proposed ground improvements and has requested coordination with EFSEC's subject matter experts to select appropriate modeling assumptions (Derr, J.P., 2016).~~

The Applicant agreed to conduct more thorough numerical modeling/analyses (e.g., FLAC, PLAXIS) requested by EFSEC of the ground improvement system in the marine terminal (Area 400) to verify the anticipated performance.

The modeling will not be complete by October 6, 2016, the due date for ASC revisions. As a result, the Applicant does not have a complete response or ASC revision related to these mitigation measures at this time. The Applicant requests to have the opportunity to address any related outstanding issues with EFSEC after the modeling is complete. The modeling results will be complete on October 28, 2016 followed by the final report in November 2016.

The final design of ground improvements for the Facility will comply with the provisions of the building codes and requirements for seismic hazards that apply to the Facility location. These include the following:

- 2012 International Building Code (IBC),* Chapters 16, 17, 18, 19, 22 and 23
- ASCE 7-10 (Minimum Design Loads for Buildings and Other Structures), chapters 11, 12, 13, 14, 15, and 23
- ACI 318-11 (Building Code Requirements for Structural Concrete), Chapter 21 and Appendix D
- AISC Steel Construction Manual, 14th Edition, including AISC 360-10 (Specifications for Structural Steel Buildings), Part 2
- AISC Seismic Design Manual 2nd Edition, including AISC 341-10 (Seismic Provisions for Structural Steel Buildings), General Sections

* Preliminary review of the facility design indicates that the Facility complies with the 2015 IBC.

- AF&PA SDPWS 2008 (AF&PA Special Design Provisions for Wind and Seismic), General Sections

The Washington State Building Code Act adopts by reference building and related codes that local jurisdictions must adopt and enforce. Titles 16 and 17 of the VMC establish these requirements in the City.

See section 2.18, Tables 2.18-1 and 2.18-2, for a list the seismic design criteria for the Facility.

The upland Facility elements will be designed assuming a Facility importance factor of 1 combined with the site classification recommendations from the geotechnical investigation report. The upland facilities will meet the design criteria of IBC 2012 as supplemented by city and state amendments and ASCE 7. Based on the site classifications of D and E and the site specific hazards analysis conducted, API 650, Appendix B, requires that mitigation measures be constructed to address seismic, and in particular, liquefaction. The API standards are designed for the protection of life and to prevent catastrophic collapse of the storage tanks. To meet the mitigation requirements of the API standard, a combination of ground improvements as described above will be constructed for the essential facilities to meet or exceed the standards. Foundations for upland aboveground structures are described in section 2.17.3. Ground improvements are described in section 2.18.1.4.

Design of the dock modifications will conform to IBC 2012, as amended and adopted by the state of Washington and the City with the exception of mooring and berthing design, seismic design, and structural load combinations, which are not adequately addressed by IBC; these will be supplemented with applicable industry standards. Seismic design will be a performance-based design approach using multi-level earthquake performance objectives. The dock design considers ground motion from the three levels of seismic hazards:

- Operational Level Earthquake—5.8 magnitude
- Contingency Level Earthquake—8.4 magnitude
- Design Earthquake—9.0 magnitude

During the Operational Level Earthquake, the structure will reach the operational limit on utilities with minor repairs necessary to regain dock operations. During the Contingency Level Earthquake, damage will occur to the structure but repairs could be accomplished. During the Design Earthquake, the structure will not collapse but significant damage could occur, likely beyond reasonable levels of repair. The dock improvements are described in section 2.17.7.

Final analysis of the seismic conditions and determination of the building foundation and ground improvement designs will be completed to address seismic conditions found at the site prior to construction. ~~It is anticipated that EFSEC will contract with the City for the review of final project design for compliance with the required code provisions as well as for providing the required inspections and issuance of occupancy permits.~~ The Applicant will submit the required plans, which will be designed in compliance with the codes and requirements, referred to above.

The Applicant will also implement the following plans.

- Construction Emergency Plan to address actions and responses related to seismic activities
- Operations Emergency Plan to address actions and responses to site emergencies, including those related to seismic events

Volcanic Eruptions

The primary potential impact from volcanic eruptions at the Facility site is ash fall. Should an eruption occur and pose a risk to the Facility, the operations will be shut down until conditions allow for safe operation. Construction and Operations Emergency Plans will be implemented as needed to address ash fall.

Flooding

The Facility will be designed to comply with the City's Frequently Flooded Areas provisions of the Shoreline Management Program. These provisions require that buildings and structures located in the floodplain be elevated to at least one foot above the flood elevation or be flood proofed, be anchored to prevent floatation, collapse or lateral movement and incorporate other design elements to insure safety during a flood event. Compliance with these provisions will be demonstrated by the Applicant in its final Facility design submitted to EFSEC for its review for consistency with City construction permit requirements. Additionally, the Applicant has specifically agreed to mitigation proposed in the DEIS to modify the design of the dock transformer pad, control room/E-house, and fire pump and foam building in the marine terminal (Area 400) to ensure that the floor of these structures is at least 2 feet above the base flood elevation.

In order to prevent the contamination of flood water, operating procedures will require that any crude oil spill, including minor leaks and drips, be contained and affected surfaces cleaned promptly limiting the amount of any residue that could comingle with flood waters inundating the containment pans, containment piping, and below-grade trenches. In the event of flood events exceeding the 100-year or 500-year flood stages, the Applicant will monitor the rate of floodwater rise and suspend threatened Facility operations prior to the flooding occurring.

Dock operations will comply with the USCG- and Ecology-approved Terminal Operating Limits as published in the Terminal Operations Manual.

Tsunami

The potential for tsunami and seiche impacts at the Facility location are negligible. No mitigation measures are considered necessary for these hazards.

Storms

The Facility will be designed to comply with the International Building Code requirements to reduce the risk of damage to structures from storm events. Buildings will be designed for a snow load of 25 pounds per square foot and a 135 mph wind speed (exposure c, strength level per ASCE 7-10). Protection against lightning will be provided by proper grounding and use of intrinsically safe electrical installations. For the City of Vancouver, the basic wind speed design is 105 miles per hour for a 3-second gust. All buildings are required to be designed by a structural engineer. Compliance with the code provisions will be determined during the building permits administered by EFSEC.

During severe weather events, the Facility operator will monitor the conditions at the site and if conditions result in risks to employees or facilities, will cease operations until safe to resume.

1.4.1.8 Section 3.1, Earth

The primary impacts of the project on soils at the Facility are from the foundation construction, excavation, grading, trenching, backfill, compaction, and subsurface soil improvements associated with site development. The impacts generally will be limited to shallow soil at the site and will not exceed 20 feet in depth. Potential impacts include localized soil erosion during construction and disturbance of riverbed soils during in-water work.

Seismicity

Mitigation measures for seismicity are identified under 1.4.1.8, sections 3.1.3.6, Seismicity, and 2.18, Protection from Natural Hazards, *Earthquake Hazards*.

Soils

The site-specific geotechnical engineering investigation conducted for the project identified site improvement alternatives and methods of construction that will be employed as mitigation. A qualified geotechnical engineer will monitor the fill placement during construction and conduct appropriate field tests to verify the proper compaction of the fill soils. As described in section 3.1.3.6, appropriate types of ground improvements will be selected during final design based on the specified performance criteria for the elements of the Facility. Final ground improvement methods will be determined during design refinements and documented in construction plans submitted to EFSEC for review.

Erosion/Enlargement of Land Area (Accretion)

Construction

The Applicant submitted a preliminary construction stormwater pollution prevention plan (cSWPPP) to EFSEC for review (Appendix C.1). The cSWPPP identifies the stormwater pollution prevention measures to minimize potential erosion impacts (temporary, long-term, and sedimentation) at the construction site and is described in section 2.11. The Applicant will also implement city, county, and state best management practices (BMPs).

Construction staging and laydown activities will only occur in areas that have been previously disturbed and developed. Construction activities will be sequenced and controlled to limit areas of exposed soil. In some locations, light surface leveling might be required to provide safe access to the site by construction employees and equipment. Surface disturbance in these areas is not anticipated. Clearing, excavation, and grading will be limited to the areas necessary to construct the Facility. Individual excavations will be used for equipment foundations. Following completion of foundations, the site will be filled and compacted to the final grade.

Disturbed areas will be surrounded with silt fencing, wattles to prevent migration of eroded materials to other areas. Interim surface protection measures, including temporary ditches, sediment fences, silt traps, dust control, straw matting, and erosion control blankets, will be required to prevent erosion. Earth movement and other construction activities associated with installation of the benches and ground improvement installation activities will be subject to the cSWPPP and associated BMPs.

Final surface restoration will be completed within 14 days of an area's final disturbance. All construction practices will emphasize erosion control over sediment control. Temporary cutoff swales and ditches will be installed to route stormwater to the appropriate sediment trap and

discharge location. As identified in section 3.1.4, soils found on the site are classified as having little to no erosion hazard.

Fill, grade, and excavation areas will be completed per final construction plans submitted to EFSEC. Permanent erosion control will be installed as necessary upon completion of construction activities, including on-site stormwater collection systems.

Operation

Permanent erosion control will be installed as necessary upon completion of construction activities, including on-site stormwater collection systems.

The Applicant will use the following erosion control measures during operation of the facility:

- Design site surfacing to capture stormwater directly from hardscape to limit erosion
- Design industrial yards and landscape areas to either infiltrate or use flow dispersion to avoid concentration of runoff that contributes to erosion
- Incorporate BMPs from the 2012 Stormwater Management Manual for Western Washington for erosion and sediment control during operations
- Stabilize surfaces that may become exposed during operation in accordance with Facility National Pollutant Discharge Elimination System (NPDES) construction stormwater permit and final construction plan requirements
- Collect and convey stormwater from new impervious surfaces using systems that avoid contact of stormwater with bare soil
- Incorporate BMPs from the stormwater manual addressing soil erosion and sediment control for industrial yard areas

The Applicant will be responsible to ensure Facility stormwater components operate in compliance with the stormwater permits issued by EFSEC relative to the facility. The Port will continue to be in charge of compliance with permit requirements applicable to Port systems.

1.4.1.9 Section 3.2, Air

The potential air quality impacts may include airborne dust and particulates during construction activities, emissions from equipment and vehicles and odors generated during construction activities and by vehicles during operation; however, odors are likely to not be differentiated from the background odor in the surrounding industrial area.

The Applicant has designed the project to meet all federal and state ambient air and emissions standards, including New Source Performance Standards (NSPS), National Emissions Standards for Hazardous Air Pollutants (NESHAPs), and applicable air quality permitting requirements. The Applicant is proposing measures to reduce emissions, including handling crude oil in equipment, which minimizes exposure of the oil to the ambient atmosphere to reduce VOC emissions, firing Facility boilers with pipeline quality natural gas, using ultra low sulfur diesel fuel for the emergency fire pumps, and installing a floating roof in each of the crude oil storage tanks. The Facility includes control equipment to limit emissions of hydrocarbons when the marine vessels are loaded using a collection system and a thermal combustor (Marine Vapor Combustion Unit, [MVCU]). The Applicant has conducted a comprehensive Best Available Control Technology (BACT) analysis, and has selected the most feasible, effective, and economically viable emission controls (see section 5.1, Attachment 1). The Applicant has

conducted air emissions modeling in accordance with approved methods to demonstrate compliance with all applicable air quality standards.

The Applicant will implement the following measures during construction:

- Dust and diesel emission control measures will be implemented consistent with Washington Associated General Contractors Brochure, "*Guide to Handling Dust from Construction Projects,"* including the following
  - Proper maintenance of off-road mobile equipment
  - Use off-road mobile equipment that meets applicable emission standards
  - Encourage carpool and trip reduction strategies for construction workers
  - Minimize construction truck and other vehicle idling time
  - Spray exposed soil with water or other suppressant to reduce wind-blown emissions
  - Pave or gravel staging areas
  - Use appropriate methods to control dust from trucks transporting materials
  - Rock exits or provide wheel washers to reduce particulate matter carried off site by vehicles
  - Cover dirt/gravel/debris piles to reduce dust and wind-blown debris

1.4.1.10 Section 3.3, Water

Surface Water

Potential construction surface water impacts to the Columbia River may occur resulting from in- and overwater construction activities and potential stormwater runoff into the Columbia River from upland construction and ground improvement activities. Potential operational surface water impacts would be from inadvertent spills and releases, or inappropriate permanent stormwater controls.

Construction

Construction Stormwater Capture and Treatment - A permanent stormwater management system will be constructed to serve the Facility; this system will be constructed during site grading and construction of the Facility surface and subsurface elements. The permanent stormwater management system is described in sections 2.11.2 and the Engineering Report at section 5.3. It is designed in accordance with VMC 14.024, 14.025, and 14.026 and Ecology's administrative codes for stormwater and spill prevention, preparedness, and response and the Ecology stormwater manual.

The Applicant will use management techniques to reduce the discharge of contaminated stormwater runoff. These techniques will be implemented on site prior to beginning construction activities and will include establishment of stormwater monitoring and maintenance programs to ensure compliance of erosion control practices.

The Applicant will also implement site-specific BMPs selected from the Stormwater Management Manual for Western Washington and meet the following water quality criteria:

- Chapter 173-200 WAC
- Chapter 173-201A WAC
- Chapter 173-204 WAC

During construction, the contractor will be directed to implement an environmental protection program for construction-related activities that complies with specific site conditions. Impacts to surface water will be mitigated through the use of on-site stormwater management. Best management practices that reduce erosion will be emphasized to reduce the sources of stormwater contamination. Ground disturbing activities will be limited to necessary construction areas. Construction methods will be modified as needed to protect surface water quality, and sequenced and controlled to limit potential erosion and sediment transport, including monitoring the installation and removal of temporary piles. Sediment control measures will be designed based on 10-year design storm. Water quality measures (other than sediment control) will be designed on a 6-month, 24-hour design storm.

The Applicant will conduct construction activities in accordance with the provisions of the NPDES Individual Construction Stormwater Permit issued for the Facility. Under the provisions of this permit, the Applicant's responsibilities will include, but not be limited to:

- Prepare and implement a cSWPPP.
- Install and maintain stormwater BMPs as specified in the cSWPPP.
- Provide training to construction employees regarding provisions of the cSWPPP.
- Conduct site inspections at least once a week and within 24 hours following any discharge from the site and as required by the Permit.
- Implement the construction water quality protection and monitoring plan (WQPMP) (Appendix F.2)
- Monitor and sample construction storm water discharges in compliance with permit provisions, and report such results as required.

As required by WAC 173-240-110, before constructing or modifying industrial stormwater facilities, engineering reports, plans, and specifications for the project must be submitted to EFSEC. The project therefore will require compliance with the following standards and regulations.

- Water Quality Standards WAC 173-201A
- Ecology's Stormwater Management Manual for Western Washington
- City of Vancouver Municipal Code (VMC)VMC 14.24, 14.25 and 14.26
- City Surface Water General Requirements (revised September 2009)
- Port Industrial General Stormwater Permit
- Port Municipal Phase II General Stormwater Permit
- 40 CFR 112

The project requires compliance with all nine of the minimum requirements set forth in the Ecology stormwater manual.

Construction Stormwater Pollution Prevention Plan - The preliminary cSWPPP (February 27, 2015) has been submitted to EFSEC for review. The cSWPPP, identifies specific

construction stormwater BMPs to address stormwater within the ground improvement construction areas, techniques to reduce the discharge of contaminated stormwater runoff, establishment of stormwater monitoring and maintenance programs to ensure compliance of erosion control practices, and specific applications for installation of BMPs to prevent and mitigate any construction-related impacts to surface water. The final cSWPPP will be submitted to EFSEC for review and approval before any Facility-related ground disturbance begins.

The cSWPPP places specific emphasis on protecting surface water quality of nearby wetlands and the Columbia River. Downslope and perimeter protection was identified for all construction areas and where ground improvements are necessary. Specific BMPs identified in the cSWPPP are summarized in Table 2.11-1 in section 2.11.1. The following BMPs are identified specifically for use during ground improvement activities. See Appendix C.1 for additional detail.

- Wheel washes will be provided at applicable construction entrances where ground-disturbing activities exist during all ground improvement activities and rough grading.
- Groundwater or jet water used and brought to the surface during ground improvements at the marine terminal will be collected and pumped into weir tanks for turbidity control.
- Silt fencing will be installed along the top of bank where the transfer pipelines and ground improvements are constructed along the river. Compost socks would be installed along river embankment above the OHWM or waterline whichever is higher.
- All groundwater or jet grout slurry resulting from ground improvements will be processed through chemical treatment BMPs, such as pH reducers and/or polymer assisted stormwater filtration and will be used between areas of ground improvement (stone columns, soil mixing, jet grouting, etc.) and surface waters and wetlands.
- Wick drains will be used between areas of ground improvement (stone columns, soil mixing, jet grouting, etc.) and surface waters and wetlands.
- At Area 300, wick drains will be installed at a minimum of 16 feet on center where ground improvements are within 150 feet of the adjacent wetlands to the north and east. At areas 400 and 500, wick drains will be installed along the top of bank at 8 feet on center for the entire bank area receiving ground improvement. Visual monitoring of turbidity within the wetlands or Columbia River will occur daily during ground improvement. If any turbidity is observed as a result of ground improvement, ground improvement activities will be stopped and additional mitigation measures will be installed, including additional wick drains, turbidity curtains, or change in ground improvement methods will be considered.
- Cutoff channels will be installed in Area 300 – Storage tanks along the downslope construction area to capture construction stormwater where existing site grading is insufficient to direct stormwater into conveyances for the construction stormwater. These channels would also be used to contain ground improvement runoff where necessary.
- Channel lining and check dams will be used to protect channels from erosion, and check dams to assist in flow control.
- Install and maintain an erosion/sediment control barrier along the top of the Columbia River embankment for the areas adjacent to stone column installations consisting of silt fencing, filtration fabric, and straw wattles or similar measures approved by EFSEC. Monitor the water on the river side of the sediment control barrier to ensure the expected level of water quality is maintained. If the water quality on the river side of the barrier is unacceptable, implement additional sediment control measures until the desired level is achieved. These measures would reduce impacts to minor levels.

Any required surface restoration will the completed within 14 days after an area's final construction-related disturbance.

Additional Measures for Jet Grouting Activities - The potential stormwater and non-stormwater runoff from jet grout-related spoils will be mitigated to reduce the likelihood of contaminants released into the Columbia River.

The Applicant will conduct additional monitoring of surface water quality within the Columbia River upstream and downstream of the ground improvement installation to monitor for changes in pH and sulfate levels.

The Applicant proposed alternative mitigation than the mitigation measure included in the DEIS. The Applicant agrees to conduct additional monitoring as included above for pH and sulfate levels within the proximity of ground improvements located along the shoreline.

If this additional monitoring demonstrates a measurable increase in pH or sulfate levels within the receiving water, the Applicant will notify EFSEC in accordance with the provisions contained within the NPDES Individual Construction Stormwater Permit. The Applicant will conduct additional reconnaissance to determine the source of the observed increased levels.

If monitoring demonstrates that discharges from the site exceed the construction stormwater quality benchmarks as defined within the NPDES Individual Construction Stormwater Permit; the Applicant agrees to follow the notification and corrective action steps required under the NPDES Individual Construction Stormwater Permit. The Applicant anticipates these to be similar to those included in the Construction Stormwater General Permit Section S5.F and proposes the following condition:

- EFSEC will be promptly notified of the exceedance of the construction stormwater quality benchmarks.
- Immediate action will be taken to correct the problem. If applicable, sampling and analysis of any benchmark exceedance will be repeated immediately, and results submitted to EFSEC within five days of becoming aware of the exceedance.
- A detailed written report describing the monitoring, notification, and corrective actions will be submitted to EFSEC within five days, unless requested earlier by EFSEC.

The mitigation measures listed above as part of the cSWPPP were specified in the Applicant's Project Refinement Report (May 2015). These mitigation measures were listed specifically for the containment and handling of jet grout-related spoils. The BMPs are in addition to those already included in the cSWPPP.

Where ground improvement may extend below top of the river embankment, the following additional stormwater BMPs were also identified to protect downslope water quality:

- Install temporary sheet pile wall between the jet grout installation areas and landward of the OHWM with sufficient freeboard to contain slurries and spoils and prevent them from entering the Columbia River. The sheet pile is most likely to be installed using vibratory hammer.
- Install the first row of jet grout columns landward of the temporary sheet pile first to act as a barrier to potential grout migration during the installation of subsequent jet grout columns

landward. This will reduce the potential for later grout installations to migrate through seams in the wall, or under the wall, toward the Columbia River.

- Provide isolation measures to contain, extract, and dispose of spoils. Earthen berms, sheeting, straw wattles, or shallow trenches, will be used to isolate the work area and contain spoils exiting the grouting hole to prevent their entry into surface water, in addition to the temporary sheet pile stated above.
- Extract spoils from the containment area by vacuum pumps. Spoils may be loaded to trucks to be removed from the site, or may be handled on site to separate solids from liquids for additional treatment and disposal. If handled on site, soils will be removed and placed in a temporary holding area, such as lined ponds or tanks; these will temporarily hold spoils until they can be treated as necessary and disposed of holding ponds would be constructed in previously disturbed locations and would be located away from sensitive resources. Holding areas would be lined to prevent the migration of high pH water into the ground.
- Pump high pH water from holding areas or tanks into portable water quality treatment systems and neutralized. Following neutralization, the water will be discharged similar to other construction site groundwater that has been treated to the appropriate water quality standards.
- Remaining solid materials in holding areas or tanks will be tested as necessary and disposed of in accordance with applicable regulations if they classify as hazardous waste. If the solids do not classify as hazardous waste they will be used on site (for construction of the Area 300 containment berm for example, or will be disposed off site at an appropriate location.
- Conduct water quality monitoring. A Water Quality and Monitoring Plan has been prepared and submitted to EFSEC; the monitoring provisions of this plan will continue to address how activities are monitored to identify potential surface water exceedances. The plan will be revised to address protection measures specific to ground improvement construction activities.
- Conduct site inspections will be conducted at least once a week and within 24 hours following any discharge from the site and as required by the NPDES Individual Construction Stormwater Permit to be issued by EFSEC. The water quality monitoring plan (Appendix F.2) also identified additional in stream monitoring within the Columbia River to monitor construction activities.

The NPDES Individual Construction Stormwater Permit is anticipated to include reporting and correction requirements that are substantially similar to those of the Construction Stormwater General Permit (Ecology 2015). These reporting notifications and noncompliance standards within the General Permit section S5.F require the steps below: (note: for EFSEC issued permits, “Ecology” would be replaced by “EFSEC”).

- <u>EFSEC will be promptly notified of the exceedance of the construction stormwater quality benchmarks.</u>
- <u>Immediate action will be taken to correct the problem. If applicable, sampling and analysis of any benchmark exceedance will be repeated immediately, and results submitted to EFSEC within five days of becoming aware of the exceedance.</u>
- <u>A detailed written report describing the monitoring, notification, and corrective actions will be submitted to EFSEC within five days, unless requested earlier by EFSEC.</u>
- ~~Ecology will be immediately notified of the failure to comply.~~

- ~~Immediate action will be taken to control the noncompliance issue and to correct the problem. If applicable sampling and analysis of any noncompliance will be repeated immediately and results submitted to Ecology within five days of becoming aware of the violation.~~
- ~~A detailed written report describing the noncompliance will be submitted to Ecology within five days, unless requested earlier by Ecology.~~

Construction Spill Prevention Control and Countermeasures - The construction Spill Prevention Control and Countermeasure Plan (cSPCCP) (Appendix B.2) will also be implemented and includes a listing of responsible personnel, spill reporting procedures, project and site information, pre-existing contamination at the Facility site, potential spill sources, spill prevention and response training, spill report form(s), plan approval, and cSPCCP acknowledgement forms (to be signed by all project personnel). The cSPCCP will meet NPDES permit requirements.

Operation

Permanent Stormwater Capture and Treatment - Surface water quality will be protected during operations through the use of the BMPs designed in accordance with Ecology's stormwater manual. A permanent stormwater management system will be constructed to serve the Facility. This system will be constructed during site grading and construction of the Facility surface and subsurface elements. The permanent stormwater management system is described in sections 2.11.2 and 2.11.3, and is designed in accordance with VMC 14.024, 14.025, and 14.026 and Ecology's administrative codes for stormwater and spill prevention, preparedness, and response and the Ecology stormwater manual. The final design and stormwater report will be prepared and submitted for approval by EFSEC prior to installation of the permanent stormwater management system.

Once all permanent stormwater BMPs are in place, operations-related impacts to surface water will be minimized through the use of operational and structural source control BMPs and operational procedures The Applicant will implement secondary structural containment measures to supplement the structural source control BMPs. BMPs are from Volume IV of the Stormwater Management Manual for Western Washington and will meet the following water quality criteria:

- Chapter 173-200 WAC
- Chapter 173-201A WAC
- Chapter 173-204 WAC

The Applicant submitted to EFSEC for review a preliminary operations SWPPP (oSWPPP) (Appendix C.2) based on the preliminary design in place when this Application was submitted. BMPs are described in the preliminary oSWPPP. A final oSWPPP will be submitted for review prior to the beginning of Facility operations.

In accordance with the permitted levels of the downstream system, discharge stormwater meeting established water quality benchmarks will be consistent with the Industrial Stormwater General Permit. To the maximum extent possible, stormwater will be protected and segregated from contact with industrial activity and crude product. With the oSWPPP, mitigation measures and BMPs in place, stormwater discharges from the Facility will meet state and local water quality standards. A Tier II anti-degradation analysis is being completed in accordance with

WAC 173-201A-320 to demonstrate water quality compliance. The final report will be submitted to EFSEC.

Spill Prevention, Control and Countermeasures - The most serious risk – although it is unlikely with the mitigation measures in place – to surface water quality will be an accidental crude oil release or spill during an exceptionally high rainfall event. Numerous spill prevention and control systems have been included in the design of the Facility. Containment pans, pumps, and containment sump tanks will be provided for the rail unloading area (Area 200). Approximately three double-shelled containment tanks, with a total capacity of approximately 1500 barrels, will be constructed south of the Area 200 parking lot. The combined volume of the tanks is sized to contain the entire contents of a single tank car plus at least an additional 10 percent. Equipment and parts wash (including facility washdown, and railcar exterior washing), will be conducted in a covered portion of the rail unloading building. Wastewater will be pumped to secondary containment tanks.

Containment rail drip pans, pumps, and containment sump tanks will be provided for the rail unloading area (Area 200).

As described in section 1.4.1.3, above, the containment at the dock in Area 400 is 84 barrels (well in excess of the 3 bbl requirement in federal regulations).

In addition to the catch basin design, the Applicant is committing to change the design to further increase that physical storage capacity of the catch basin by pumping oil out of the catch basin in the event of a spill. This change involves two components. First, the Applicant would use the existing pump and return pipeline already depicted in plans that are used to strip the loading hoses of any residual crude oil and return that crude oil to the Area 300 storage tanks. The Applicant proposes to connect the containment area into this system and implement an automatic trigger that would turn the pump on in the event of a system shutdown, as would occur during a rupture of the loading hoses (further described below). When engaged, that pump operates at a rate of 286 bbl/hr. Second, to further increase the pumping capacity in the event of a larger spill at the dock, the Applicant proposes to install an additional larger landside pump that will connect to the same return piping and catch basin. The additional pump would be of the same size as the ones proposed in the rail unloading area and would pump 2,800 bbl/hr (46 bbl/min). Collectively, this improved system far exceeds the 3 bbl regulatory requirement.

In addition to the improvements described above, several of the design features proposed in the submitted plans are engaged in the event of a spill during vessel loading to limit the volume released. First, the pump electrical drives that power the positive displacement pumps (the pumps responsible for moving oil from the storage tanks to the vessel) include a "safe torque off" feature. This feature removes rotational power from the motor of the positive displacement pumps instantly when pressure in the line drops or if the gas detection system is activated (as would occur in the event of a release), thus stopping additional flow of material to the pipelines. Additionally, the pipelines at the dock have 30-second shutoff valves. In the event of a release, the valves are actuated and complete closure will occur within 30 seconds. During those 30 seconds, the valves are incrementally restricting the flow such that it is decreasing over that span of time.

If one assumes it takes 5 seconds for the positive displacement pumps to stop when the "safe torque off" is engaged, and one does not take into consideration any incremental decrease of flow that would be expected when the valve closes during the 30-second shutoff time (both of

which are conservative assumptions and tend to underestimate the expected performance), the resulting volume that would flow past the valve during the 30 seconds is approximately 44 bbl.

By comparison, the improvements to the containment design at the dock would provide for the 84 bbl of physical storage capacity and would also remove an additional 48 bbl via pumping in that span of time. More generally, the containment system as described above would take roughly 1 minute to empty the 84-bbl containment area back to the aboveground storage tanks. ~~; the capacity of the containment systems will be sufficient to contain and store the entire volume of a single rail car staged within the unloading building. The tank farm will be surrounded by a containment berm 6 feet high with a full impervious liner capable of containing 110 percent of the largest tank and a 100-year 24-hour rainfall event. Spill containment will be designed to meet or exceed API, EPA, NFPA, City and other applicable requirements. Tank monitoring, inspection, and testing will be in accordance with API 653, the industry standard for the inspection of aboveground petroleum storage tanks.~~

In Area 300 a secondary containment berm (approximately 6 feet high with a full impervious liner), will be designed with a capacity at least equal to 110 percent of the volume of the API 650 maximum capacity of the largest tank plus precipitation from a 24-hour, 100-year storm event. This capacity reflects the most stringent of Washington spill prevention and control and National Fire Protection Association (NFPA) requirements and exceeds the requirements for secondary containment under 40 CFR 112.7 (Makarow 2015b). The containment berm will be designed in accordance with the requirements of WAC 173-180-320. WAC 173-180-320 (9)(c) specifically states “Secondary containment systems must be designed to withstand seismic forces,” and sub (e) that “Secondary containment systems must be designed and constructed in accordance with sound engineering practice and in conformance with the provisions of this section.” Spill, containment will be designed to also meet or exceed API, EPA, City and other applicable requirements.

As additional protection, 24-inch-high intermediate berms will be installed within the larger area to separate each tank area from the larger containment area (see Figure 2.3-10). Each intermediate berm will be designed to contain at least 10 percent of the volume of the tank it encircles. The tank containment area will be lined with a flexible impervious membrane to prevent any inadvertent releases from leaving the containment area via the ground.

A flexible impermeable liner will be used to mitigate the possibility of oil penetrating through the berm in the event of a seismic event. See section 2.18.1.4 for additional information on Protection from Natural Hazards, Mitigation Measures for Earthquake Hazards.

The tanks will be constructed to API 650, which requires initial testing at construction. Tank monitoring, inspection, and testing will be in accordance with API 653, the industry standard for the inspection of aboveground petroleum storage tanks. For example, API 653 requires tanks to be inspected every 10 years to assess the tanks’ physical condition and determine suitability for continued use.

The transmission pipeline (Area 500) will be constructed of welded steel pipe, designed specifically for oil conveyance. Safety measures built into the design include thickened pipe walls, pipeline expansion for thermal and/or seismic movement, pressure and temperature sensors, and emergency shutoff valves. The pipeline will largely be constructed aboveground, on concrete foundations, with the exception of a few portions that will be constructed underground to accommodate existing rail and road crossings. The above-grade portion of the pipeline will be

subject to visual inspection for leaks, and secondary containment with leak detection provided for pipe installed underground.

Spill containment measures along the pipeline alignment (Area 500) will comply with 40 CFR 112.7 by providing secondary containment, inspections, and contingency planning. The most likely spill events are small releases of less than 5 gallons resulting from nicks, corrosion pinholes, or gasket seal failures. ~~An example of secondary containment that can address these discharges is to confirm or retrofit all stormwater inlets within the contributory drainage area of the pipeline alignment with spill control devices to contain small oil leaks or spills.~~

The Applicant will complete an assessment of the downstream inlets located adjacent to the Facility's transfer pipeline to confirm whether the inlets have existing oil-water spill control devices (Makarow 2016b). If any of these inlets do not have existing oil-water spill control devices, the Applicant will equip such inlets with oil-water spill control devices to capture a minimum 5 gallons of oil. The type of spill prevention device most commonly used in these applications is the installation of inverted 90-degree bend or installation of an internal tee or baffle on the outlet pipe that provides sufficient hydraulic volume to capture and contain the 5 gallons of oil.

All facility piping systems and storage tanks will be hydrostatically tested prior to being placed into operation. Hydrostatic test water for the pipeline will be acquired from the City's water system. Test water will be discharged to existing storm drain conveyance systems in accordance with the stormwater permit issued for the project.

Parking and access areas will be designed with a combination of catch basin spill traps and water quality filter vaults to treat stormwater runoff.

See sections 2.10 and 2.11.2 and Appendices B.3 and C.2 for additional Facility design features and spill control and prevention measures.

Spill Preparedness and Response - The Applicant will implement planning and preparedness actions required by state and federal regulations to prevent, contain, and respond to inadvertent releases that could impact surface water, including, but not limited to:

- A comprehensive site-specific operations Spill Prevention Control and Countermeasure Plan (SPCCP) (oSPCCP) developed in accordance with 40 CFR 112 and WAC 173-180, Part F
- A safe and effective threshold determination report, prepared under WAC 173-180-224
- A pre-loading transfer plan according to WAC 173-180-230
- A Facility operations manual in compliance with WAC 173-180 400 to -435
- An oil transfer training program in compliance with WAC 173-180, Part E
- A certification program in compliance with WAC 173-180, Part E
- A spill contingency plan in compliance with WAC 173-182, 40 CFR 112, Subpart D and 33 CFR 154, Subpart F
- Prepare coordinated plans to meet all applicable local, state, and federal requirements

See Sections 1.4.1.5 and 2.10.2.6 for additional information related to the pre-booming requirements of WAC 173-180-224, additional mitigation to address pre-booming and additional mitigation to provide spill response equipment at Area 400 Marine Terminal including the use of a boom boat and current boom buster.

Runoff/Absorption

Potential runoff/absorption impacts include erosion and sedimentation, which are expected to be minimized by BMPs that address erosion and control sedimentation. Construction-phase erosion and sedimentation control BMPs, as described in sections 2.11 and 5.3 of this Application, will be implemented to mitigate the impacts of soil disturbance. Permanent operations-phase runoff control and water quality treatment will be implemented to mitigate any impacts from the project.

Floodplains

There are no impacts to the site for the 5- and 50-year flood events. No fill is proposed within the 100-year floodplain, and there will be no potential to affect upstream or downstream properties through increases to the base flood elevation.

Construction

Construction activities will cease if a flood event is predicted and move, to the extent possible, hazardous materials and equipment from the site to above the 500-year floodplain.

Operation

Within Area 200, below-grade watertight trenches will be used to eliminate inundation concerns during the 100-year flood or from seasonal shallow groundwater.

Where the pipeline route is located in the floodplain, the pipeline will be elevated above the 100-year flood elevation. Because the floodplain is isolated from overland flows from the Columbia River, it will not be subject to flowing water and no risk from floods is anticipated for this element. Regardless, the pipeline will be designed by a professional engineer to withstand potential impacts from flooding.

Berths 13 and 14 in Area 400 are existing pile-supported structures located in the Columbia River. The existing and planned improvements will be located with deck elevations above the 100-year flood elevation and have been (or will be) designed by a professional engineer to withstand the forces imposed by flooding conditions.

All structures or portions of structures located in Area 400 will be located outside the 100-year floodplain. These include a dock transformer pad, combined control room/E-house, fire pump and foam building (Area 400). These structures will be elevated so that the floor is at least ~~1 foot~~ 2 feet above the base flood elevation. They will also be anchored to resistant movement and designed with utilities and other connections that are designed to withstand flood events consistent with the requirements of VMC 20.740.120 Frequently Flooded Areas.

Floodwaters are anticipated to inundate the facilities with approximately 1-foot of water during the 500-year event and a maximum of 3 feet in the lowest areas. The Facility will be designed to maintain integrity in these worst-case flood conditions. The containment berm around the product storage tanks (Area 300) provides protection against inundation. The unloading facility is located within the inundation area of the 500-year floodplain. Floodwaters inundating the unloading area would fill the below-grade trenches and containment pans. In order to prevent the contamination of flood water, operating procedures will require that any crude oil spill, including minor leaks and drips, be contained and affected surfaces cleaned promptly limiting the amount

of any residue that could comingle with flood waters inundating the containment pans, containment piping, and below-grade trenches.

In the event of flood events exceeding the 100-year or 500-year flood stages, the Applicant will monitor the rate of floodwater rise and suspend threatened Facility operations prior to the flooding occurring.

In the event of an expected site inundation, movable equipment, such as railcars and motor vehicles, will be demobilized and relocated above the 500-year floodplain to the extent possible. Static equipment that cannot be moved will be secured.

Groundwater Resources

Construction

Construction of foundations and utility and pipeline excavations for the project may require dewatering of the excavations. Groundwater that is pumped out of the excavations will be stored on site in mobile water tanks and analyzed and managed in accordance with local, state and federal regulations prior to reuse, infiltration or disposal. Disposal will be conducted in accordance with the stormwater permit issued for the project. If dewatering wells are necessary, well points used for construction dewatering will be completed in accordance with WAC 173-160 Minimum Standards for Construction and Maintenance of Wells. If groundwater extracted for construction dewatering is directed to the City's sanitary sewer, it will be disposed in accordance with VMC 14.12 Discharge of Industrial Wastes to the Industrial Wastewater Pretreatment Facility.

During construction, the Applicant will conduct on-site investigations where production wells were known to have been located. If a borehole is located, confirmation will be made that the borehole has been properly sealed to a depth at least 10 feet below the finished ground surface with a cementitious grout. If during construction activities other wells are discovered on-site, the wells will be properly logged and decommissioned.

As part of the Contaminated Materials Management, construction activities will be identified that could potentially impede monitoring and access of groundwater through existing water supply wells if access is necessary for ongoing remediation activities.

The Applicant has submitted a preliminary cSWPPP to EFSEC for review (Appendix C.1). The cSWPPP identifies the stormwater pollution prevention measures to be implemented at the construction site and as described in section 2.11 of this application.

Operation

Secondary containment systems will be provided under storage tanks and in buried transfer piping to capture leaks, preventing discharges directly into the soil, which could impact groundwater.

The potential for the discharge of contaminants to the groundwater due to surface water infiltration will be limited through development of surface water control infrastructure and the implementation of water quality control protocol.

Site design monitoring and control systems will be incorporated to allow early detection of a release when containment and remediation can be most effective.

During final design, potential contaminants in the soil will be identified and addressed in the plans and specifications to establish procedures to minimize the potential for groundwater impacts, including the following:

- Restrictions on work in portions of the site
- Minimize/controlling grading to prevent ponding water that would promote leaching
- Use of temporary covers over disturbed areas, and controlling tracking of contaminants from one portion of the Site to another

An oSPCCP (Appendix B.3) and oSWPPP (Appendix C.2) will be implemented to establish procedures to prevent and control the impact of spills on the natural environment. The oSPCCP, will define specific BMPs to minimize the potential for leaks and spills and the extent of damage from any unavoidable leaks or spills. These include inspecting equipment daily to ensure that there are no leaks of hydraulic fluids, fuel, lubricants, or other petroleum products, and locating temporary material and equipment staging areas above the OHWM of the waterbody and outside environmentally sensitive areas. The oSPCCP will be used for appropriate response and cleanup procedures, including the handling of vegetation that would be affected by spills. Applicable spill response equipment and material designated in the oSPCCP will be maintained at the job site. In the event of an inadvertent release, containment and begin cleanup efforts will begin immediately and be completed in an expeditious manner, in accordance with all local, state, and federal regulations, and taking precedence over normal work. Cleanup will include proper disposal of any inadvertently released material and used cleanup material. The cause of the inadvertent release will be assessed and appropriate action will be taken to prevent further incidents or environmental damage. Inadvertent releases will be reported to Ecology's Southwest Regional Spill Response Office.

There are no anticipated adverse impacts to existing groundwater sources resulting from the use of City-supplied potable, process, and emergency fire suppression water.

Decommissioning

The final decommissioning plan will verify permanent measures to seal any areas with ground improvements, either by leaving existing impervious surfaces in place (such as the containment area liner), or installing minor additional impervious surface in areas where aboveground improvements are removed without a corresponding impervious surface improvement.

Public Water Supplies

The development of new water sources or wells is not required for this Facility. The Facility will purchase its water supply from the City. Based on the City's current excess source capacity described in section 3.3.5 and the Facility impact of approximately 87,400 gallons per day represents 0.3 percent of the available capacity. Citywide long-term growth is not anticipated to be affected by the water demands of this project.

Mitigation for the use of and impact on the public water system includes payment of system development charges, connection fees, and utility rates. These fees and rates are to support capital and operating expenses of the water system. As an additional mitigation measure, the Applicant has committed to installing a water line loop, at no cost to the City, to address available flow.

1.4.1.11 Section 3.4, Habitat, Vegetation, Fish, and Wildlife

Habitat and Vegetation

The primary potential impacts at the project site will be the direct, permanent removal of vegetation during construction and temporary construction noise impacts. The project will implement several impact minimization measures and BMPs to minimize the potential for impacts to habitats and vegetation. In addition to the following discussion, see the Fish and Wildlife sections below for additional mitigation measures and BMPs for these habitats in addition to the habitat and vegetation measures discussed in this section.

Construction

Direct Habitat Modification - The project has been designed to avoid and/or minimize impacts to terrestrial habitat and vegetation to the greatest extent possible. The upland facilities associated with the project have been located on developed portions of an existing industrial site, which in its current state provides very little habitat function and very little native vegetation. By siting the project in a developed location, impacts to native terrestrial habitats and native species of vegetation, including special status species, have been avoided.

Ground disturbance and vegetation removal will be limited to the amount necessary to construct the project. Construction fencing will be used to protect existing vegetation to be retained. The project will provide 1.13 acres of compensatory habitat mitigation, including urban landscaping. Approximately 2.21 acres of planted areas, including trees and shrubs in areas 200 and 300 will offset the removal of nine trees associated with construction. Area 200 will include in the landscape plan for the Support Buildings the use of native trees planted in groups within the landscape to provide additional mitigation for the loss of trees onsite. These landscaped areas will provide wildlife habitat typical in an urban environment. In addition, the Applicant will adhere to the requirements of VMC 20.770[3] and plant a minimum of 30 tree units per acre for undeveloped sites, and based on a development area of 10,550 square feet, plant a minimum of eight tree units in other areas of the Facility.

No purple martin or nest boxes would be directly affected by the construction of the proposed project. The construction activities do not include removal of any creosote-coated wood piling. All existing piles at the marine terminal are steel and do not contain cavities for nesting wildlife. Purple martin have a low suspected occurrence within the Facility site as noted in DEIS Table 3.5-3.

Mitigation measures will be implemented for each of the habitats impacted by construction of the Facility as follows:

---

[3] VMC 20.770.070(B)(4) allows trees planted in landscaped islands and other areas to meet the tree density requirements. The project includes a Landscaping Plan in Area 200 that calls for the planting of buffer landscape trees and parking lot trees that would exceed the eight tree units required for the project under VMC 20.770. The planted trees would be deciduous and planted at a minimum of 2-inch caliper. ~~These landscaped areas would provide wildlife habitat typical in an urban environment, including perching and foraging opportunities for migratory birds. In total, about 2.21 acres of planted areas would be completed.~~

- *Unvegetated Industrial Land*: Impacts to unvegetated industrial land do not require mitigation.
- *Ruderal Upland Grass/Forb and Upland Cottonwood Stands*: The 0.96 acre of ruderal upland grass/forb habitat on the project site have very limited value. Nevertheless, even if no net loss to this impact was required, when combined with the Upland Cottonwood Stands (0.07 acre), 1.03 acres of compensatory habitat mitigation is warranted for no-net loss. To mitigate for the removal of these habitats, the Applicant will install urban landscaping including trees and shrubs in areas 200 and 300. Native species will be used to the extent practical. Area 200 will include native trees planted in groups within the landscape to provide additional mitigation for loss of trees onsite. These landscaped areas will provide wildlife habitat typical in an urban environment, including perching and foraging opportunities for migratory birds. This action also complies with VMC 20.770 and planted areas will include additional trees to compensate for development that will impact pervious surfaces. Trees will be planted as part of landscaped buffers and parking lot landscaping where currently no trees exist. In total approximately 2.21 acres of planted areas will be completed.

  Locations where ruderal habitat has been impacted by temporary construction laydown will be restored to previous condition so as to result in no net loss to this community.
- Riparian: The riprapped bank has very limited riparian vegetation, and the Applicant is not disturbing any existing high quality vegetation or negatively impacting existing habitat function. No mitigation is therefore warranted.

As stated above, the Applicant will adhere to the requirements of VMC 20.770[4] and will plant a minimum of 30 tree units per acre for undeveloped sites, and based on a development area of 10,550 square feet, plant a minimum of eight tree units in other areas of the Facility.

The Applicant has identified the following construction mitigation measures to minimize impacts to avian habitat during construction:

- Perform tree removal outside of the nesting season (February 15 to September 1), to avoid potential impacts to active nests of protected migratory birds. If trees are to be removed during the nesting season, a preconstruction nesting survey will be completed no more than two weeks prior to removal to ensure that no active nests are present. If active nests of protected migratory birds are found, tree removal activities will be suspended until after nests have hatched and young have fledged.
- Monitor the approximate 2.21 acres of landscape plantings (discussed above) for two years after planting and replace all trees that do not become successfully established.

BMPs will be implemented during construction to minimize the spread and establishment of noxious weeds, including the following:

---

[4] VMC 20.770.070(B)(4) allows trees planted in landscaped islands and other areas to meet the tree density requirements. The project includes a Landscaping Plan in Area 200 that calls for the planting of buffer landscape trees and parking lot trees that would exceed the eight tree units required for the project under VMC 20.770. The planted trees would be deciduous and planted at a minimum of 2-inch caliper. ~~These landscaped areas would provide wildlife habitat typical in an urban environment, including perching and foraging opportunities for migratory birds. In total, about 2.21 acres of planted areas would be completed~~.

- Complete a weed survey for the Facility site, followed by eradication of any noxious weeds and invasive plants established at the site prior to initiation of construction to help prevent the spread of noxious weeds to nearby wetland mitigation and wildlife areas.
- Provide wheel wash equipment at the Area 200 access to limit the dispersion of noxious weed seeds.
- Restrict construction activities to the area needed to work effectively to limit ground disturbance and prevent the spread of noxious weed species.
- Use weed-free straw hydromulch, or similar ground cover for temporary erosion control during construction.

Aquatic Invasive Species - WDFW hydraulic code rules require that the transportation and introduction of aquatic invasive species be prevented by thoroughly cleaning vessels, equipment, boots, waders, and other gear before removing the gear from a job site [WAC 660-120 (7)(j)]. Contractors would be required to provide documentation that all equipment and materials that will be used in- and over-water have be cleaned to comply with applicable aquatic invasive species statutes and rules, including WAC 660-120 (7)(j). This includes providing documentation that in-water equipment and construction materials have either not been in contact with waters containing state prohibited aquatic invasive species, which could potentially be transferred to the Columbia River, or that equipment and materials have been appropriately decontaminated from potentially transferrable aquatic invasive species prior to arrival at the project site.

Temporary Water Quality Impacts - A water quality protection and management plan (WQPMP) (Appendix F.2) has been developed and describes how the project will monitor and control releases of turbidity, suspended sediment, concrete, and other construction-related materials that may be generated during Facility construction activities in, over, and adjacent to the Columbia River and other adjacent water bodies. The plan describes water quality protection measures; monitoring parameters, methods, evaluation criteria; and contingency response and notification procedures in the event a water quality criterion is exceeded during such construction activities.

All in-water temporary pile installation and removal below the OHWM will be conducted within the EFSEC-modified ~~published~~ in-water work period September 1 - January 15 ~~for the project,~~

~~which is November 1 to February 28~~[5]. This work window has been established to minimize potential impacts to aquatic habitat and native fish species and avoids the peak migration timing for marine mammals in the Lower Columbia River and to avoid peak migration and larval stages of salmonid and nonsalmonid species.

The Applicant is currently working to have this work window approved by the USACE and Services. It is the understanding of the Applicant that the USACE intends to follow the EFSEC work window in the USACE permit. If for some reason the USACE window conflicts with the EFSEC window, the Applicant will coordinate a meeting between USACE and EFSEC staff to reconcile any inconsistencies.

Construction at the site will be governed by a construction Spill Prevention, Control and Countermeasures Plan (cSPCCP), which the Applicant has submitted to EFSEC for review (Appendix B.2).The cSPCCP defines specific BMPs to minimize the potential for leaks and spills and the extent of damage from any unavoidable leaks or spills and outlines responsive actions in the event of a release, and notification and reporting procedures. These include inspecting construction equipment daily to ensure that there are no leaks of hydraulic fluids, fuel, lubricants, or other petroleum products, and locating temporary material and equipment staging areas above the OHWM of the waterbody and outside environmentally sensitive areas. The cSPCCP will be used for appropriate response and cleanup procedures, including the handling of vegetation that would be affected by spills. Applicable spill response equipment and material designated in the cSPCCP will be maintained at the job site. In the event of an inadvertent release, containment and begin cleanup efforts will begin immediately and will be completed in an expeditious manner, in accordance with all local, state, and federal regulations, and taking precedence over normal work. Cleanup will include proper disposal of any inadvertently released material and used cleanup material. The cause of the inadvertent release will be assessed and

---

[5] In the Applicant-prepared PDEIS for the project, and in the JARPA and Biological Evaluation (BE) for the project, the Applicant has proposed to conduct work below the Ordinary High Water Mark (OHWM) within the US Army Corps of Engineers' (USACE) published in-water work window for the Columbia River mainstem between the mouth of the river to the Snake River confluence (November 1–February 28).[1] This work window has been established by the USACE, in coordination with resource agencies, for the protection of fish life, including ESA-listed species.

In the Advisory HPA, as well as in Sections 3.6.3.1 and 3.6.5 of the DEIS, EFSEC proposes a modified in-water work window of September 1 - January 15 to avoid peak migration and larval stages of salmonid and nonsalmonid species.

The USACE is currently reviewing the JARPA and BE for the project and consulting with National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (USFWS) as obligated under Section 7 of the Endangered Species Act (ESA). ~~Each of these regulatory agencies may have additional feedback on the preferred window for in-water work.~~

~~In the absence of a consensus among the resource agencies regarding a modified work window, EFSEC should defer to the USACE-published in-water work window of November 1 – February 28, as this is the window under consideration with the federal permitting agencies.~~

~~If USACE, NMFS, USFWS, and EFSEC can agree upon a modified window in which the project can be accomplished, and which is no shorter in duration than the window proposed in the federal permit application, then the Applicant would support discussions regarding a modified in-water work window.~~

As of the submittal of the October 2016 Final Commitments and Revisions to the ASC, the Applicant is working with the USACE and Services to align the USACE work window with the preferred EFSEC/WDFW window.

appropriate action will be taken to prevent further incidents or environmental damage. Inadvertent releases will be reported to Ecology's Southwest Regional Spill Response Office.

Temporary Construction Noise - Construction of the Facility has the potential to result in temporarily elevated terrestrial habitat and underwater habitat noise levels at the project site and in the project vicinity. Noise levels will be elevated during the operation of construction equipment, in-water pile removal and installation by vibratory methods, and impact pile driving of upland piles, mooring points, movable walkway foundations and pipeline supports. These construction activities have the potential to temporarily affect marine mammals and the quality of their habitat at the project site and within the project vicinity. During construction, aquatic species may tend to avoid the work area or move through the area faster.

Aquatic and terrestrial habitat noise associated with construction has been minimized to the extent practicable. The dock modifications have been designed to use vibratory pile removal and installation methods and no in-water (below OHWM) impact pile driving, which will greatly reduce the extent of terrestrial and underwater noise generated during construction. This reduction in the intensity of underwater noise will limit the potential for adverse effects to wildlife, including special status species that may utilize habitats at the project site and within the project vicinity.

All in-water work that generates temporary noise, including temporary pile vibratory installation and removal, will occur during the ~~published~~ EFSEC-modified in-water work window from ~~November 1 to February 28~~ September 1 through January 15 to minimize potential impacts to native fish species, and avoid the peak migration timing for marine mammals in the Lower Columbia River. Marine mammals are not expected to be present within the action area during the in-water work period. Drilling for casing installation may also generate underwater noise and will follow the same work window.

The Applicant has submitted a marine mammal monitoring plan (MMMP) (Appendix H.3) to EFSEC for review to address vibratory installation and removal of temporary piles and upland impact pile driving. The MMMP was developed to minimize the exposure of marine mammals to temporarily increases in underwater noise levels. The plan describes procedures to identify the presence of marine mammals during construction activities, which may result in "take," and establishes actions that will be taken to minimize impacts to such marine mammals. The MMMP will include, in addition to the current plan, two additional observers to assist in monitoring the 6-mile zone where marine mammals could be affected by in-water vibratory pile driving.

The impacts of peak terrestrial construction noise have been minimized through construction sequencing that will complete work as efficiently as possible when loud noises are expected. Additionally, all noise sources occur outside of recommended management buffers for priority species; therefore, no work window is proposed for terrestrial pile driving. Species that utilize these industrialized habitats are generally well adjusted to nearly continuous human presence and activity. The Applicant has committed to conduct upland impact pile driving associated with Area 400 elements (shore based mooring points, foundations for the mooring dolphin access points, and the trestle abutment) during the ~~published~~ EFSEC-modified in-water work window from September 1 through January 15 ~~November 1 to February 28~~ to minimize the potential for adverse impacts to aquatic habitat. Upland impact pile driving located outside of Area 400 (e.g., Area 200 rail unloading building and Area 500 pipeline supports) would not be subject to the in-water work window.

The Applicant has developed a construction wildlife-monitoring plan (Appendix H.4) that describes the means and methods to monitor noise levels during upland impact pile driving in order to demonstrate that noise levels attenuate to a level of non-disturbance to PHS species potentially present in the vicinity of the construction site. See section 3.4.4.3 for additional information on species of concern.

Operation

The operation of the Facility could affect vegetation and terrestrial wildlife habitats through operational water quality impacts including an increased potential for impacts associated with stormwater management at the site, spills or leaks associated with on-site equipment, and through an increase for potential spills to surface water. There may also be effects associated with the shipping traffic using the Facility. Effects associated with bank erosion will be temporary and localized, and will result in only minor negative impacts to vegetation and terrestrial wildlife habitat.

Operation Water Quality - As described in section 2.11, operational stormwater will be collected, treated, and conveyed in permanent constructed conveyances from source to discharge. Stormwater treatment facilities will be sized to accommodate the 6-month, 24-hour event as estimated using Ecology's hydrology model.

The stormwater treatment will provide treatment to a level that is consistent with the discharge permits applicable to the Facility and will ensure that vegetation and terrestrial wildlife habitat are not adversely affected by operational stormwater. See section 2.11 for a more detailed description of how operational stormwater will be collected, treated, and conveyed in permanent constructed conveyances from source to discharge.

Transport vessels calling at the Facility will be double hulled to minimize the potential for the release of cargo in the event of a spill. International convention requires that a shipboard oil pollution emergency plan (SOPEP) govern the operation of each ship. Vessel operators are required to comply with state spill prevention and contingency plans. The likelihood of a catastrophic spill is very low, and the Facility BMPs and safety and security measures will minimize the risk of impacts to vegetation and terrestrial wildlife habitat.

Spill Prevention and Response - As described in section 2.10, the Facility will include design measures aimed at avoiding releases, secondary containment measures to prevent releases from reaching terrestrial and aquatic habitats, and will implement a comprehensive suite of spill response planning and response plans. For example, operations at the site will be governed by an operations SPCCP (oSPCCP)(Appendix B.2), which will define specific BMPs to minimize the potential for leaks and spills and the extent of damage from any unavoidable leaks or spills. These BMPs include inspecting equipment daily to ensure that there are no leaks of hydraulic fluids, fuel, lubricants, or other petroleum products, and locating material and equipment staging areas above the OHWM of the waterbody and outside environmentally sensitive areas.

Lighting, Waste Management and Vegetation Maintenance - Facility lighting will be directional in areas adjacent to sensitive wildlife areas, including the north side of Area 300 to ensure lights are not pointed in the CRWMB, and Area 400 to minimize the amount of light in aquatic habitats. Lighting will be directional and aimed away from sensitive habitats to the extent possible to minimize nightlight and glare. The Applicant will incorporate LED bulbs that fall within optimum wavelengths in area lighting to reduce light pollution impacts where practicable

and within safety regulations. The marine terminal loading area will only use spot lighting during loading operations if approved by the USCG in compliance with 33 CFR Part 105 and/or Part 154.

The Facility will implement a waste management plan, to control and contain food waste. The plan will include measures to educate workers on the risk to native wildlife from supplemental feeding and the importance of disposing of all garbage in secured containers to prevent supplemental feeding of wildlife.

Facility vegetation maintenance activities will be conducted using methods and products consistent with local, state, and federal regulations. To control weeds during operations, vegetation maintenance practices to be implemented by the Applicant include maintaining areas clear of vegetation to manage noxious weed infestations and reduce fire risk. Maintenance-related impacts to vegetation will be minimized by limiting activities to the Facility location, i.e., tracks, pipeline corridors, and tank farm. Vegetation maintenance will not occur outside the Facility location.

Shipping - Operation of the proposed project will result in up to 365 ship trips per year at full capacity but will likely have fewer in the first calendar year, depending on when the Facility begins operation. ~~approximately 140 ship trips per year in the first full year of operations and up to 365 ship trips per year at full capacity~~ Oceangoing vessel traffic on the Columbia River has the potential to result in impacts to vegetation and terrestrial habitat (note: mitigation for fish and fish habitat are discussed in the Fish section below) through increased potential for shoreline erosion associated with vessel wakes, propeller wash, and through the potential introduction of exotic species. The Applicant does not control the operation of these vessels calling at the Facility, however, vessel operators are required to comply with state and federal regulations to mitigate certain impacts.

Bank Erosion

As presented in section 3.4.2.2, Operation, Shipping, *Bank Erosion*, impacts related to vessel wakes caused by vessels calling at the Facility are not measurably different from those already occurring on the Columbia River navigational channel and will not cause any additional adverse impact (Flint 2016). Terrestrial habitats along the shoreline are already exposed to a baseline level of vessel wakes. The impact of vessel traffic on these habitats adjacent to the Facility will be negligible and as a result, there are no recommended mitigation measures. See section 3.4.2.2 for additional detail on bank erosion.

Exotic Species

The importation of aquatic invasive species as a result of vessels calling at the Facility is minimized through vessel operator compliance with applicable state and federal regulations, which address hull fouling and ballast water exchanges. Facility specific activities involving in-water placement of equipment (e.g. booming, skiff usage, third party vessels participating in spill response training and drills) would abide by applicable state regulations and rules mandating cleaning of equipment prior to its introduction into the Columbia River if it was sourced from a location where invasive species are present. See section 3.4.2.2 for additional detail on exotic species.

Fish

In addition to the construction and operation mitigation and BMPs stated in the Habitat and Vegetation section above, the following mitigation measures and BMPs have been specifically identified for fish and fish habitat.

Construction

Direct Habitat Modification - Construction of the project will result in no net new direct, permanent impacts to fish habitat in the Columbia River. Design modification to the existing dock will only require temporary support pilings during construction. No new structures, no new permanent piles below the OHWM and no net increase in overwater structure will be installed. The removal of 15 piles and existing overwater coverage will further minimized the extent of potential impacts.

All in-water construction activities, temporary pile installation, and removal activities below the OHWM will be conducted within the ~~published~~ EFSEC-modified in-water work period for the project (September 1 through January 15 ~~November 1 to February 28~~). This work window has been established to minimize potential impacts to native fish species, particularly to ESA-listed salmonids and Pacific eulachon. While there is no time when ESA-listed fish are absent from the project vicinity, the EFSEC-modified in-water work window between September 1 and January 15 ~~November 1 and February 28~~ avoids the peak migratory periods for adult fish and out-migrating juveniles of most populations.

The no net increase in direct, permanent impacts to fish habitat at the project site is expected to result in no significant effects on the quality or function of fish habitat within the project site, project vicinity, or project shipping prism.

The following BMPs will be used during construction to further protect aquatic habitat.

Pile removal and installation BMPs:

- Work below OHWM will only occur during the in-water work window.
- Remove piles with a vibratory hammer when possible.
- The piles will be removed in a single, slow, and continuous motion to minimize sediment disturbance and turbidity in the water column.
- If a pile is unable to be removed with the vibratory hammer, cut or push it into the sediment consistent with agency-approved BMPs.
- Removed piles and associated sediments (if any) will be contained on a barge. If piles are placed directly on the barge and not in a container, the storage area will consist of a row of hay or straw bales, filter fabric, or similar material placed around the perimeter of the storage area.
- The vibratory hammer method will be used to drive temporary steel piles to minimize noise levels.

Overwater concrete BMPs:

- Wet concrete will not come into contact with surface waters.
- Forms for any concrete structure will be constructed to prevent leaching of wet concrete.
- Concrete process water would not enter waters of the United States. Any process water/contact water would be routed to a contained area for treatment and disposal.

- Construction will be completed in compliance with Washington State Water Quality Standards (WAC 173-201A) including no petroleum products, fresh cement, lime, concrete, chemicals, or other toxic or deleterious materials will be allowed to enter surface waters.
- There would be no discharge of oil, fuels, or chemicals to surface waters, or onto land where there is a potential for reentry into surface waters.
- Fuel hoses, oil drums, oil or fuel transfer valves, fittings, etc. will be checked regularly for leaks, and materials would be maintained and stored properly to prevent inadvertent releases.

Additional construction mitigation measures and BMPs include:

- Work barges will not be allowed to ground out on the river bottom during construction.
- Check construction vessels and equipment for leaks and/or other problems that could result in discharge of petroleum-based products or other material into the Columbia River.
- Do not dispose of or abandon excess or waste materials generated during construction waterward of the OHWM or allow to enter waters of the state. Dispose of waste materials in an appropriate landfill.
- Store demolition and construction materials where wave action or upland runoff cannot cause materials to enter surface waters.
- Keep oil-absorbent materials on site to be used in the event of an inadvertent release or if any fuels, lubricants, or other oil-based product is observed in the water during construction.
- Use grating on all walkway surfaces between the docks and the dolphins to allow light penetration.
- Add anti-perch pile caps to the tops of any exposed piles to prevent perching of piscivorous birds.

Construction will be completed in compliance with Washington State Water Quality Standards (WAC 173-201A) including:

- No petroleum products, fresh cement, lime, concrete, chemicals, or other toxic or deleterious materials would be allowed to enter surface waters.
- There would be no discharge of oil, fuels, or chemicals to surface waters, or onto land where there is a potential for reentry into surface waters.
- Fuel hoses, oil drums, oil or fuel transfer valves, fittings, etc. would be checked regularly for leaks, and materials would be maintained and stored properly to prevent inadvertent releases.

The impact minimization measures and BMPs fully mitigate for the direct habitat modification impacts associated with the project.

Construction Lighting - If ground improvement installation requires the use of temporary night lighting, all lights will be shielded and directed away from the water to the extent practicable. Installation of jet grout columns directly adjacent to the shoreline will be scheduled for daylight hours to the extent practicable.

Aquatic Invasive Species - WDFW hydraulic code rules require that the transportation and introduction of aquatic invasive species be prevented by thoroughly cleaning vessels, equipment,

boots, waders, and other gear before removing the gear from a job site [WAC 660-120 (7)(j)]. Contractors would be required to provide documentation that all equipment and materials that will be used in- and over-water have be cleaned to comply with applicable aquatic invasive species statutes and rules, including WAC 660-120 (7)(j). This would include providing documentation that in-water equipment and construction materials have either not been in contact with waters containing state prohibited aquatic invasive species which could be potentially transferred to the Columbia River, or that equipment and materials have been appropriately decontaminated from potentially transferrable aquatic invasive species prior to arrival at the project site.

Temporary Water Quality - The project has the potential to result in temporary water quality impacts during pile removal, which could affect aquatic habitat by temporarily disturbing sediments and elevating levels of turbidity during construction. However, natural currents and flow patterns in the Lower Columbia River routinely disturb sediments. Flow volumes and currents are affected by precipitation as well as upstream water management at dams. High volume flow events can result in hydraulic forces that re-suspend benthic sediments, temporarily elevating turbidity locally. Any temporary increase in turbidity as a result of the project is not anticipated to measurably exceed levels caused by these normal periodic increases. Additionally, the volume of flow will help minimize the intensity and duration of any temporary episodic increases in sediment suspension or turbidity.

A water quality protection and management plan (WQPMP) (Appendix F.2) has been developed and describes how the project will monitor and control releases of turbidity, suspended sediment, concrete, and other construction-related materials that may be generated during Facility construction activities in, over, and adjacent to the Columbia River and other adjacent water bodies. The plan describes water quality protection measures; monitoring parameters, methods, evaluation criteria; and contingency response and notification procedures in the event a water quality criterion is exceeded during such construction activities.

All in-water temporary pile installation and removal below the OHWM will be conducted within the ~~published~~ EFSEC-modified in-water work period for the project (September 1 through January 15 ~~November 1 to February 28~~). This work window has been established to minimize potential impacts to aquatic habitat and native fish species and avoids the peak migration timing for marine mammals in the Lower Columbia River.

In response, the Advisory HPA dated April 16, 2015 (Howe, D. 2015), the applicant is also providing the following mitigation during in-water construction to protect fish and fish habitat:

- Work below the OHWM shall only occur within the EFSEC-modified in-water work window ~~between November 1 to February 28~~(September 1 through January 15).
- If at any time the stone column seismic stability work is expected to cause release of sediments below the high waterline, this work shall also adhere to the above-mentioned work window.
- The Region 5 Habitat Program Manager will be notified in writing (e-mail, FAX, or mail) from the agent/contractor no less than three working days prior to the start of construction activities. The notification will include the contractor's name, project location, and starting date for work.
- If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate

notification will be made to the Washington Military Department's Emergency Management Division at 1-800-258-5990, and to the Region 5 Habitat Program Manager.

- Work will be accomplished per plans and specifications entitled "Tesoro Savage Vancouver Energy Distribution Terminal – Dock Maintenance and Utility Infrastructure" project, dated February 2014, except as modified by these provisions. A copy of these plans will be available on site during construction.
- Extreme care will be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the stream.
- Equipment used for this project will operate stationed on a barge, boat, bank, or pier.
- All work operations will be conducted in a manner that causes little or no siltation to adjacent areas.
- Piling installation or removal will be accomplished primarily by vibratory methods, and will use an impact hammer and "proofing" will occur only when sound attenuation devices, such as a "bubble curtain" are employed.
- Any impact hammer pile driving will be accomplished during daytime hours to avoid attracting fish to lights at night.
- The existing piling will be removed and disposed of in an upland location such that they do not enter waters of the state. In the event that the piles cannot be completely removed then the remainder of the piles will be removed with a clamshell bucket, chain, or similar means, OR cut off 2 feet below the mudline.
- All holes or depressions will be backfilled with clean native bed materials to reduce leaching of residual chemicals into the water column.
- Replacement grating for walkways will be designed to pass a minimum of 60 percent sunlight in areas over shallow-water habitat (less than 30 feet deep).

Construction at the site will be governed by an cSPCCP, which the Applicant has submitted to EFSEC for review (Appendix B.2).The cSPCCP will be implemented during construction and defines specific BMPs to minimize the potential for leaks and spills and the extent of damage from any unavoidable leaks or spills. The plan also outlines responsive actions in the event of a release, and notification and reporting procedures. See the Habitat and Vegetation section, above, for additional details on applicable procedures.

Temporary Construction Noise - The proposed project has the potential to result in elevated underwater noise during in-water vibratory pile installation and removal, and impact pile driving of shore-based mooring structures, which can temporarily affect fish and fish habitat quality.

The dock modifications have been designed to require no impact pile driving, which will greatly reduce the extent of underwater noise generated during construction. Temporary support piles for dock modifications will be installed and removed with vibratory methods. This will reduce the intensity of underwater noise, and will limit the potential for adverse effects to fish.

In addition, all in-water work below the OHWM will be conducted within the ~~published~~ EFSEC-modified in-water work period for the project (September 1 through January 15 ~~November 1 to February 28~~). The upland impact pile driving for the mooring points located above the OHWM will also be conducted within the in-water work window to minimize the potential for effects from potential sound flanking. This work window has been established to minimize potential impacts to native fish species, particularly to ESA-listed salmonids and Pacific eulachon. While

there is no time when ESA-listed fish are completely absent from the project vicinity, the EFSEC-modified in-water work window between September 1 and January 15 ~~November 1 and February 28~~ avoids the peak migratory periods for adult fish and out-migrating juveniles of most populations.

A MMMP will be implemented for vibratory installation and removal of temporary piles, and upland impact pile driving to minimize the exposure of fish to temporarily increased underwater noise levels. See the Temporary Construction Noise Impacts section in Habitat and Vegetation above for additional information.

Operation

Standard BMPs and Design Measures - The following standard operational BMPs will be implemented to minimize potential impacts to fish and fish habitat during operation of the facility.

- Location of crude oil unloading areas that ensure oil never comes into contact with unprotected ground surfaces that could runoff to aquatic systems. Use containment pans and berms would be used to capture unanticipated leaks.
- Construct transfer piping such that crude oil exposure to the ambient atmosphere is minimized. Design the transfer pipelines in conformance with applicable industry standards.
- Equip transfer pipelines and the associated pumping systems with flow and pressure sensors to identify out-of-the-ordinary operating conditions that could be the result of a pipeline or pump failure and potential risk of crude oil discharge.
- Equip transfer pipelines with valves at the exit of and entry to the unloading area, the storage area, and the marine vessel loading area. These valves would include 30-second shut-offs to stop the flow of product should anomalous flow and pressure conditions related to a product spill occur, or in response to operations personnel triggering the shutoff.
- Install transfer piping aboveground when possible to facilitate inspections and maintenance. Where road or rail crossings occur, house the piping in underground steel casings or raised aboveground using standard check for spell-out clearances. Design and install pipelines at each railroad, highway, or road crossing and to withstand the dynamic forces exerted by anticipated traffic or rail loads.
- Coat and cathodically protect transfer pipelines segments constructed underground to prevent corrosion.
- Install sections of transfer pipelines constructed underground so that they are not in electrical contact with any metallic structures. This requirement would not preclude the use of electrical bonding to facilitate the application of cathodic protection. Tests would be carried out to determine the presence of stray currents and protective measures provided when stray currents are present.
- Equip transfer pipelines with leak detection systems meeting regulatory standards.
- Equip the trestle at Berth 13 with piping and hoses to transfer the crude oil from the transfer pipeline system to the receiving marine vessel. In accordance with 33 CFR § 154.530, a facility transferring oil or hazardous materials to or from a vessel with a capacity equal to or greater than 250 barrels (bbl) must have fixed catchments, curbing, or other fixed means for small discharge containment of materials at the hose handling and loading arm area, each hose connection manifold area, and under each hose connection that would be coupled or uncoupled as part of the transfer operation. For the Facility, it is anticipated that the hose

diameter would be between 6 and 12 inches, requiring that discharge containment capacity must be at least 3 bbl. As described in section 1.4.1.3, above, the containment at the dock is 84 barrels, and is further augmented through use of pumps and return piping that will remove oil from the containment in the event of a spill.

The following design elements will be used to prevent discharges of oil during conveyance, including:

- Design hoses and their supporting equipment to meet the applicable hose protection requirements of WAC 173-180 Part B and 33 CFR 156.
- Design vessel-mooring systems to meet the applicable requirements of 40 CFR 156.

Plans will be prepared and implemented to comply with state and federal requirements, including:

- Operations oSPCCP, prepared under 40 CFR 112 and WAC 173-180, Part F
- Safe and effective threshold determination report, prepared under WAC 173 180 224
- Pre-loading Transfer Plan according to WAC 173-180-230
- Facility operations manual in compliance with WAC 173-180 400 to -435
- Oil transfer training program in compliance with WAC 173-180, Part E
- Certification program in compliance with WAC 173-180, Part E
- Spill Contingency Plan in compliance with WAC 173-182, 40 CFR 112, Subpart D and 33 CFR 154, Subpart F

See Sections 1.4.1.5 and 2.10.2.6 for additional information related to the pre-booming requirements of WAC 173-180-224 and provide spill response equipment at Area 400 Marine Terminal.

Aquatic Invasive Species - During operations, the Facility may source spill response equipment from other locations in the event of larger and more complex spill drills or response activities. In such cases, contractors and mutual aid providers will comply with applicable state statutes and rules aimed at preventing the introduction of such species, as identified above.

Operational Water Quality - The proposed project has the potential to result in indirect effects to fish and fish habitat through operational water quality impacts including an increased potential for impacts associated with stormwater management at the site and spills or leaks associated with on-site equipment and machinery, and a potential for catastrophic accidents such as spills to surface waters. See the Operational Water Quality section in Habitat and Vegetation above for mitigation measures and BMPs.

Spill Control and Containment Plan - Operations at the site will be governed by an oSPCCP(Appendix B.3), which will define specific BMPs to minimize the potential for leaks and spills and the extent of damage from any unavoidable leaks or spills These include inspecting construction equipment daily to ensure that there are no leaks of hydraulic fluids, fuel, lubricants, or other petroleum products, and locating temporary material and equipment staging areas above the OHWM of the waterbody and outside environmentally sensitive areas.

Shipping - The proposed project will result in up to 365 ship trips per year at full capacity but will likely have fewer in the first calendar year, depending on when the Facility begins operation.

~~approximately 140 ship trips per year in the first full year of operations and up to 365 ship trips per year at full capacity.~~ Increased marine traffic on the Columbia River has the potential to result in impacts to fish and fish habitat through increases in the potential for fish stranding, increased potential for shoreline erosion associated with propeller wash, and through the introduction of exotic species. During vessel berthing, temporary impacts to water quality (increased turbidity) could occur from sediment suspended by propeller wash. Temporary increases in turbidity are likely to be short in duration and dissipate naturally in response to river currents.

The risk of adverse effects to fish and fish habitat from increased bank erosion is low. Streambanks at the site are well armored, and not particularly sensitive to erosion, so these habitats likely will not be affected. Elsewhere in the project vicinity and shipping prism, there are unarmored banks, which could potentially be susceptible to increased erosion from vessel wakes. Because shoreline erosion is a natural phenomenon at susceptible locations and vessel wakes from existing shipping activity also occur, the ESA-listed fish that use these habitats have typically adapted to the conditions that attend the erosion, primarily temporary, localized turbidity. Effects associated with bank erosion would be temporary and localized, and would result in only minor negative impacts to fish and fish habitat (Flint 2016).

Operators of commercial vessels have a significant economic interest in maintaining underwater body hull platings in a clean condition. Fouled bottom platings result in increased fuel costs and can reduce the vessel's maximum transit speed. To prevent fouling and higher costs, operators preserve and maintain the hulls of their ships aggressively (FERC 2008), greatly reducing the risk of the transport of exotic species. Additionally, the USCG has developed mandatory practices for all vessels with ballast tanks in all waters of the United States. Washington has developed similar requirements. These practices include requirements to rinse anchors and anchor chains during retrieval to remove organisms and sediments at their place of origin, to regularly remove fouling organisms from the hull, piping, and tanks, and to dispose of any removed substances in accordance with local, state, and federal regulations.

Vessels calling at the Facility are expected to be crude oil tankers and articulated tug barges operating within the Exclusive Economic Zone (EEZ). These vessels will be subject to the U.S. Environmental Protection Agency's Vessel General Permit (VGP) (EPA 2013) issued under the National Pollutant Discharge Elimination System (NPDES) for discharges incidental to operation of such vessels, including ballast water discharges[6]. The Washington State ballast water requirements added to the VGP as 401 WQC conditions include the state requirements codified in Chapter 220-150 WAC, administered by WDFW. These requirements include technology-driven treatment requirements and management practices so that vessel discharges meet state water quality standards, Chapter 173-201A WAC.

These impact minimization measures and BMPs fully mitigate for the increased shipping-related impacts associated with the project.

[6] See: http://www.epa.gov/npdes/vessels-incidental-discharge-permitting-2.

Wildlife

Direct impacts to special status species have been minimized by locating all project activities within an existing industrial site. According to WDFW Priority Habitats and Species (PHS) data, there are no occurrences of special status species within the project site. Within the project vicinity, there are several occurrences of PHS point, including bald eagle nests (approximately 1.2 miles to the west), bald eagle concentration areas (approximately 1.2 miles northwest), sandhill crane concentrations (approximately 3,000 feet west), and great blue heron breeding (approximately 4,000 feet northeast). Waterfowl concentrations are also known to occur on Vancouver Lake, approximately 1 mile north of the project.

In addition to the construction and operation mitigation and BMPs stated in the Habitat and Vegetation section above, the following mitigation measures and BMPs have been specifically identified for wildlife (terrestrial) habitat.

Construction

Direct Habitat Modification - The upland facilities associated with the project have been located on developed portions of an existing industrial site, which in its current state provides very little habitat function and very little native vegetation. By siting the project in a developed location, impacts to native terrestrial habitats and native species of vegetation, including special status species, have been avoided. Ground disturbance and vegetation removal will be limited to the minimum amount necessary to construct the project, and construction fencing will be used to protect existing vegetation to be retained.

See the Habitat and Vegetation, Direct Habitat Modification section above for additional information on mitigation measures and BMPs.

Temporary Water Quality - The project has the potential to result in temporary water quality impacts during construction including increased potential for spills, and a potential for temporarily elevated levels of turbidity during construction.

The Applicant has submitted a preliminary cSPCCP to EFSEC for review (Appendix B.2). The cSPCCP will be implemented during construction, that will define specific BMPs to minimize the potential for leaks and spills and the extent of damage from any unavoidable leaks or spills, including daily inspection of construction equipment leaks of hydraulic fluids, fuel, lubricants, or other petroleum products, and locating temporary material and equipment staging areas above the OHWM of the waterbodies and outside environmentally sensitive areas. Spill plans will be used for appropriate response and cleanup procedures, including the handling of vegetation that would be affected by spills. See the Habitat and Vegetation section, above, for additional details on applicable procedures.

Temporary Construction Noise -Temporary construction noise has been minimized to the extent practical to reduce impacts to special status species using habitats (e.g., foraging and resting) within the project vicinity. Peak construction noise would be generated by impact pile driving for the rail unloading facility upland mooring points. These areas are located outside of WDFW- and USFWS-recommended management buffers for bald eagle nests (660 feet and 0.5 mile, respectively) and great blue heron rookeries (656 feet). Foraging or resting species may be temporarily displaced from habitats within the project vicinity during periods of construction noise. These impacts have been minimized during construction sequencing to complete the noise

generating aspects of construction as efficiently as possible. See section Habitat and Vegetation, Temporary Construction Noise above for additional detail on mitigation measures and BMPs.

A construction wildlife-monitoring plan will be implemented during upland pile-driving activities to demonstrate that noise levels attenuate to a level of non-disturbance to PHS species potentially present in the vicinity of the construction site. Applicant will use vibratory pile driving to the extent possible and will use sound dampening devices, such as wooden blocks or HDPE, to reduce sound of impact pile driving.

A MMMP will be implemented during in-water construction activities related to Area 400 modifications, including removal of existing piles, temporary pile installation and removal, and pile strengthening; and upland work related to impact pile driving of shore-based mooring points. Monitoring will be conducted prior to and during the activities listed above with the potential to impact marine mammals. Work activities will be stopped when a marine mammal is detected within the monitoring area and will not restart until after the marine mammal has left the monitoring area.

As an additional mitigation measure before the beginning of construction, the Applicant will develop and implement a Construction Communication Plan. The purpose of the plan is to provide timely communication to the public, City, County, EFSEC, and other appropriate state agencies (e.g., Parks and Recreation Commission, WSDOT) of major construction phases and the duration of temporary noise and surface transportation impacts. As part of this plan, the Applicant will distribute the proposed schedule of construction activities to all potentially affected recreational sites within 2 miles of the Facility so recreational users are aware of construction-related disruptions and can schedule activities accordingly to avoid disruption.

Operation

See the Operation section in Habitat and Vegetation for mitigation measures and BMPs.

The proposed project has the potential to result in indirect effects to wildlife through operational water quality impacts including an increased potential for impacts associated with stormwater management at the site and spills or leaks associated with on-site equipment and machinery, and a potential for catastrophic accidents such as spills to surface waters. However, the terrestrial habitats at the site provide very little functional habitat, and the impact minimization measures and BMPs that will be implemented will effectively reduce the potential for any adverse effects to the quantity or quality of terrestrial habitats as a result of operation.

The Applicant agrees to incorporate design features to restrict access to enclosed spaces for roosting or nesting or to prevent perching where installation will not adversely interfere with required access, operation, maintenance of the unloading facility, and deployment of fire and emergency response equipment.

As described in section 2.11, operational stormwater will be collected, treated, and conveyed in permanent constructed conveyances from source to discharge. The proposed stormwater treatment will provide treatment to a level that is consistent with existing treatment at the site, which will ensure that aquatic wildlife are not adversely affected by operational stormwater.

Operations at the site will be governed by an SPCC plan (Appendix B.3), which will define specific BMPs to minimize the potential for leaks and spills and the extent of damage from any unavoidable leaks or spills.

Transport ships are constructed with double hulls to minimize the potential for the release of crude oil should an accident occur. In addition, international convention requires that a SOPEP govern the operation of each ship. All vessel operators are required to comply with state spill prevention and contingency plans. The likelihood of a catastrophic release of crude oil is very low, and the proposed BMPs and safety and security measures will manage the risk of impacts to biological resources effectively.

1.4.1.12 Section 3.5, Wetlands

The upland facilities associated with the project have been located on developed portions of an existing industrial site, and no wetlands are present at the site. By siting the project in a developed location, direct wetland impacts are avoided. However, three wetlands are present within 300 feet of the proposed Facility site. These include a wetland mitigation site located immediately east of the proposed storage tank area (Parcel 1A mitigation site), the CRWMB located north of SR 501, and a wetland mitigation site west of the proposed Facility site (Parcel 2 Mitigation Site). All three of these wetlands are separated from the Facility site by rail lines and/or roads.

Construction

Temporary Water Quality - The project has the potential to result in temporary water quality impacts during construction, which could affect off-site wetlands within the project vicinity or shipping prism. Construction will only occur within the marked construction boundaries at the proposed Facility site. Construction at the site will be governed by a cSPCCP (Appendix B.2), which will define specific BMPs to minimize the potential for leaks and spills from construction equipment and the extent of damage from any unavoidable leaks or spills and related impacts to wetlands. The BMPs include inspecting construction equipment daily to ensure that there are no leaks of hydraulic fluids, fuel, lubricants, or other petroleum products, and locating temporary material and equipment staging areas above the OHWM of the waterbody and outside environmentally sensitive areas These sensitive areas include wetlands and regulated wetland buffers that are present within 300 feet of the proposed Facility site as described above.

The cSPCCP will also outline responsive actions in the event of a release, and notification and reporting procedures. For additional information, see section 2.10, Spill Prevention and Control, and Appendix B.2, cSPCCP.

The Applicant will also implement the following construction mitigation measures to address temporary water quality impacts:

- Install drains to reduce the risk of water and/or air moving laterally underground during the installation of vibro replacement stone columns.
- Conduct daily visual inspections of wetlands during installation of vibro replacement. Temporarily suspend installation activities until counteractive measures (i.e., additional wick drains) can be installed if there is any observation of lateral movement of water or air.
- Provide stormwater treatment to a level that is consistent with or exceeds existing treatment at the site to ensure that off-site wetlands are not adversely affected by operational stormwater.

These impact minimization measures and BMPs fully mitigate for the temporary water quality impacts associated with construction of the project.

Operation

Operational Water Quality - The project has the potential to result in indirect effects to wetlands through operational water quality impacts including an increased potential for impacts associated with stormwater management at the site and spills or leaks associated with on-site equipment and machinery, and a potential for catastrophic accidents such as spills to surface waters.

As described in section 2.11, the project has the potential to increase stormwater runoff at the site, which could affect water quality and quantity. The proposed stormwater treatment will provide treatment to a level that is consistent with existing treatment at the site, which will ensure that off-site wetlands are not adversely affected by operational stormwater.

Operations at the site will be governed by an oSPCCP (Appendix B.3), which will define specific BMPs to minimize the potential for leaks and spills and the extent of damage from any unavoidable leaks or spills The oSPCCP will also outline responsive actions in the event of a release, and notification and reporting procedures.

Should a spill occur, the Applicant will implement the Operations Oil Spill Contingency Plan, which includes planning and spill response measures. These spill response measures are known to be effective. As confirmed in a recent internal assessment (spill drill) for the project of spill response actions and capabilities to a worst-case discharge, the proposed equipment and personnel response times meet and/or exceed timelines to mobilize equipment to address Geographic Response Plans in a timely manner given likely oil trajectories (see Appendix B.6, Vancouver Energy Spill Response Exercise Report). The report explains in detail the exercise that determined the adequacy of response action resources. The Applicant was able to locate, allocate, and deploy adequate response equipment and trained personnel in accordance with all application spill-planning standards. The results of this exercise to test the adequacy of proper execution of the response actions (along with pre-booming and secondary booming) show that response actions significantly impact oil spill trajectories positively. In addition, safety measures will be built into the design of the Facility and operating procedures including containment at the facility, automatic shut-off valves in the pipeline, tank car design standards, and vessel design. These are important elements to the risk assessment of the facility and transport.

The Applicant will also implement the following operational mitigation measures to minimize operational water quality impacts:

- Provide stormwater treatment to a level that is consistent with or exceeds existing treatment at the site to ensure that off-site wetlands are not adversely affected by operational stormwater.
- ~~Design the Area 300 secondary containment berm to have a capacity at least equal to 110 percent of the API 650 maximum capacity of the largest tank, plus precipitation from a 100-year, 24-hour rainstorm event.~~
- ~~Design the rail unloading area (Area 200) to include containment pans, pumps, and containment sump tanks. Approximately three double-shelled containment tanks, with a total capacity of approximately 1500 barrels, will be constructed south of the Area 200 parking lot. The combined volume of the tanks is sized to contain the entire contents of a single tank car plus at least an additional 10 percent. , of sufficient size to contain and store the entire volume of a single rail car staged within the unloading building.~~

In addition, see sections 1.4.1.5, 1.4.1.10, 2.3.7.2, 2.10.2.5 and 2.10.2.6 for additional information mitigation measures and facility design related to protection of water quality during operations.

These impact minimization measures and BMPs will fully mitigate for the operational water quality impacts associated with the project.

Shipping - Wetlands are unlikely to be affected by an increase in shipping traffic. Wetland resources within the project vicinity or downstream in the shipping prism could be impacted through the introduction of exotic species, but there is little risk of ships increasing the transport of exotic species. See the Shipping discussion in section 3.4.2.3 Habitat and Vegetation for additional information.

Transport ships are constructed with double hulls to minimize the potential for the release of cargo in the event of a spill. In addition, international convention requires that a SOPEP govern the operation of each ship. Vessel operators are required to comply with state spill prevention and contingency plans. The likelihood of a catastrophic spill is very low, and the proposed BMPs and safety and security measures will manage the risk of impacts to wetlands effectively.

1.4.1.13 Section 3.6, Energy and Natural Resources

Energy and Natural Resources

Regional Energy and Natural Resources are readily available to meet the needs of the construction and operation of the Facility, without adversely affecting the needs of other development in the Vancouver-Portland metropolitan area.

Construction

During construction, conservation measures will include construction waste recycling when possible and the coordination of carpooling between construction workers to reduce vehicle emissions.

Operation

Operational BMPs will be implemented that include conservation measures for nonrenewable resources such as water, fuel, and electricity. These BMPs will include the following conservation measures when cost effective:

- Installation of high efficiency electrical fixtures, appliances, and light bulbs in the support/administrative building;
- Installation of LED lighting ~~bulbs~~ throughout the Facility;
- Using low-water flush toilets in the support/administrative building;
- Coordinating carpooling among operations workers;
- Recycling waste office paper and aluminum;
- Sending used oils, lubricants, and greases to facilities where they can be recycled when possible; and
- Using vehicles that comply with current fuel consumption and emission standards.
- The Applicant will construct buildings compliant with the 2012 Washington State Energy Code (or current version at the time the project is permitted).

1.4.1.14 Section 4.1, Environmental Health

Noise

Construction

Construction would occur only during daytime hours to reduce the potential for noise impacts from this activity. Construction noise is exempt from the Washington noise limits during daytime hours. The Applicant will, to the greatest extent feasible, schedule noisy construction activities to the hours identified in VMC 20.935.030(4), i.e., between 7 AM and 8 PM. If outdoor construction is required outside of these hours, the Applicant will consult with the City of Vancouver, will notify EFSEC in advance, and will not conduct the work until EFSEC has reviewed and approved the planned activities.

Operation

Modeled sound levels of the Facility would comply with the applicable Washington State noise limits. Therefore, no operational noise mitigation is proposed. In association with the final design of the Facility, the procurement process for equipment contributing to noise emissions will take into consideration the estimates used in the analyses presented above so as to ensure the overall noise emissions from the Facility do not exceed Washington State noise thresholds.

Risk of Fire and Explosion

Construction

The Applicant will conduct construction activities and provide firefighting and response equipment in compliance with WAC 296-155 Part D, National Fire Protection Association (NFPA) 241 (Standard for Safeguarding Construction, Alteration, and Demolition Operations) and NFPA 5000 (Building Construction and Safety Code).

The Applicant will consult with the Port, City fire officials, and other emergency responders to ensure their response is coordinated with the Applicant's provisions for construction site fire control, existing firefighting facilities, and capabilities at the site (i.e., fire hydrants). Fire prevention and control will include, but not be limited to:

- Ensuring that appropriate firefighting equipment (i.e., extinguishers) is staged in the construction areas, either in fixed locations or on mobile construction vehicles as appropriate.
- Ensuring that highly flammable materials are identified, stored, and handled in accordance with applicable fire prevention and safety regulations.
- Managing combustible wastes to prevent fires.
- Implementing appropriate work procedures so that fires are prevented (e.g. hot work and welding).
- Limiting smoking to approved areas.
- Providing fire safety training to all construction personnel, including the identification of ignitions sources, the initiation of fire alarms, the use of established egress routes and locations, worker gathering locations, and procedures for notification of emergency responders.
- Providing first responders with maps that identify primary and secondary site access locations in the event of a fire.

A preliminary construction fire prevention plan, part of the Construction Safety and Health Manual (Appendix D.2, Section 19, Fire Protection), has been submitted to EFSEC for review and approval. The Applicant will develop a construction emergency response plan, modeled on the operations emergency response plan presented in the Operations Facility Safety Program (Appendix D.3, Section 3.1, Emergency Response Plan). Final versions of the plans will be prepared and submitted to EFSEC prior to the beginning of construction. These plans will be based on the preliminary construction plans. The final plans will establish the minimum requirements for the construction contractor and its subcontractors for developing and implementing their plans to address the prevention of and protection from fire hazards and emergency response procedures to ensure compliance with WISHA WAC 296-155-260 and NFPA requirements.

As detailed in section 4.1.2.2 and Appendix D.2, the construction fire protection plan will address employee responsibilities, general requirements and implementation activities.

Operation

Crude Oil Characterization Prior to Receipt

For all of quality, commercial, regulatory classification, and safety purpose, the Applicant will manage and monitor the properties of crude oil being shipped by rail into the facility.

- The Applicant will require all terminals shipping crude oil trains to adhere to ANSI/API Recommended Practice 3000 for the Classifying and Loading of Crude Oil into Rail Tank Cars ("API RP 3000"). The Applicant will effectively verify all shipping terminals' compliance by sampling and testing inbound crude oil and by checking the inbound condition and loading of rail tank cars.
- The Applicant will contractually require certain crude oil quality and specifications in order to manage the integrity of the crude oil received at the Facility. These requirements would cover the full range of relevant hazard classification, safety, and commercial needs for the crude oil. Vancouver Energy will require all terminals shipping crude oil trains to us to regularly demonstrate their compliance with the crude oil quality and specifications. In addition, Vancouver Energy will effectively verify all terminals' compliance by sampling and testing received crude oil.

Fire Prevention and Suppression

The Facility will be designed and operated according to federal, state, and local standards for the prevention of fire and explosion hazards, including provisions for distances between tanks in the Facility and between the crude oil-handling facilities and adjacent buildings. Examples of other risk-based management approaches to be implemented include:

- Implementing safety procedures for unloading of crude oil from rail cars and loading to vessels, including using fail-safe control valves and emergency shutdown equipment.
- Protecting against potential ignition sources and lightning by (1) proper grounding to avoid static electricity buildup and formal procedures for the use and maintenance of grounding connections; (2) using intrinsically safe electrical installations and non-sparking tools; and (3) implementing permit systems and formal procedures for conducting any hot work during maintenance activities, including proper tank cleaning and venting.

- Reducing emissions of VOCs and evaporative losses by:
  - Conducting all unloading, conveyance, storage and loading operations using a closed system, where product is not exposed to the atmosphere;
  - Using a double seal internal floating roof in each of the crude oil storage tanks to eliminate vapor space.
- Installing pressure, flow and temperature sensors to ensure all storage and conveyance activities are conducted within appropriate parameters, and to quickly identify any abnormal situations that could potentially lead to a fire;
- Designing electrical equipment to WAC 296-24-95711, which addresses the requirements for electric equipment, and wiring in locations that are classified depending on the properties of the flammable vapors, liquids or gases, or combustible dusts or fibers that may be present therein and the likelihood that a flammable or combustible concentration or quantity is present.
- Installing a dock safety unit at the loading berth and a marine vapor combustion unit (MVCU) to minimize the risk of explosive conditions being created during the marine vessel loading operations;
  - Installing stationary H_2S and flammable gas detectors (Lower Explosive Limit or LEL detectors) in relevant locations around the facility in order to detect H2S and flammable gasses at concentrations below those that could present health hazards to team members. (LEL detectors are set to detect ~~relevant locations around the facility to detect H_2S concentrations that could be unsafe to personal health (which is~~ substantially ~~well~~below the levels at which flammability is possible.)
- ~~Requiring all personnel to wear Lower Explosive Limit (LEL) detectors to detect hydrocarbon concentrations that could lead to ignition conditions; r~~ Per industry practice, requiring all personnel to wear H_2S detectors to detect H_2S concentrations that could be unsafe.
- Monitoring for fugitive emissions from pipes, valves, seals, tanks and other components with vapor detection equipment and maintaining and/or replacing components as needed.
- Using environmentally friendly firefighting foam, such as Universal Gold Foam (National Foam, 1999) or Solberg self-healing biodegradable foam.

Fire suppression equipment will be installed to allow control of fires should they occur. Fire suppression equipment and systems will be designed to NFPA and API requirements, the more stringent Factory Mutual Global insurance requirements, and state and local regulations, and will include automatic and engineered controls. Buildings will be fireproofed and emergency egress will be provided in accordance with applicable fire and building codes. All fire suppression systems will be designed to activate automatically and will be equipped with manual trip stations.

The Applicant has prepared a preliminary Fire Protection Plan (Appendix D.3). Prior to the beginning of Facility operation, the Applicant will revise this preliminary plan to address EFSEC's review comments on the plan at Appendix M of the ASC, page M-31, to ensure full compliance with WAC 296-24-567 (Makarow 2016b).

In addition to the Fire Protection Plan ~~FPRP~~, a ~~licensed~~ Fire Protection Engineer ~~from~~ licensed in the state of Washington will be responsible for the 100 percent design documents, shop drawings, system installation, and final commissioning/acceptance testing of the fire suppression and detection systems for these facilities. The respective Fire Protection Engineer will work

closely with the fire department and local code enforcement agencies to ensure the systems are code compliant and within the limitations of the codes and standards adopted by the local jurisdiction applicable to these facilities.

See section 4.1.2.2 for additional information regarding the design of fire suppression systems for specific project elements.

The Applicant will consult with the Port, City fire officials, and public fire and emergency responders to develop an Operations Fire Prevention and Control program coordinated with existing local response capabilities.

The Applicant will consult with the Port, City fire officials, and public fire and emergency responders to develop an Operations Fire Prevention and Control program coordinated with existing local response capabilities. Appendix B to the DEIS (Chapter 6, Section 2.8: Fire Department Response-Facility) identified two primary VFD response gaps for the Facility: (1) provide fire department connections on the Facility side of the fire protection systems; and (2) provide training for VFD on the design, operation, and interaction with Facility fire protection system. The Applicant has agreed to both of these recommendations (Makarow 2016b). VFD connections are identified in the Fire Protection Basis of Design Engineering Evaluation Report, attached as Appendix N.1 to the May 2016 ASC, fire department connections at each of the fire pumps in areas 200, 300, and 400 are identified in the following drawings.

- 0200-FP-001 – Unloading Building Area Fire Protection; Diagram 2: Unloading Building Fire Protection Fire Pump Diagram
- 0300-FP-001 – Storage Area Fire Protection; Diagram 2: Storage Area Fire Protection Fire Pump Diagram
- 0400-FP-001 – Marine Terminal Fire Protection; Diagram 2: Marine Terminal Area Fire Protection Fire Pump Diagram.

The training for VFD on the Facility fire protection system will occur as a normal part of design review, construction, and commissioning of the Facility, as well as through ongoing training activities. See the Firefighter Training section below for additional details.

~~consult with local responders to identify gaps in existing firefighting equipment, and will provide training opportunities at the nationally recognized Texas A&M Engineering Extension Service Emergency Training Services Institute on a biannual basis. Such training would include crude oil train derailment response, crude oil transshipment response at a marine terminal, industrial rescue, industrial fire suppression, flammable liquids handling and fire suppression, and foam application. Participants would also obtain NFPA 1081 certification.~~

These measures will be documented in the operations site safety plan and the fire protection plan or other plans related to Facility operations as appropriate to the activity being addressed (e.g., the inadvertent release or contingency plans associated with Marine Terminal loading activities, as required to comply with applicable state and federal regulations). A preliminary Fire Protection Plan (Appendix D.3, Operations Facility Safety Program, and 16.0 Fire Protection) has been developed in compliance with WAC 296-24-567. A final fire protection plan will be prepared and submitted to EFSEC prior to the beginning of operations.

Final system design shall include VFD connections on the Facility side of the fire protection system that will allow VFD to augment that system with back-up water and/or foam supply.

The Applicant will commit to have installed an additional waterline loop to add redundancy to the water distribution system for the Port to ensure sufficient firefighting water pressure at the Facility at no cost to the City (Corpron 2016, Makarow 2016b). This will require coordination with the City to connect to its water system. The waterline loop will consist of approximately 1,760 linear feet of 12-inch-diameter ductile iron waterline connecting two existing 12-inch-diameter ductile iron waterlines already in-place within the Port. The waterline will connect to an existing waterline located northeast of 3201 NW Lower River Road (Lat: 45.643249, Long: -122.705639) and extend to the west/southwest of the 3201 building and extending west along the rail corridor to a connection point located immediately southwest of the Parcel 1A wetland (Lat: 45.6444420, Long: -122.711852). This arrangement is illustrated in Exhibit EX0373-000001-TSS at section 4.1.2.2. The additional redundancy provided by the looping will increase the residual pressures for fire flow available within the Port for the Applicant's proposed fire suppression systems.

Firefighter Training

As indicated in section 4.1.2.2 (Local Firefighter Training) and in response to Data Request 12, item PD 49, the Applicant proposes the following alternative mitigation to address the issue of first responder preparedness. This alternative mitigation seeks to better specify training opportunities and methods to identify and fill gaps:

The Applicant will offer training to the Vancouver Fire Department (VFD) and Clark County firefighters at the Texas A&M Engineering Extension Service Emergency Training Services Institute. Additionally, as explained in section 1.4.1.18, Applicant has committed to a voluntary Mitigation Fund that can be used to cover backfill pay for emergency responders from those departments who attend that training. Because the number of training slots is limited in any one year, the Applicant will work with the City and other fire districts within Clark County to select and prioritize the training of firefighters. Training will be offered to no fewer than 9 to 12 firefighters per year as agreed upon in coordination with the City and County fire districts.

Additionally, the Applicant and BNSF will continue to offer training to emergency responders in communities along the rail route to improve emergency response preparedness in the event of a rail incident.

The Applicant and BNSF will conduct emergency response training and tabletop drills at three locations in the rail corridor as indicated in section 4.1.6.2, including Spokane, Vancouver, and a location in the Columbia River Gorge to be determined. These training and tabletop exercises will serve two purposes: (1) extending the training opportunities to include a broad array of interested parties; and (2) identifying any gaps in response strategy, response equipment, resources, or training.

The Applicant and BNSF will identify participants and the scope of the drills with EFSEC and Ecology coordination.

Each of the three exercises would result in preparation of a report that identifies any gaps and recommendations on how stakeholders will implement changes to address gaps.

It is anticipated that first responders can use the information obtained through these exercises to pursue federal and state funding to resolve any training or equipment gaps identified in these exercises and identified in the final reports. For example, several federal and state agencies

administer grants that fund first responder planning, preparedness, and equipment needs for hazardous materials incidents, including the following:

- Sec. 7203 of the recent FAST Act reforms an underutilized grant program administered by the United States Department of Transportation to get more resources to states and Indian tribes for emergency response, while also granting states more power to decide how to spend their planning and training grants to improve emergency response. It helps better leverage training funding for hazardous materials employees and those enforcing hazardous material regulations. (FAST Act PL 114-94, 129 Stat 1312 (2015)).
- PHMSA administers a Hazardous Materials Grant Program that consists of several emergency preparedness grants, including Hazardous Materials Emergency Preparedness (HMEP) Planning Grants that fund efforts to develop, improve, and carry out emergency plans under the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA); HMEP Training Grants that fund efforts to train public sector employees to respond to accidents or incidents involving the transport of hazardous materials; Supplemental Public Sector Training (SPST) Grants that fund national nonprofit fire service organizations to train instructors and conduct hazmat response training programs for individuals with a statutory responsibility to respond to hazmat accidents and incidents; and Hazardous Materials Instructor Training (HMIT) Grants that provide funds to nonprofit employee organizations for expertise in conducting training programs for hazmat employees.
- The Federal Emergency Management Administration (FEMA) administers several grants designed to facilitate first responder preparedness and training, including Staffing for Adequate Fire and Emergency Response (SAFER) Grants, which provide funding directly to fire departments and volunteer firefighter interest organizations to help increase or maintain the number of trained, “front line” firefighters available in their communities; and Assistance to Firefighters Grants that provide financial assistance to help fire departments, nonaffiliated Emergency Medical Service organizations and State Fire Training Academies attain needed resources to protect the public, train emergency personnel, and foster interoperability.
- Ecology offers equipment response cache grants to emergency responders for oil and hazardous materials response equipment, firefighting public safety equipment, and training.

The Applicant believes that this alternate mitigation, including the three specific exercises, will provide the appropriate structure to identify specific equipment gaps and the appropriate venues and responsibilities to fill the gaps.

In addition, in section 1.4.1.18, Applicant has identified a plan for performance based facility throughput limitation that can be imposed to further reduce the probability of the transportation risk pending demonstration of specified performance measures.

Finally, in section 1.4.1.18 of the ASC, Applicant has proposed a voluntary Mitigation Fund that can be used to contribute the Facility’s proportional share of the costs of additional mitigation efforts that address potential impacts that are attributable to the Facility or its operation.

The proposed mitigation will supplement ongoing developments in federal, state, and Ecology regulations and industry efforts that are designed to address this issue and further bolster first responder preparedness to hazardous materials incidents more generally. For example, as indicated in item PD-49 in the response to DR 12, because the issuance of the DEIS various federal and state requirements have been enacted regarding emergency response planning and spill response preparedness with respect to rail transportation of crude oil. For example, Ecology adopted Chapter 173-185 WAC, Oil Movement by Rail and Pipeline Notification and Chapter 173-186 WAC, Oil Spill Contingency Plan – Railroad, respectively on August 24 and 31, 2016. Additionally, BNSF has purchased a new foam trailer for Bingen to supplement its robust system of existing response equipment caches. In addition, the Applicant has participated in a training conducted by the United States Army Corps of Engineers (USACE) with BNSF and the UPRR on September 21-22, 2016 to train USACE staff to exercise one or more Mid-Columbia GRP booming strategies. As a result of these regulatory requirements and voluntary ongoing coordination and training by and between local, state, and federal agencies and rail and marine carriers, gaps will continue to be identified and addressed on an ongoing basis.

Explosion Prevention

Operation

In addition to the fire prevention and suppression elements listed above, Facility design and operating procedures will include, but not be limited to, the following explosion prevention elements:

- The storage tanks will be operated at atmospheric pressure, and will be equipped with internal pressure relief devices to vent gases should an overpressure situation arise;
- Internal pressure relieving systems will be incorporated throughout the Facility, including the transfer pipelines, marine terminal loading equipment, and rail cars;
- Installing pressure, flow and temperature sensors to ensure all storage and conveyance activities are conducted within appropriate parameters, and to quickly identify any abnormal situations that could potentially lead to an explosion;
- Including expansion loops in the design of the transfer pipelines to ensure the pipelines can expand and contract to accommodate changes in ambient temperature;
- Implementing spill containment measures, spill preparedness and planning described in section 1.4.1.5 above; and
- Equipping the Facility with stationary H_2S monitors personnel with wearable H_2S detectors, which will trigger alarms at personal safety levels substantially ~~very~~ well below the explosive concentrations of emitted H_2S gases.

As discussed above, a Fire Protection Engineer licensed in the state of Washington will be responsible for preparing final documents as well as final commissioning and testing of the fire suppression and detection systems for these facilities. ~~In addition to the Fire Protection Response Plan, a licensed Fire Protection Engineer from the state of Washington will be responsible for the 100 percent design documents, shop drawings, system installation, and final commissioning/acceptance testing of the fire suppression and detection systems for these facilities. The respective Fire Protection Engineer will work closely with the fire department and local code enforcement agencies to ensure the systems are code compliant and within the~~

~~limitations of the codes and standards adopted by the local jurisdiction applicable to these facilities~~.

The gas-fired Area 600 boilers will be designed, installed and operated in accordance with the applicable provisions of Labor and Industry's Boiler and Unfired Pressure Vessel laws (RCW 70.79) and rules (WAC 296-104).

Releases or Potential Releases to the Environment Affecting Public Health

Construction

Releases to the environment affecting public health are not anticipated during construction due to the limited types and relatively small quantities of hazardous materials that will be used during construction. Measures to prevent and contain any inadvertent release of hazardous materials will be provided as described in section 2.10 Spill Prevention and Control.

Construction of the Facility is not expected to result in the generation of any hazardous wastes in quantities regulated by state or federal law. Hazardous waste and solid construction debris such as scrap metal, cable, wire, wood pallets, plastic packaging materials, and cardboard will be removed by licensed disposal operators and disposed in accordance with applicable federal, state, and local regulations.

As noted in section 4.1.3.1, areas of the site and/or adjacent to the site are restricted for use because of the presence of subsurface soil and/or groundwater contamination from previous historic uses. Disturbance of those areas will be avoided to the extent practical. However, construction is necessary in each of the restricted areas. Construction will comply with the site-specific restrictive covenants, consent decrees, MTCA, RCRA, and Dangerous Waste Regulations.

A final contaminated materials management plan will be prepared to address existing contamination conditions. In Shoreline Restrictive Covenant Areas, excess materials will be tested and disposed of in accordance with Ecology-approved Port procedures. Clean fill or back fill will be used. Areas that are disturbed or removed as part of final construction will be covered with at least 1 foot of clean soil fill to prevent a future direct contact hazard. Where asphalt (road) is laid, it would substitute for 1 foot of clean fill to prevent a future direct contact hazard. Soils that are excavated will either be direct loaded or stockpiled, sampled, and analyzed for PAHs and total petroleum hydrocarbons and other parameters based on the anticipated contaminants, and disposed of off site, or reused on site in accordance with applicable regulations and covenant restrictions. Standard dust control measures, such as spraying exposed soil surfaces with water would be employed during construction to prevent the release of airborne particulates. Equipment employed in the Shoreline Restrictive Covenant Area will be decontaminated at a location to be specified in the contractor's Decontamination Plan. Construction workers will employ appropriate health and safety measures during the handling of contaminated soils.

Safety Standards Compliance

The implementation of a safety program for the Facility will be based on compliance with state and federal regulations, as well as the implementation of industry standards. The following discussion identifies the primary safety regulations applicable to the activities conducted at the

Facility, and provides an overview of the numerous industry standards that the Applicant will implement in the design, construction and operation of the Facility.

Construction

Facility Design - The Facility will be designed in compliance with all applicable safety regulations and requirements, including applicable industry standards. Prior to beginning construction of the Facility, the Applicant will submit a complete set of construction plans to EFSEC for approval. These construction plans will identify the safety regulations and industry standards that apply to the Facility, and as appropriate will specify which standards apply to specific element designs.

Facility Construction - Through the construction management program described in section 2.16, the Applicant will ensure that the Facility has been constructed to the specifications of the construction drawings approved above. The Applicant will conduct pre-operational commissioning tests in accordance with industry standards and applicable regulations, including but not limited to the following:

- Hydrostatic testing of piping systems, transfer pipelines and storage tanks
- Testing and certification of the dock safety unit and MVCU in accordance with the provisions of 33 CFR 154 Subpart E
- Testing of fire and alarm systems in accordance with applicable fire and building safety codes

The Applicant will prepare and implement a Construction Safety Program, a Construction Fire Prevention and Response Plan, and cSPCCP. Potentially flammable liquids will be stored in accordance with local, state, and federal requirements.

Operation

The Applicant will ensure that all safety systems inherent in the project design will be operated according to applicable industry standards and state and local regulations and codes. The Applicant will develop operations manuals to address appropriate measures for operation of Facility safety systems and their ongoing maintenance. Facility systems will be tested according to industry standards and applicable state and federal regulations.

The Applicant will implement the usage of personal and facility sub area-wide Lower Explosive Limit (LEL) hydrocarbon detection systems and H_2S detection systems. Personal detection systems will notify individual employees when concentrations of hydrocarbons or H_2S exceed safe thresholds and they must evacuate their immediate work area. Similarly, sub-area-wide detectors will trigger evacuation alarms.

The Applicant will provide fire retardant clothing (FRCs) to employees in accordance with WAC 296-800-160 through 296-800-16070: Personal protective equipment, as identified in section 4.1.4.1 of the May 2016 ASC (Makarow 2016b). The use of FRCs was also identified in various work procedures described in Appendix D.3, for example "Site Specific Procedures – Road Power Locomotive – Daily Inspection and Air Brake Test," under the heading Personal Protective Equipment – "Vancouver Energy Approved Uniform (FRCs)."

The Applicant commits to having every train attended upon taking control of the unit train from BNSF, and until the time the train is unloaded and BNSF has been notified, and the train is

sitting on departure tracks ready for pickup. ~~control is released back to BNSF when the train leaves the Facility.~~

Safety Program

The Applicant will develop, implement and document a Facility safety program to ensure compliance with state and federal requirements. The program will incorporate applicable industry design standards. Appendix D.1 includes the Applicant's preliminary Health Safety Security and Environmental (HSSE) Execution Plan. This plan lays out a process through which the Applicant will develop and implement its Facility safety program, and identifies the various safety processes and organizational and staff responsibilities, and the training that will occur as a result of the implementation of the program.

The program will include the preparation of construction and operations safety plans, which will be submitted to EFSEC prior to the beginning of Facility construction and operations respectively. The plans will address the requirements of WAC 296, as described above, and the requirements of 33 CFR 154 Part E, as well as any additional related requirements required under other applicable state and federal regulations and spill contingency planning processes described elsewhere in this Application.

Emergency Plans

Operation

The emergency response plan will be developed based on industry standards and regulatory requirements, including but not limited to, WAC 296-24 (Employee Emergency Plans and Fire Prevention Plans), WAC 296-56 (Safety Standards - Longshore, Stevedore and Waterfront Related Operations), WAC 296-824 (Emergency Response), and 29 CFR 1910.38 (Emergency Action Plan). The emergency action plan will be in writing, and will cover the designated actions employers and employees must take to ensure employee safety from fire and other emergencies. The emergency plan will address the following elements:

- Emergency escape procedures and emergency escape route assignments
- Procedures to be followed by employees who remain to operate/shut down critical plant operations before they evacuate
- Procedures to account for all employees after emergency evacuation has been completed;
- Rescue and medical duties for those employees who are to perform them.
- The preferred means of reporting fires and other emergencies; and
- Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.
- Alarm systems established in compliance with WAC 296-800-310.
- Types of evacuation to be used in emergency circumstances.
- Training and review:
  - Of a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees prior to implementation of the plan.

- Review with each employee when the plan is initially developed, whenever the employee's responsibilities or designated actions under the plan change; and whenever the plan is changed, and
- Review with each employee upon initial assignment those parts of the plan, which the employee must know to protect himself/herself in the event of an emergency.

The Applicant will keep the plan at the workplace and make it available for employee review.

The Applicant will also comply with the advance notification requirements of WAC 173-185-050, and will provide notification of railcars anticipated to be received in accordance with the information and timing requirements specified therein.

Prior to commencement of operations at the terminal, the Applicant and BNSF will conduct emergency response training and tabletop drills at three locations in the rail corridor as indicated in the description of firefighter training, above, and in section 4.1.6.2, including Spokane, Vancouver, and a location in the Columbia River Gorge to be determined. These training and tabletop exercises will serve two purposes: (1) extending the training opportunities to include a broad array of interested parties; and (2) identifying any gaps in response strategy, response equipment, resources, or training.

See Firefighter Training above for additional detail on the emergency response training and tabletop drills.

1.4.1.15 Section 4.2, Land and Shoreline Use

Land Use

No direct or indirect impacts to existing land uses that would require mitigation have been identified. Therefore, no mitigation measures are proposed.

Light and Glare

Construction

During construction, minor temporary outdoor lighting impacts may occur; however, most construction activities will occur during daylight hours and will be temporary in nature. During operation of the Facility, light and glare impacts on neighboring properties are expected to be negligible or nonexistent because the land uses on those properties are similar to the uses proposed for the Facility.

Most construction will occur during the day. At night, lights will be directed towards the site and will be the minimum wattage required for safety and operations.

Operation

Development elements, except for storage tanks, will be painted with earth tones. The storage tanks will be painted with non-reflective white paint to reduce surface glare from direct sunlight during the day and headlights at night.

Lighting associated with the project could lead to direct and/or indirect impacts to wildlife species because it may affect the nocturnal behavior of animals within the project vicinity, including bird and bat species. Lighting will be directed towards the site and away from adjacent

areas. The American Petroleum Institute (API) 540 – Electrical Installations in Petroleum Process Plants, Section 7 – Lighting, and Illuminating Engineering Society (IES) codes and standards will be used for the basis of design for Facility lighting. Light fixtures will be selected during final project design to achieve the levels of illuminance established by the above-listed standards.

Facility lighting impacts will also be minimized with the use of the following mitigation measures:

- Provide directional lighting in areas adjacent to sensitive wildlife areas, including the north side of Area 300 to ensure lights are not pointed in the CRWMB and Area 400 to minimize the amount of light in aquatic habitats.
- Aim direction lighting away from sensitive habitats to the extent possible to minimize nightlight and glare.
- Incorporate LED lighting ~~bulbs~~ that falls within optimum wavelengths in area lighting to reduce light pollution impacts where practicable and within safety regulations.
- In the marine terminal loading area use spot lighting only during loading operations if approved by the USCG in compliance with 33 CFR Part 105 and/or Part 154.

Aesthetics

Construction

Visual impacts to the overall landscape setting resulting from construction of the Facility are expected to be low.

During construction, major construction activities will be conducted during daylight hours to avoid light and glare on adjacent communities. At night, lights will be directed towards the Facility location and be limited to the minimum wattage required for safety and operations.

Operation

The operational uses are similar to the historic, existing and ongoing land disturbances created by other industrial development. The assessed visual impacts were found to generally be low.

While visual impacts are not considered to be significant, to minimize impacts to all viewpoints, the project will implement the following mitigation measures. These are already required by the City and are standard development requirements. They include:

- Existing trees will be used as landscape buffers and will remain along SR 501 to reduce visual impacts.
- A landscape buffer with street trees, shrubs, groundcovers will be established along SR 501, entrance roads, and facilities along Old Lower River Road.
- Landscaping will be provided in parking lots per City requirements.
- Non-reflecting light colors will be used on structures.

During the operation, developed elements of the Facility, including all building features except for storage tanks, will be painted with earth tones. The storage tanks will be painted with non-reflective white paint to reduce surface glare from direct sunlight during the day, and area

lighting and headlights at night. Impacts from spillover and glare on adjacent lands from area lighting at the location will be reduced by incorporating covered, directional lighting.

The use of screening requirements for industrial facilities under the existing municipal code Section 20.925.070 will serve to further reduce visual impacts to adjacent lands and roadways from any new open storage facilities that will be maintained as part of the proposed Facility. As a result of these measures, adverse impacts on visual resources and aesthetics occurring during the operational lifetime of the Facility will not be significant.

Recreation

Parks and recreational facilities are not anticipated to be impacted by the construction and operation of the Facility. It is expected that no additional mitigation measures would be necessary during construction or operation of the Facility.

As part of its Construction Communication Plan (see section 2.16.6), the Applicant will distribute the proposed schedule of construction activities to all potentially affected recreational sites within the proposed Facility study area so recreational users are aware of construction-related disruptions and can schedule activities accordingly to avoid disruption.

The Applicant will participate in Lower Columbia River Harbor Safety Committee efforts to develop additional boater safety educational outreach through programs such as the PTP (Prevention Through People) model used by the San Francisco Harbor Safety Committee.

Historic and Cultural Preservation

Construction

While findings from previous studies and the geoarchaeological investigation indicate a low likelihood of encountering cultural material during construction, the Applicant has submitted a preliminary Cultural Resources Inadvertent Discovery Plan (CRIDP) (Flint 2015) to EFSEC for review (Appendix A.3). The inadvertent discovery plan describes the procedures to be implemented in the event of the discovery of previously unidentified archaeological resources during construction of the Facility, and in the event ground-disturbing activities are required in response to an emergency event during operations. The plan also describes procedures to be implemented in the event of the discovery of human remains.
~~While findings from previous studies and the geoarchaeological investigation indicate a low likelihood for encountering cultural material during construction, the Cultural Resources Inadvertent Discovery Plan (Appendix A.2) will be implemented in the event of an unanticipated discovery during construction activities.~~ The protection measures described in the inadvertent discovery plan include the following elements:

- Should any archaeological resources be found, all work adjacent to the discovery will stop in accordance with RCW 27.53.060 (Archaeological Sites and Resources) and RCW 27.44.020 (Indian Graves and Records). Following the stop work, a professional archaeologist will be called to assess the significance of the find and the Port, EFSEC, U.S. Army Corps of Engineers (USACE), Washington State Department of Archaeology and Historic Preservation (DAHP), and the consulting tribes will be notified to define a course of action.

- If human remains are suspected, the Facility senior project manager will contact the Clark County coroner, EFSEC, and USACE. All work must stop in the area where human remains are found or suspected, and the area is to be safeguarded; work may continue after all consultation regarding the human remains has been completed and required procedures have been completed.
- An archaeologist will prepare a summary report detailing any inadvertent discoveries and procedures that followed as a result of a discovery. The report will identify any artifacts or features found, describe the findings, and summarize the results of data analysis. The report will be provided to the Port, EFSEC, USACE, DAHP, and the affected tribes.
- Construction staging and laydown activities would only occur in areas that have been previously disturbed and developed. Although in some locations light surface leveling might be required to provide safe access to construction employees and equipment, deep surface disturbance in these areas is not anticipated. If the depth of impact will exceed 3.05 m (10 feet) below surface in the vicinity of the dune ridge in Area 500, which would be a change from the current design plan, monitoring of soil disturbance activities during construction in this portion of Area 500 would be conducted.

Operations

The inadvertent discovery plan described above for construction will also be used in the event ground-disturbing activities are required in response to an emergency event during operations.

1.4.1.16 Section 4.3, Transportation

Construction

The Applicant will develop and implement a construction transportation management plan. The Applicant will coordinate preparation of the final plan with the City, the Port, and WSDOT.

The use of construction-related barges will be coordinated to have barge movements at the berths conducted outside of the Columbia River navigation channel.

Operation

Based on the results of the transportation impact analysis, the proposed Facility can be developed while maintaining acceptable levels of service and safety on the surrounding transportation system. The study concluded that specific mitigation was not necessary to address project impacts. However, the study developed the following recommendations to address existing safety or operational issues within the project vicinity:

- The Applicant will work with the Port and City to post a 25 MPH speed limit on Old Lower River Road south of SR 501, where no posted speed sign exists.
- Based on a review of existing turn movement patterns, existing intersection configuration, and the Manual on Uniform Traffic Control Devices, the Applicant will coordinate with the Port and WSDOT to post a YIELD sign to control the channelized northbound right-turn maneuver from Old Lower River Road onto SR 501. A YIELD sign is appropriate given that northbound right-turn drivers have sufficient sight distance to make a decision to enter and merge with the highway traffic stream, and the ability to enter the highway without stopping reduces the time and distance drivers need to fully merge into the through lane, benefiting both side street and highway traffic.

- ~~The Applicant will work with the Port and WSDOT to post a YIELD sign to control the channelized northbound right-turn maneuver from Old Lower River Road onto SR 501.~~
- The Applicant will work with the Port and City to reconfigure traffic control devices at the Old Lower River Road/Old Alcoa Facility Access Road intersection.
- The Applicant will work with the Port to add texturing/coloring treatments to the striped crosswalk on the private access approach to Lower River Road (SR 501), between the Far West Steel property and the proposed Storage area. This treatment is intended to enhance the safety of bicyclists and pedestrians using this crosswalk as part of the adjacent multi-use path.
- The Applicant will coordinate Facility design activities with the Port and future Terminal 5 tenants to ensure that the location of Facility-related tracks does not interfere with the rail operations of other Terminal 5 users.

1.4.1.17 Section 4.4, Socioeconomic Impact

There will be no adverse impacts to population, housing, or economics. Therefore, it is expected that no mitigation measures will be necessary.

The following new section provides additional general mitigation measures addressing performance based facility throughput, first call for Washington refiners and the mitigation fund and shown as underlined text.

1.4.1.18 General Mitigation Measures

In light of the issues raised during the adjudication, the Applicant adds the following additional measures and commitments.

Performance Based Facility Throughput

EFSEC's robust and transparent environmental review identified potential risks associated with the Facility. The Applicant has demonstrated that the probability of these risks is low and the mitigation measures to which the Applicant has agreed adequately mitigates those potential impacts. Nevertheless, the Applicant thinks the best way to prove the effectiveness of proposed mitigation and the safety of Facility design is through demonstrated performance. Therefore, if deemed necessary by EFSEC, the Applicant is willing to accept a condition that initially limits facility throughput by 50% of the proposed amount (from an average of 360 thousand barrels per day to an average of 180 thousand barrels per day) until the following performance measures are met:

- Facility throughput will be allowed to increase to an average of 270 thousand barrels per day if Vancouver Energy conducts operations for 12 consecutive months without material public safety or environmental incident at the Facility, in rail transit to the Facility, or vessel transit from the Facility.
- Facility throughput will be allowed to increase to an average of 360 thousand barrels per day after another 12 consecutive months of operations without material public safety or environmental incident at the Facility, in rail transit to the Facility, or vessel transit from the Facility.

If EFSEC imposes this condition, any other mitigation measures or Applicant commitments that are volume-based would be adjusted accordingly to reflect the phase-in of facility throughput.

First Call for Washington Refiners

To ensure availability of feedstocks to Washington state refineries, in-state refiners will have first call on all commercially available barrels.

Mitigation Fund

To mitigate the categories of Project impacts listed below that were identified in the Environmental Impact Statement (EIS) for the Vancouver Energy Terminal, the Applicant agrees to deposit the sum of two million dollars ($2,000,000.00) into a Mitigation Fund as a voluntary mitigation fee under the State Environmental Policy Act, RCW Chapter 43.21C (hereafter "Mitigation Fund"). If EFSEC elects to impose the Performance Based Facility Throughput condition described above, the amount of this Mitigation Fund payment shall be adjusted to correspond to the proportionate throughputs in that condition.

The Mitigation Fund shall be deposited into an interest-bearing account that will be used solely for the mitigation purposes identified below. Applicant will consult with EFSEC to establish appropriate procedures and oversight to administer the Fund and determine how the Mitigation Fund should be used.

The Mitigation Fund is intended to cover costs to implement:

- Mitigation for the purposes identified below (and referenced in Table 1.4-3),
- Mitigation measures or "gaps" that may be identified in one or more of the studies or drills described in Table 1.4-3, or
- Other yet to be determined mitigation measures related to the purposes listed below, including use of Mitigation Funds to pursue grants funds available for such purposes.

The Mitigation Funds may be used for the following purposes:

- Spill and fire incident response gaps identified as part of the three incident response drills described in Table 1.4-3, DEIS section 4.9.2, DEIS page 4-116, fourth and fifth bullets;
- Costs associated with training and backfill pay to cover costs for emergency response personnel to attend crude by rail incident and crude terminal incident response training as described in Table 1.4-3, DEIS section 4.9.2, DEIS page 4-116, fourth and fifth bullets.
- Evaluation of and mitigation for potential impacts on aquatic species from marine vessel traffic, and Fish habitat restoration projects on the Columbia River as described in Table 1.4-3, DEIS section 3.6.5, DEIS page 3.6-57.
- Proportionate share contributions to safety improvements to at-grade rail crossings identified as part of the assessment described in Table 1.4-3, DEIS section 3.8.5, DEIS page 3.8-18;
- Public health programs for identified environmental justice populations along the rail route or within 2 miles distance from the Terminal Facility;

- Greenhouse Gas Mitigation Payment to the Climate Trust or other carbon emission offset projects. (The proposed Mitigation Fund amount includes the $496,440.00 amount proposed by Applicant in the ASC, section 1.4.1.6 and 2.13 of the ASC.)
- Other mitigation measures specifically identified in the EIS for the Vancouver Energy Terminal project not otherwise addressed by the Applicant's Responses as shown in Table 1.4-3.

1.4.1.19 Decommissioning

The following mitigation measure is added and shown as underlined text to Table 1.4-2, row 3.3.4, Groundwater Resources (Flint 2016).

The final decommissioning plan will verify permanent measures to seal any areas with ground improvements either by leaving existing impervious surfaces in place (such as the containment area liner) or installing minor additional impervious surface in areas where aboveground improvements are removed without a corresponding impervious surface improvement.

Table 1.4-3. DEIS Mitigation Measures

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
8.2.1, DEIS Page ES-16	Legislative Actions	Implement the recommendations on prevention-based mitigation of crude-by-rail risks, prevention-based mitigation of crude oil marine transportation risks, and prevention-based mitigation of crude oil terminal facility risks included in the 2014 Washington State Marine and Rail Oil Transportation Study.	Please refer to the response to the DEIS mitigation measures at 4.9.1, DEIS page 4-116.
8.2.2, DEIS Page ES-16	Applicant	Provide secondary containment for aboveground crude oil transfer pipelines at the proposed Facility to reduce the risk of spills to the environment.	Please refer to the response to the DEIS mitigation measures at 4.9.2, DEIS page 4-116, first bullet.
8.2.2, DEIS Page ES-16	Applicant	Implement the mitigation measures identified in section 3.1.5 to further reduce risks from seismically induced soil liquefaction.	Please refer to the response to the DEIS mitigation measures at 3.1.5, DEIS page 3.1-30, first four bullets.
8.2.2, DEIS Page ES-16	Applicant	Require all tank cars used to transport crude oil to the proposed Facility to meet or exceed DOT-117 (or newer) specifications developed by PHMSA, FRA, or other appropriate regulatory authorities for the life of the Project.	Please refer to the response to the DEIS mitigation measures at 4.9.2, DEIS page 4-116, third bullet.
8.2.2, DEIS Page ES-16	Applicant	• Coordinate with potentially affected first responder agencies and contribute support to implement a plan that would facilitate: - Training for full-time and voluntary first responders with jurisdiction along the delivery rail route in Washington and in the vicinity of the Port in the appropriate methods for combating volatile crude oil fires and explosions. Training should be modeled after or coordinated with similar training programs to be developed by the University of Findlay, the International Association of Fire Chiefs, and the Center for Rural Development (in cooperation with the Security and Emergency Response Training Center in Pueblo, Colorado) using Assistance for Local Emergency Response Training (ALERT) grants awarded by PHMSA. - Purchase of additional crude oil spill and crude oil fire and explosion response equipment to be stationed at appropriate locations along the delivery rail route and at the Port. • Provide comprehensive instruction and training for VFD in the design, operation, and interaction with the proposed Facility's fire protection system. Additional specific training needs include annual training in crude oil transshipment response at a marine terminal, industrial rescue, water response, industrial fire suppression, flammable liquids handling and fire suppression, and foam application in a live fire event.	Please refer to the response to the DEIS mitigation measures at 4.9.2, DEIS page 4-116, fourth and fifth[7] bullets.
8.2.2, DEIS Page ES-16	Applicant	• Provide support for additional research, technology, and equipment for responding to spills of heavy crude, such as dilbit.	Please refer to the response to the DEIS mitigation measures at 4.9.2, DEIS page 4-117, sixth and seventh[8] bullets.

[7] Bullet numbering is relative to the list starting on page 4-116 of the DEIS.
[8] ID

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		• Develop appropriate response strategies for cleaning up spills of heavy crude oil prior to transporting dilbit on the Columbia River.	
8.2.2, DEIS Page ES-16	Applicant	• Contribute to all updates of the Lower Columbia River GRP and other applicable Northwest GRPs in partnership with Ecology, ODEQ, USCG, and EPA for the lifetime of the proposed Facility to address the type and amount of crude oil moving to and from the proposed Facility. • Work with Ecology, ODEQ, and others to develop response strategies for environmentally sensitive areas on the Lower Columbia River and along the rail corridor within the state for inclusion in the Lower Columbia River GRP and reference in the Applicant's oil spill contingency plan.	Please refer to the response to the DEIS mitigation measures at 4.9.2, DEIS page 4-117, eighth[9] and ninth bullets.
8.2.2, DEIS Page ES-16	Applicant	Retain a licensed engineer to perform an independent engineering analysis and feasibility study to improve oil recovery in the case of a spill during vessel loading at the dock. The study would determine the number of days it is safe and effective to pre-boom oil transfers and would identify site-specific improvements to maximize successful pre-booming. The Applicant should submit this study to EFSEC. If improvements to allow for pre-booming are determined to be unfeasible, the Applicant would be required to implement alternative measures, including but not limited to, the following measures to mitigate the absence of preventative boom in the water during transfers: stage an appropriate number of dedicated response vessels, deploy additional containment and cleanup equipment, and station trained personnel at the terminal dock and/or at a nearby staging area during oil transfers.	Please refer to the response to the DEIS mitigation measures at 4.9.2, DEIS page 4-117, tenth[10] bullet.
8.2.2, DEIS Page ES-16	Applicant	Conduct a study to identify an appropriate level of financial responsibility for the potential costs for response and cleanup of oil spills, natural resource damages, and costs to state and affected counties and cities for their response actions to reduce the risks and impacts from an oil spill. The study should be conducted prior to commencing operations and address the factors in RCW 88.40.025, Evidence of Financial Responsibility for Onshore or Offshore Facilities, including a reasonable worst-case spill volume, the cost of cleaning up the spilled oil, the frequency of operations at the Facility, prevention measures employed by the Facility that could reduce impacts through spill containment, immediate discovery and shutoff times, and the damages that could result from the spill (including restoration). The study should identify any constraints related to the commercial availability and affordability of financial responsibility. Based on the study, EFSEC shall determine the appropriate level of financial responsibility and require the Applicant to demonstrate their financial responsibility to the satisfaction of	Please refer to the response to the DEIS mitigation measures at 4.9.2, DEIS page 4-117, eleventh[11] bullet.

[9] ID
[10] ID
[11] ID

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		EFSEC. Proof of financial responsibility would be included as documentation in the Applicant's contingency plan.	
8.2.3, DEIS Page ES-18	Ecology	Ecology should verify that the appropriate regulatory contingency spill planning volume used to develop appropriate spill containment at the proposed Facility is "the entire volume of the largest aboveground storage tank on the facility site complicated by adverse weather conditions…" (The largest aboveground storage tank capacity at the proposed Facility is 375,000 bbl) or if "…a larger or smaller volume is more appropriate given a particular facility's site characteristics and storage, production, and transfer capacity" (WAC 173-182).	Please refer to the response to the DEIS mitigation measures at 4.9.3, DEIS page 4-117, first bullet.
	EFSEC, the Applicant, and Other Agencies and/or Private Organizations	• The Applicant should coordinate with EFSEC and the City of Vancouver to ensure that an independent technical review of the proposed Facility's fire protection systems is conducted at the 100 percent (final) design stage, consistent with the recommendations in Appendix B.	Please refer to the response to the DEIS mitigation measures at 4.9.3, DEIS page 4-117, second bullet.
		• The MFSA, with assistance from the Applicant, should update the existing MFSA Vessel Response Plan to: - Address a Handymax regulatory worst-case discharge volume of 319,925 bbl (Appendix J, Table 3) - Expand the plan's current focus on vessel shipments of refined petroleum products to include shipments of various types of crude oil on the Columbia River. - Mandate that all vessels loading at the proposed Facility adopt the MFSA Vessel Response Plan (Appendix D.11).	Please refer to the response to the DEIS mitigation measures at 4.9.3, DEIS page 4-118, third bullet.
		• The Applicant and EFSEC should coordinate with the USCG, Lower Columbia River Harbor Safety Committee, Ecology, ODEQ, Columbia River Bar Pilots, and Columbia River Pilots to ensure that existing safety procedures and vessel traffic management systems are adequate to accommodate 365 additional crude oil vessels per year, primarily of the Handymax vessel size. These procedures should address at a minimum: - Safe speeds for laden tank vessels carrying crude oil and other vessels while in the traffic lane. - Appropriate capacities with regard for the Columbia River channel for laden tank vessels carrying crude oil. - Minimizing of vessel traffic and anchorage maneuvers during outbound transits.	Please refer to the response to the DEIS mitigation measures at 4.9.3, DEIS page 4-118, fourth bullet.
		EFSEC should coordinate with Ecology, the Applicant, and vessel operators to revise Project-related vessel operation requirements based on the findings of Ecology's upcoming Columbia River vessel traffic risk assessment, required by Engrossed Substitute House Bill 1449, as appropriate.	Please refer to the response to the DEIS mitigation measures at 4.9.3, DEIS page 4-118, fifth bullet.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		EFSEC and the Applicant should communicate with Local Emergency Planning Committees (LEPCs) along the rail corridor and in the vicinity of the proposed Facility to determine or update the following information: LEPC contact information (phone, e-mail, and website), county/cities included in the LEPC plans, date of last LEPC plan update, regularity of LEPC meetings, LEPC funding status, LEPC emergency response training status, and components of LEPC emergency plan, including dangers and/or responses specifically affecting low-income or minority populations in the LEPC area.	Please refer to the response to the DEIS mitigation measures at 4.9.3, DEIS page 4-118, sixth bullet.
		EFSEC and the Applicant should coordinate with the State Fire Defense Committee to update the Washington State Fire Services Resource Management Plan to ensure that the plan can facilitate provisions of adequate mobilization of personnel trained to address crude oil spill, fire, and/or explosion incidents anywhere along the rail and vessel corridors and at the proposed Facility, and to ensure that the plan can facilitate provisions of adequate mobilization of personal protective and response equipment for these incidents.	Please refer to the response to the DEIS mitigation measures at 4.9.3, DEIS page 4-118, seventh bullet.
		EFSEC, the Applicant, and the rail transporter of crude oil should coordinate with the State Fire Defense Committee, LEPCs, and local emergency responders along the rail corridor to ensure development of specific evacuation plans for each residential community of greater than 50 residents within 0.25 mile of the rail route and within 1 mile of the proposed Project at the Port. This plan should include written instructions to all residents and emergency communication protocols for them to follow in the event of a crude oil spill, fire, or explosion event.	Please refer to the response to the DEIS mitigation measures at 4.9.3, DEIS page 4-118, eighth bullet. See page E-4, lines 31-37 of the Applicant's comment letter to the DEIS.
Table ES-2[12], DEIS Page ES-28	Applicant	Modify the design of the dock transformer pad, control room/E-house, and fire pump and foam building in the marine terminal (Area 400) to ensure that the floor of these structures is at least 2 feet above the base flood elevation.	The Applicant agrees to this mitigation measure.
Table ES-2[13], DEIS Page ES-38	Applicant	In the event of an unanticipated discovery during construction activities, the Cultural Resources Inadvertent Discovery Plan (Flint 2015) would be followed. The steps outlined in the plan serve to minimize damage to any inadvertently discovered archaeological resources during ground-disturbing activities, which may include small, deeply buried, and/or widely dispersed historic or precontact cultural materials. Steps included in the plan outline applicable state laws and regulations, previous data collected, stop-work and notification protocols for inadvertently discovered archaeological resources and human remains, discovery protection measures, documentation by professional archaeologists, monitoring of operations and emergency response activities, and notification contact list.	The Applicant agrees with this mitigation measure. As proposed in the August 2013 ASC, section 4.2.5.7 and the May 2016 ASC, section 4.2.5.7 as follows: While findings from previous studies and the geoarchaeological investigation indicate a low likelihood of encountering cultural material during construction, the Applicant has submitted a preliminary Cultural Resources Inadvertent Discovery Plan (CRIDP) (Flint 2015) to EFSEC for review (Appendix A.3). The inadvertent discovery plan describes the procedures to be implemented in the event of the discovery of previously unidentified archaeological resources during construction of the Facility, and in the event ground-disturbing activities are required in response to an emergency event during operations. The plan also

[12] This mitigation measure was only included in Table ES-2 of the DEIS.
[13] Id

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			describes procedures to be implemented in the event of the discovery of human remains. The protection measures described in the inadvertent discovery plan include the following elements: • Should any archaeological resources be found, all work adjacent to the discovery will stop in accordance with RCW 27.53.060 (Archaeological Sites and Resources) and RCW 27.44.020 (Indian Graves and Records). Following the stop work, a professional archaeologist will be called to assess the significance of the find and the Port, EFSEC, USACE, DAHP, and the consulting tribes will be notified to define a course of action. • If human remains are suspected, the Facility senior project manager will contact the Clark County coroner, EFSEC, and USACE. All work must stop in the area where human remains are found or suspected, and the area is to be safe-guarded. Work may continue after all consultation regarding the human remains has been completed and required procedures have been completed. • An archaeologist will prepare a summary report detailing any inadvertent discoveries and procedures that followed as a result of a discovery. The report will identify any artifacts or features found, describe the findings, and summarize the results of data analysis. The report will be provided to the Port, EFSEC, USACE, DAHP, and the affected tribes. • Construction staging and laydown activities would only occur in areas that have been previously disturbed and developed. Although in some locations light surface levelling might be required to provide safe access to construction employees and equipment, deep surface disturbance in these areas is not anticipated. If the depth of impact will exceed 3.05 m (10 feet) below the surface in the vicinity of the dune ridge in Area 500, which would be a change from the current design plan, monitoring of soil-disturbance activities during construction in this portion of Area 500 would be conducted.
3.1.5, DEIS page 3.1-30, first four bullets	Applicant	Reassess the required depth of penetration of stone columns in the marine terminal (Area 400) and the western portion of the transfer pipelines (Area 500) near the Columbia River shoreline along the transfer pipeline and at the dock to secure the stone columns in either the nonliquefiable dense sand unit immediately overlying the Troutdale gravel or in the Troutdale gravel itself to reduce the risk of damage during seismic ground motion/shaking. If the depth to the nonliquefiable dense sand unit is greater than the currently proposed depth, the installation depth should be increased accordingly. Additional impacts associated with this mitigation would include more disturbance of existing site soils and some additional construction activity. These additional impacts would be negligible.	The Applicant agrees with this mitigation measure.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		Install stone column ground improvements beneath the entire secondary containment berm in the storage area (Area 300) to ensure berm stability in the event of earthquake-induced liquefaction. While the Applicant has committed to a seismic stability analysis of the berms in accordance with WAC requirements, they only require designing the containment structure to withstand seismic forces and constructing with sound engineering practice. Designing the berm to withstand ground motion/shaking is appropriate but needs to be combined with an assessment of potential liquefaction beneath the berm, and the requirement to extend the ground improvements deeper into the ground. Additional impacts associated with this mitigation would include more disturbance of existing site soils and some additional construction activity. These additional impacts would be negligible.	Applicant will comply with this mitigation measure if determined necessary to meet WAC requirements, API 650 and to conform with sound engineering practice by EFSEC's seismic consultant (AECOM) during final ground improvement design review.
		Conduct more thorough numerical modeling/analyses (e.g., FLAC, PLAXIS) of the ground improvement system in the marine terminal (Area 400) to verify the anticipated performance of the deep soil mix panels supported on top of the jet grout columns. The outcome of the modeling is expected to include revised numbers, dimensions, and geometry of ground improvement elements to demonstrate expected control of ground displacements and lower potential for pipeline damage. If the numerical modeling results do not verify the anticipated performance, redesign the ground improvement system to achieve the anticipated results.	The Applicant agreed to conduct more thorough numerical modeling/analyses (e.g., FLAC, PLAXIS) requested by EFSEC of the ground improvement system in the marine terminal (Area 400) to verify the anticipated performance. The modeling will not be complete by October 6, 2016, the due date for ASC revisions. As a result, the Applicant does not have a complete response or ASC revision related to these mitigation measures at this time. The Applicant requests to have the opportunity to address any related outstanding issues with EFSEC after the modeling is complete. The modeling results will be complete on October 28, followed by the final report in November 2016.
		Confirm that the design of the transfer pipelines (Area 500) has sufficient strength and flexibility to withstand earthquake-generated ground deformations that could impact the dock and moored vessels during seismic events. If existing evidence is unavailable or does not support the required strength and flexibility of the transfer pipeline, redesign these Project elements to achieve that result. Alternatively, extend ground improvements into the soil forming the sloping embankment beneath the dock structure. Any ground improvements or dock modifications occurring below the OHWM would require consultation with the USACE and other relevant state agencies to assess potential impacts to terrestrial and aquatic species and habitats and water quality. Conduct in situ geotechnical testing (e.g., CPT or SPT) during the installation of ground improvements to ensure that the soils have been sufficiently improved to achieve expected reduction in liquefaction potential. If the testing determines that the expected level of ground improvement has not been achieved, continue ground improvement activity until the expected level of improvement is achieved.	The Applicant will extend ground improvements to the non-liquefiable layer in the portion of Area 500 parallel to the Columbia River. The testing is already part of the design standard and will be completed as described in Appendix L3 to the ASC.
3.1.5, DEIS page 3.1-30, last bullet	Applicant	Install sediment control barriers (silt fencing with filtration fabric keyed in at ground surface; possibly straw wattles) at the top of the embankment to prevent flow of silt-laden water from stone column installation from entering the Columbia River. Monitor the water on the river side of the sediment control barrier to ensure the expected level of water quality is maintained. If the water quality on the riverside of the barrier is	The Applicant agrees to this mitigation measure. The mitigation measure was included in the May 2016 ASC, sections 1.4.1.10 and 3.3.1.2.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		unacceptable, implement additional sediment control measures until the desired level is achieved.	
3.1.5 DEIS page 3.1-31, first bullet		Install monitoring wells downslope from the stone column and jet grout column installation areas to monitor water quality during the installation of these improvements. In the event of unacceptably high pH levels and/or sulfate levels during ground improvements, install additional sheet pile barriers to prevent contaminated water from entering the Columbia River, or halt jet grouting until a modified approach with BMPs can be approved by EFSEC. Additional impacts associated with this mitigation would include more disturbance of existing site soils and some additional construction activity. These additional impacts would be negligible to minor.	The Applicant proposed alternative mitigation than the mitigation measure included in the DEIS. The Applicant agrees to conduct additional monitoring as included above for pH and sulfate levels within the proximity of ground improvements located along the shoreline. If this additional monitoring demonstrates a measurable increase in pH or sulfate levels within the receiving water, the Applicant will notify EFSEC in accordance with the provisions contained within the NPDES Individual Construction Stormwater Permit. The Applicant will conduct additional reconnaissance to determine the source of the observed increased levels. If monitoring demonstrates that discharges from the site exceed the construction stormwater quality benchmarks as defined within the NPDES Individual Construction Stormwater Permit; the Applicant agrees to follow the notification and corrective action steps required under the NPDES Individual Construction Stormwater Permit. The Applicant anticipates these to be similar to those included in the Construction Stormwater General Permit Section S5.F and proposes the following condition: • EFSEC will be promptly notified of the exceedance of the construction stormwater quality benchmarks. • Immediate action will be taken to correct the problem. If applicable, sampling and analysis of any benchmark exceedance will be repeated immediately, and results submitted to EFSEC within five days of becoming aware of the exceedance. • A detailed written report describing the monitoring, notification, and corrective actions will be submitted to EFSEC within five days, unless requested earlier by EFSEC. See the Applicant's comment letter to DEIS at page 3-50, lines 3-7.
3.1.5 DEIS page 3.1-31, second bullet	Applicant	Check potential deformation of the ground surface along the river embankment during installation of ground improvements using survey measurements of surface markers or more sophisticated instrumentation, as needed.	Applicant agrees to this mitigation measure with the recognition that temporary benching of the shoreline (modification of the shoreline ground surface) will be required during installation of the ground improvement to safely stage the construction equipment**.** The Applicant will install sheet pile in the proximity of the jet grout installation near the abutment. If there is a surface deformation, the deformation will be mitigated when the shoreline is regraded to its previous configuration.
3.3.5, DEIS page 3.3-54, first bullet	Applicant	Install and maintain an erosion/sediment control barrier along the top of the Columbia River embankment for the areas adjacent to stone column installations consisting of silt fencing, filtration fabric, and straw wattles or similar measures approved by EFSEC. Monitor the water on the river side of the sediment control barrier to ensure the expected level of water quality is maintained. If the water quality on the river side of the barrier is unacceptable, implement additional sediment control measures until the	The Applicant agrees to this measure. The mitigation measure was included in the May 2016 ASC, sections 1.4.1.10 and 3.3.1.2.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		desired level is achieved. These measures would reduce impacts to minor levels.	
3.3.5, DEIS page 3.3-54, second and third bullets	Applicant	• Conduct groundwater water quality monitoring for pH and sulfate content during jet-grouting activities between the columns and the temporary sheet pile wall, in a geographic pattern and at appropriate depths, to determine the magnitude of any elevated levels and the potential for such contaminants to reach surface water under the sheet pile wall. In the event that monitoring revealed excessive pH or sulfate content, install additional sheet pile barriers to prevent contaminated water from entering the Columbia River, or halt jet grouting until a modified approach with BMPs can be approved by EFSEC. These measures would reduce impacts to minor levels.	Please refer to the response to the DEIS mitigation measures at 3.1.5, DEIS, page 3.1-31, first bullet.
		Install surface water monitoring wells downslope from the stone column and jet grout column installation areas to monitor water quality during the installation of these improvements. In the event of unacceptably high pH levels and/or sulfate levels in monitored water, install additional sheet pile barriers to prevent contaminated water from entering the Columbia River. Additional impacts associated with this mitigation would include more disturbance of existing site soils and some additional construction activity. These additional impacts would be negligible to minor and would reduce pH levels and/or sulfate to levels to be minor.	Please refer to the response to the DEIS mitigation measures at 3.1.5, DEIS, page 3.1-31, first bullet.
3.3.5, DEIS page 3.3-54, fourth bullet	Applicant	Monitor flood predictions, warnings, and the rate of floodwater rise, and in the event of a flood, suspend operations at threatened proposed Facility elements prior to the flooding. In the event of an expected site inundation, demobilize movable equipment, such as railcars and motor vehicles, and relocate above the 500-year floodplain to the extent possible. Secure static equipment that cannot be moved.	The Applicant agrees with this mitigation measure. A majority of this mitigation measure was included in the May 2016 ASC, sections 1.1.4.10 and 3.3.3.2. The remaining portion of the mitigation measure requiring relocation of mobile equipment to dry ground to the extent possible and to secure static equipment has been added to the revised ASC, sections 1.4.1.10 and 3.3.3.2, and is stated as follows: In the event of an expected site inundation, movable equipment, such as railcars and motor vehicles, will be demobilized and relocated above the 500-year floodplain to the extent possible. Static equipment that cannot be moved will be secured.
3.3.5, DEIS page 3-55, fifth bullet[14]	Applicant	Install permanent measures to cap and/or seal areas with subsurface ground improvement columns during decommissioning to prevent surface water from infiltrating and conveying contaminants into areas where vertical columns could facilitate groundwater movement and migration of contaminants. Contain hydrocarbon residuals in existing pipelines during removal.	The Applicant agrees with this mitigation measure. See the Applicant's comment letter to DEIS at page 3-50, lines 11-15. This mitigation measure has been added to the revised ASC, sections 1.4.1.10, 1.4.1.19, and 3.3.4.2, and is stated as follows: The final decommissioning plan will verify permanent measures to seal any areas with ground improvements either by leaving existing impervious surfaces

[14] Bullet numbering is relative to the list starting on page 3.3-54

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			in place (such as the containment area liner) or installing minor additional impervious surface in areas where aboveground improvements are removed without a corresponding impervious surface improvement.
3.3.5, DEIS page 3.3-55, sixth bullet[15]	Applicant	Obtain copies of all well abandonment forms listed in Ecology's well-log database for high-producing wells installed between 1940 and 1967 and associated with the former Alcoa facility to verify that the wells were abandoned during site remediation.	As stated in the Applicant's comment letter to the DEIS at pages 3-39, lines 7-15, the Applicant has obtained copies of all available well abandonment forms from Ecology. The Applicant is proposing an alternative mitigation measure to confirm wells on site have been properly decommissioned. The alternative mitigation measure was included in May 2016 ASC, sections 1.4.1.10 and 3.3.4.2. The Applicant has added clarification (underlined) to the mitigation measure in the revised ASC, sections 1.4.1.10 and 3.3.4.2. The measure included the clarification in the May 2016 ASC, section 3.3.4.2: During construction, the Applicant will conduct on-site investigations where production wells were known to <u>have been</u> located. If a borehole is located, confirmation will be made that the borehole has been properly sealed to a depth at least 10 feet below the finished ground surface with a cementitious grout. <u>If during construction activities other wells are discovered on-site, the wells will be properly logged and decommissioned.</u>
3.4.5, DEIS Page 3.4-16, First and second bullets	Applicant	• Complete a weed survey for the proposed Facility site, followed by eradication of any noxious weeds and invasive plants currently established at the site prior to initiation of construction to help prevent the spread of noxious weeds to nearby wetland mitigation and wildlife areas. • Include in the Landscaping Plan for the Administrative and Support Buildings (Area 200) the use of native trees planted in groups within the landscape to provide additional mitigation for the loss of trees on site.	The Applicant agrees with these mitigation measures. These mitigation measures were included in the May 2016 ASC at sections 1.4.1.11 and 3.4.2.3.
3.5.5, DEIS Page 3.5-34, first two bullets	Applicant	• Incorporate LED bulbs that fall within optimum wavelengths in area lighting to reduce light pollution impacts where practicable and within safety regulations. • Only use marine terminal loading area spot lighting during loading operations.	The Applicant agrees with these mitigation measures. These mitigation measures were included in May 2016 ASC, section 3.4.3.3 Habitat and Vegetation – Operation, with the provision that the marine terminal loading area will only use the spot lighting during loading operations if approved by the USCG in compliance with 33 CFR Part 105 and/or Part 154.
3.5.5, DEIS Page 3.5-34, third and fourth bullets	Applicant	• Finalize the Construction Wildlife Monitoring Plan in consultation with EFSEC and WDFW and implement all recommended measures to reduce impacts to wildlife, including development of final noise threshold levels, monitoring distances, and adaptive management actions.	The Applicant agrees with these mitigation measures. See the Applicant's comment letter to the DEIS at page 3-62, lines 9-21. These mitigation measures were included in May 2016 ASC, sections 1.4.1.11, 3.4.2.3, and 3.4.4.3.

[15] Id

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		• Measure noise levels during construction in the unloading and office area, the storage area, and the marine terminal (Areas 200, 300, and 400, respectively), including impact pile driving and ground improvement installation. If measured noise levels at the established distances exceed the established threshold, perform adaptive management actions, which could include additional noise monitoring at the nearest sensitive resource, using noise dampening strategies for impact pile driving, such as placing nylon or wood blocks between the pile and hammer and using temporary sound barriers, such as containers, earthen berms, or stockpiled materials around the ground improvement area.	The Applicant's proposed Construction Wildlife Monitoring Plan is included in the May 2016 ASC at sections 1.4.1.11, 3.4.4.3, and Appendix H.4.
3.5.5, DEIS Page 3.5-34, fifth bullet	Applicant	Retain old wood pilings, or check wood pilings for cavities used by purple martins before removing them. The removal of creosote-coated pilings that contain purple martin nest boxes or cavities used by martins should be coordinated closely with WDFW.	The Applicant agrees to the mitigation measure even though the project does not propose removing old wood pilings; all existing piles at the marine terminal are steel and do not contain cavities for nesting wildlife. The Applicant will comply with this mitigation measure, if necessary.
3.5.5, DEIS Page 3.5-34, sixth and seventh bullets	Applicant	• Perform tree removal outside of the nesting season (February 15 to September 1) to avoid potential impacts to active nests of protected migratory birds. If trees are to be removed during the nesting season, complete a preconstruction nesting survey no more than two weeks prior to removal to ensure that no active nests are present. If active nests of protected migratory birds are found, suspend tree removal activities until after nests have hatched and young have fledged. • Monitor the approximate 2.2 acres of landscape plantings for two years after planting and replace all trees that do not become successfully established.	The Applicant agrees with these mitigation measures. These mitigation measures were included in the May 2016 ASC at sections 1.4.1.11 and 3.4.2.3.
3.5.5, DEIS Page 3.5-34, eighth bullet	Applicant	Incorporate design features, such as enclosing structures, so that no horizontal top surfaces are accessible, screen openings to prevent access to enclosed spaces for roosting or nesting, and install spikes or wires to prevent perching to avoid attracting birds, such as pigeons, gulls, and starlings to the proposed Facility.	The Applicant agrees to incorporate these design features to restrict access to enclosed spaces for roosting or nesting or to prevent perching where installation will not adversely interfere with required access, operation, maintenance of the unloading facility, and deployment of fire and emergency response equipment.
3.5.5, DEIS Page 3.5-34, last bullet	Applicant	Include measures in the waste management plan to control and contain food waste, and educate workers on the risk to native wildlife from supplemental feeding and the importance of disposing of all garbage in secured containers to prevent supplemental feeding of wildlife.	The Applicant agrees with this mitigation measure. This mitigation measure was included in the May 2016 ASC, sections 1.4.1.11 and 3.4.4.3.
3.5.5, DEIS Page 3.5-34, last paragraph	BNSF	EFSEC also recommends that BNSF identify and monitor wildlife-train collision and barrier hotspots along the rail corridor to determine whether current and projected levels of traffic would result in levels of mortality or barrier effects that would jeopardize the status of local wildlife populations. If significant levels of collision mortality and barriers to wildlife movement are identified, suitable wildlife crossing structures and other measures, such as fencing should be considered as appropriate. BNSF should consult with WDFW and USFWS or a Technical Advisory Committee in designing approaches to identify and monitor hotspots and in identifying suitable crossing structures and other measures.	Based on BNSF's DEIS comment letter dated January 21, 2016, and the pre-filed testimony of Dava Kaitala, BNSF, it is the Applicant's understanding that for listed species, BNSF works closely with federal and state wildlife agencies to report incidents and takes measures necessary to protect threatened and endangered wildlife species. Applicant will encourage and support those ongoing efforts by BNSF and wildlife agencies. It is the Applicant's further understanding that WDFW has previously concluded that installation of fences and other vertical surfaces can impede migration travel corridors for terrestrial wildlife that may result in fragmentation or isolation of certain wildlife species and, thus, have greater adverse effects than the occasional

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			wildlife-train collision incident. See BNSF Comment Letter in Response to the DEIS, January 21, 2016, Section, O, page 37.
3.6.5, DEIS Page 3.6-57, first bullet	Applicant	Install erosion control barriers (silt fencing with filtration fabric keyed in at ground surface; possibly straw wattles) during installation of ground improvements at the marine terminal at the top of the embankment to prevent flow of silt-laden water from stone column installation into the Columbia River.	The Applicant agrees with this mitigation measure. This mitigation measure was included in the May 2016 ASC, sections 1.4.1.10 and 3.3.1.2.
3.6.5, DEIS Page 3.6-57, second bullet	Applicant	Install monitoring wells downslope from stone column and jet grout column installation areas to monitor water quality during the installation of ground improvements to detect high pH or high sulfate content water that could be generated during installation.	Please refer to the response to the DEIS mitigation measures at 3.1.5, DEIS page 3.1-31, first bullet.
3.6.5, DEIS Page 3.6-57, third bullet	Applicant	Perform all construction activities below the OHWM during the EFSEC-modified in-water work window of September 1 through January 15 to avoid peak migration and larval stages of salmonid and nonsalmonid species (especially eulachon and white sturgeon) in the proposed Facility study area.	The Applicant concurs with the in-water work window proposed by EFSEC, i.e., September 1 through January 15. The Applicant is currently working to have this work window approved by the USACE and Services. It is the understanding of the Applicant that the USACE intends to follow the EFSEC work window in the USACE permit. If for some reason the USACE window conflicts with the EFSEC window, the Applicant will coordinate a meeting between USACE and EFSEC staff to reconcile any inconsistencies.
3.6.5, DEIS Page 3.6-57, fourth bullet	Applicant	Modify the walkways and trusses for the proposed dock modifications to use steel grating designed to let at least 60 percent of sunlight penetrate into areas over shallow-water habitat and use retractable shore-based walkways that would be in place only during periods when vessels are moored.	The Applicant agrees with this mitigation measure. The replaced walkways and trusses providing personnel access to mooring points and dolphins will meet this design specification and will let at least 60 percent of light penetrate.
3.6.5, DEIS Page 3.6-57, fifth bullet	Applicant	Develop mitigation for wake stranding and wake effect impacts in consultation with appropriate state and/or federal agencies. Examples might include the addition of fine-scale beach features, such as strategically placed logs or vegetation in susceptible areas to provide refuge from wakes for habitat types important to juvenile fish.	As indicated in the Applicant's comment letter to the DEIS at page 3-87, lines 11-21, mitigation for wake effect and wake stranding is not necessary or justified. Nevertheless, the potential impacts of wake stranding from oceangoing vessel are being analyzed as part of the federal permitting process for the Terminal project and, to the extent appropriate, Applicant will develop measures to address those impacts in that federal forum. Additionally in section 1.4.1.18, Applicant has proposed a voluntary Mitigation Fund that can be used to contribute the Facility's proportional share of the costs of additional mitigation efforts that address potential impacts that are attributable to the Facility or its operation.
3.6.5, DEIS Page 3.6-57, sixth bullet	Applicant	Reduce vessel transit speeds in areas that are more susceptible to wake stranding of juvenile fish due to shoreline geomorphology (e.g., near Sauvie Island; ENTRIX 2008).	The Applicant requests that EFSEC remove the mitigation measure because the Applicant is not in control of vessel speeds, because the minor impacts from wake effects do not warrant the mitigation measures, and because reduced vessel speeds can impact navigation. See the Applicant's comment letter to the DEIS at page 3-87, lines 30-40 and page 3-88, lines 1-7. The Applicant would agree to initiate discussions with EFSEC and the Columbia River Pilots to determine if it is feasible to reduce speed in specific locations where wake stranding of juvenile fish may occur, while maintaining safe navigation.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
3.6.5, DEIS Page 3.6-57, seventh bullet	Applicant	Make immediate notification to the Washington Military Department's Emergency Management Division and to the WDFW Region 5 Habitat Program Manager if, at any time, as a result of proposed Project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills).	The Applicant agrees with this mitigation measure. This mitigation measure was included in the May 2016 ASC at sections 1.4.1.11 and 3.4.3.3.
3.6.5, DEIS Page 3.6-57, eighth bullet	Applicant	Revise the MMMP to include two additional observers to assist in monitoring the 6-mile zone where marine mammals could be affected by in-water vibratory pile driving.	The Applicant agrees with this mitigation measure. This mitigation measure was included in the May 2016 ASC at section 1.4.1.11 and section 3.4.2.3, page 3-88.
3.6.5, DEIS Page 3.6-57, ninth bullet	Applicant	Use only marine terminal loading area spot lighting during loading operations.	The Applicant agrees with this mitigation measure. This mitigation measure was included in May 2016 ASC at sections 1.4.1.11 and 3.4.3.3 with a provision that restrictions to times of illumination are permitted under federal regulation.
3.7.5 DEIS Page 3.7-8, first bullet	Applicant	Coordinate with NW Natural to perform a site-specific evaluation to determine the actual physical and financial aspects required for NW Natural to serve the proposed Facility.	As documented in the Applicant's DEIS comment letter, page 3-89, this coordination has occurred and is complete. Additional information was also provided to EFSEC in Response to item PD-43 of EIS Data Request 12. Applicant anticipates further coordination with NW Natural when working to finalize a service contract with NW Natural.
3.8.5. DEIS Page 3.8-18	EFSEC, BNSF, UTC and affected local jurisdictions	• EFSEC recommends further discussions or a diagnostic review with BNSF, UTC, and affected local jurisdictions concerning crossings along the rail corridor within Spokane, Cheney, Lyle, Pasco, Mesa, Bingen, and White Salmon to determine if these crossings are protected at the appropriate level. • Appropriate measures should be implemented to prevent pedestrian and vehicular accidents, incidents, injuries, and fatalities at passenger stations or at-grade crossings along the inbound rail route in consultation with EFSEC. Such measures include installing signs, signals, or other visual devices to warn of approaching trains; installing infrastructure at pedestrian and vehicular crossings to improve the safety of crossing railroad tracks; potential closures of at-grade crossings and/or grade separations; and installing fences to prohibit access to railroad tracks.	Applicant is willing to participate with local, state, and federal agencies and other responsible parties, as appropriate, in ongoing discussions or diagnostic review of existing rail crossing design and safety in the context of the existing regulatory framework for evaluation, prioritizing, and funding for crossing improvements, taking into account Applicant's proportionate share of total volume of rail traffic. Additionally in section 1.4.1.18, Applicant has proposed a voluntary Mitigation Fund that can be used to contribute the Facility's proportional share of the costs of additional mitigation efforts that address potential impacts that are attributable to the Facility or its operation.
3.9.5, DEIS Page 3.9 -23	Applicant	Develop and implement a Construction Communications Plan to inform the public and commercial operators of construction activities.	The Applicant commits to implementing a Construction Communication Plan. See the revised ASC, section 1.4.1.6a and section 2.16.6.
		Limit outdoor construction activity, including construction staging, to between 7 a.m. and 8 p.m., 7 days a week.	The Applicant agreed to this mitigation measure in the May 2016 ASC, section 4.1.1.3, provided waivers can be requested as currently practiced by the City for construction activity at the Port (see also the Applicant's comment letter to the DEIS at page 3-102, lines 3-21).
		House compressors and electric motors in metal-framed and metal-sided buildings with sound insulation designed into the wall thickness, as practicable.	The Applicant will use screw style or enclosed compressors with noise baffling. These design elements reduce noise. Based upon the use and location of electrical motors, it is not practicable nor warranted to locate all compressors and electric motors in enclosures with soundproofing, given the expected noise level from this equipment.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		Construct noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receptors.	Applicant does not intend to construct temporary noise barriers based upon the magnitude and limited duration of construction noise. The alternative noise reduction methods described throughout are adequate to address the impact
		Operate earthmoving equipment and site equipment on the construction lot as far away from vibration and noise-sensitive sites as possible.	Applicant will comply with this measure to the extent practicable to complete the construction.
		Operate stationary construction equipment (e.g., air compressors, portable or backup generators) as far away from vibration- and noise-sensitive sites as possible.	Applicant will comply with this measure to the extent practicable to complete the construction.
		Combine noisy operations to occur over the same time period. The total noise level produced would not be substantially greater than the level produced if the operations were performed separately.	Applicant will schedule construction operations within each area to comply with this mitigation measure to the extent practicable to complete the construction.
		Avoid use of an impact pile driver where possible in noise- and vibration-sensitive areas. Drilled piles or the use of a sonic or vibratory pile driver are quieter and cause lower vibration levels where the geological conditions permit their use.	Applicant agrees to this mitigation measures and will use vibratory pile driving to the extent possible and will use sound dampening devices, such as wooden blocks or HDPE, to reduce sound of impact pile driving.
		Use specially quieted equipment, such as quieted and enclosed air compressors and properly working mufflers on engines.	The Applicant will use screw style or enclosed compressors with noise baffling and will employ appropriate working mufflers on engines. These design elements reduce noise. Based upon the use and location of equipment, it is not practicable nor warranted to locate all noise generating equipment in enclosures with soundproofing, given the expected noise level from this equipment.
		Phase construction clearing, earthmoving, and ground-impacting operations so as not to occur in the same time period within the same vicinity. Unlike noise, the total vibration level produced could be substantially less when each vibration source operates separately.	Applicant agrees to schedule construction operations to address noise and vibration in each area to the extent feasible to comply with this mitigation measure and the mitigation above requesting operations be combined to reduce noise. .
3.9.5, DEIS Page 3.9 -23 and 24	BNSF	In addition to these mitigation measures identified for the Applicant, the following measures have been identified to reduce noise impacts from train traffic: • Establish quiet zones where conditions allow and close or replace at-grade crossings with grade-separated crossings to eliminate the need to sound horns to provide a warning of the approaching train. However, only the FRA can grant a quiet zone (BNSF 2015). • Reconstruct at-grade crossings to provide a grade separation between rail and vehicular traffic to eliminate noise from horns. See Section 3.14.5 for a discussion on mitigation for at-grade crossings. • Use wayside horns at the intersection instead of the louder locomotive horn to substantially reduce noise. A wayside horn causes less noise impact by focusing the warning sound only on the area where it is needed, such as near residential areas. • Use ballast on a guideway to reduce train noise 3 dB at-grade and up to 5 dB on aerial structures.	While responsibility for implementing FRA quiet zones is beyond the Applicant's control and are governed by Federal Regulation 49 CFR Part 222, the Applicant will support local community efforts regarding quiet zone approval, where desired and determined appropriate, pursuant to those standards. The specific items identified in these mitigation measures are governed by federal regulation and require FRA action or approval (FRA 2013).

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		• Install effective barriers to break the line of sight between the noise source and the receiver. Barriers are most effective when they are closest to either the source or the receiver. If possible, acquire limited property rights for the construction of sound barriers at the receiver. • Specify equipment for grade-crossing signals that sets the level of the warning signal lower where ambient noise is lower, that minimizes the signal duration, and that minimizes signal noise in the direction of noise-sensitive receivers.	
3.12.5, DEIS Page 3.12-25, first bullet	Applicant	Distribute the proposed schedule of construction activities to all potentially affected recreational sites within the proposed Facility study area so recreational users are aware of construction-related disruptions and can schedule activities accordingly to avoid disruption.	The Applicant agrees with this mitigation measure. This mitigation measure has been added as follows to the revised ASC at sections 1.4.1.15, Recreation: As part of its Construction Communication Plan (see section 2.16.6), the Applicant will distribute the proposed schedule of construction activities to all potentially affected recreational sites within the proposed Facility study area so recreational users are aware of construction-related disruptions and can schedule activities accordingly to avoid disruption. 2.16.6: Before the beginning of construction, the Applicant will develop and implement a Construction Communication Plan. The purpose of the plan is to provide timely communication to the public, City, County, EFSEC, and other appropriate state agencies (e.g., Parks and Recreation Commission, WSDOT) of major construction phases and the duration of temporary noise and surface transportation impacts. As part of this plan, the Applicant will distribute the proposed schedule of construction activities to all potentially affected recreational sites within 2 miles of the Facility so recreational users are aware of construction-related disruptions and can schedule activities accordingly to avoid disruption. And, 4.2.4.4. As part of its Construction Communication Plan (see section 2.16.6), the Applicant will distribute the proposed schedule of construction activities to all potentially affected recreational sites within 2 miles of the Facility so recreational users are aware of construction-related disruptions and can schedule activities accordingly to avoid disruption.
3.12.5, DEIS Page 3.12-25, second bullet	Applicant	Schedule quiet times (breaks in impact driving construction activities) to occur during some periods that correspond to hunting seasons at Shillapoo Wildlife Area – Vancouver Unit and make hunters aware of these quiet times.	Applicant will implement this mitigation measure if on-site noise monitoring results demonstrate the potential for noise at the Shillapoo Wildlife Area to exceed 90 db. Per the Applicant's monitoring plan, monitoring will take place at locations where it is expected that the construction noise 90db threshold (the threshold at which noise is potentially heard by wildlife and may cause some disturbance) may be reached, and where there is viable habitat.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
3.12.5, DEIS Page 3.12-26, first bullet	Applicant	Provide financial support for existing boater educational efforts being conducted by organizations, such as USCG Auxiliary – Buoy 10 Task Force and the numerous sheriff department marine patrols along the vessel corridor to help avoid potential commercial vessel/recreational boat conflicts during peak fishing seasons.	The Applicant agrees with this mitigation measure. The Applicant will participate in the Lower Columbia River Harbor Safety Committee efforts to develop additional boater safety educational outreach through programs, such as the PTP (Prevention through People) model used by the San Francisco Harbor Safety Committee. This mitigation measure was included in the May 2016 ASC, section 4.2.4.4.
3.13.3.3, DEIS Page 3.13-17, first paragraph.		Mitigation measures identified in section 3.6.5 to reduce impacts to aquatic species from wake stranding would also reduce this potential impact to cultural resources. Mitigation measures addressing wakes at section 3.6.5: • Develop mitigation for wake stranding and wake effect impacts in consultation with appropriate state and/or federal agencies. Examples might include the addition of fine-scale beach features, such as strategically placed logs or vegetation in susceptible areas to provide refuge from wakes for habitat types important to juvenile fish.	Please refer to the response to the DEIS mitigation measures at 3.6.5, DEIS, page 3.6-57, fifth bullet.
		• Reduce vessel transit speeds in areas that are more susceptible to wake stranding of juvenile fish due to shoreline geomorphology (e.g., near Sauvie Island; ENTRIX 2008).	Please refer to the response to the DEIS mitigation measures at 3.6.5, DEIS, page 3.6-57, sixth bullet.
3.13.5, DEIS Page 3.13-19	EFSEC	EFSEC will work with Indian tribes to obtain information on particularly sensitive fishing windows and to determine access points and travel routes to U&A fishing grounds along the rail and vessel routes to and from the Port from the Washington-Idaho border to the mouth of the Columbia River. This information will be used to assess whether unit train or vessel timing restrictions should be or could be implemented to reduce impacts to U&A access points and travel routes during certain times of the year.	Applicant will encourage BNSF to consult with tribes to develop appropriate strategies regarding safety of tribal fishing site access applicable to rail traffic generally.
3.14.5, DEIS Page 3.14-32, first and second bullets	BNSF, UTC, WSDOT, and affected local jurisdictions	• BNSF, UTC, WSDOT, and affected local jurisdictions should coordinate to identify the need for, and feasibility of, constructing new grade-separated railroad crossings in areas along the proposed rail routes where excessive gate downtimes and vehicular delays are anticipated. • UTC, WSDOT, and affected local jurisdictions should coordinate to evaluate railroad crossing locations that are considered by WSDOT to be operationally sensitive to increases in train traffic, to identify appropriate mitigation measures, possibly including upgrading passive crossings to active safety crossings, rerouting high-traffic routes to use existing grade-separated crossings, adding U-turns to allow drivers to easily access alternate routes, and/or installing grade-separated crossings (bridge or underpass). Both of these studies should be modeled after and coordinated with the study to be undertaken by the Washington State Legislature's Joint Transportation Committee (JTC) to investigate road-rail conflicts in Washington cities. The goal of the JTC study is to recommend a corridor-based process to prioritize projects addressing the impacts of increased rail	Please refer to the response to the DEIS mitigation measures at 3.8.5, DEIS, page 3.8-18.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		traffic. The study is scheduled to be completed by December 1, 2016 (JTC 2015).	
3.15.5, DEIS Page 3.15-15, first and second bullets	BNSF, UTC, WSDOT and affected local jurisdictions	• Encourage BNSF to make SECURETRAK (a real-time GIS tracking program for crude-by-rail trains for use by state and/or regional fusion centers) available to emergency response vehicles in areas with at-grade crossings along the proposed rail route in Washington. BNSF should provide grants to those jurisdictions that would require technology upgrades and training in order to effectively use SECURETRAK.	Applicant will encourage BNSF to continue to make SECURETRAK equipment and training available to emergency response entities along the rail corridor.
		• Investigate the need for and feasibility of constructing new grade-separated railroad crossings in cities along the proposed rail route to reduce impacts to emergency response times from increased train traffic and excessive gate downtimes. Such studies could be funded in part by BNSF as is currently being done for a mayor-appointed task force conducting a similar investigation in Edmonds, Washington (My Edmonds News 2015). Study participants should include BNSF, UTC, WSDOT, and affected local jurisdictions and emergency responders. See section 3.14.5 for a discussion of mitigation for at-grade crossings. This study should be modeled after and coordinated with the JTC study to investigate road-rail conflicts in Washington cities scheduled to be completed by December 1, 2016.	Please refer to the response to the DEIS mitigation measures at 3.8.5, DEIS, page 3.8-18.
3.16.5, DEIS Page 3.16-17	Applicant and BNSF	Coordinate with BNSF to schedule shipments to reduce congestion and delays for other trains using the Spokane-to-Pasco segment of the Columbia River Alignment to the extent possible.	Applicant will encourage BNSF and Facility customers contracting with BNSF for rail shipment of crude oil to the Facility to continue BNSF scheduling efforts to minimize rail-traffic impacts during peak traffic times to the extent possible, while also reducing rail-traffic congestion and delays on the rail network overall, as required in the previous mitigation measure.
3.16.5, DEIS Page 3.16-17	Applicant and BNSF	Coordinate with BNSF to schedule rail shipments to avoid travel through populated areas during peak traffic times to the extent possible to reduce unequable burden to environmental justice populations.	Applicant will encourage BNSF and Facility customers contracting with BNSF for rail shipment of crude oil to the Facility to continue BNSF scheduling efforts to minimize rail-traffic impacts during peak traffic times to the extent possible, while also reducing rail-traffic congestion and delays on the rail network overall, as required in the previous mitigation measure.
4.9.1, DEIS Page 4-116	Legislative Action	Implement the recommendations on prevention-based mitigation of crude-by-rail risks, prevention-based mitigation of crude oil marine transportation risks, and prevention-based mitigation of crude oil terminal facility risks included in the 2014 Washington State Marine and Rail Oil Transportation Study.	Implementation of these recommendations is ongoing. For example, the Legislature adopted ESHB 1449, which initiated several of the recommendations, including, directing Ecology to complete the following: evaluate vessel traffic management and safety in the Columbia River; contract to ensure completion of geographic response plans; and provide grants to emergency responders to assist with oil spill and hazardous materials response and firefighting equipment. Similarly, several recommendations have been implemented through newly adopted regulations, including WAC 480-62-300, which addresses the number of railroad inspectors; WAC 480-62-260, which allows a first-class city to request participation in the commission's crossing safety inspection program; and WAC 173-186, which requires railroads to complete contingency plans and participate in tabletop spill drills once every three years.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			Applicant will comply with all adopted statutes and regulations applicable to Facility operations both now and in the future. Additionally, Vancouver Energy supports working with the department of Ecology to identify a legislative remedy to apply the oil spill barrel tax to crude by rail terminals.
4.9.2, DEIS Page 4-116, first bullet	Applicant	Provide secondary containment for aboveground crude oil transfer pipelines at the proposed Facility to reduce the risk of spills to the environment.	The facility design includes secondary containment measures for aboveground crude oil transfer pipelines in accordance with 40 CFR 112.7(c). Based upon the requirements of 40 CFR 112.7(c), the Facility is providing secondary containment to contain drips and leaks up to 5 gallons contributing from localized damage to the pipeline, including corrosion, pinholes, and/or small leaks at fittings and flanges along the corridor. These releases will be identified and contained by the following measures: 1. Wraps installed around all fittings and flanges that will visually change color in the presence of hydrocarbons to detect drips and slow leaks at fittings before product can reach soils below. 2. Pipeline leak detection system meeting requirements of WAC 480-75-300. 3. Spill traps capable of retaining a minimum of 5 gallons of oil will be retrofitted on stormwater inlets immediately adjacent to the corridor on the downstream stormwater system.
4.9.2, DEIS Page 4-116, second bullet	Applicant	Implement the mitigation measures identified in section 3.1.5 to further reduce risks from seismically induced soil liquefaction.	Please refer to agreements under Earth Resources above.
4.9.2, DEIS Page 4-116, third bullet	Applicant	Require all tank cars used to transport crude oil to the proposed Facility to meet or exceed DOT-117 (or newer) specifications developed by PHMSA, FRA, or other appropriate regulatory authorities for the life of the Project.	Vancouver Energy had previously agreed to accept only tank cars for crude oil shipment into the Facility that meet or exceed the U.S. DOT-117 standards specified in Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains Rule (HM-251) as amended by the FAST Act and codified at 49 CFR 179.202 (including any related federal agency or congressional modifications to those standards). As stated in the May 2016 ASC, the Applicant's commitment applies to all tanks cars received at the Facility from start of operations, thus advancing the phase-in schedule authorized by the rule. In addition the Applicant agrees to receive only cars with 9/16-inch shell thickness and that comply with the Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains Rule (HM-251) as amended by the FAST Act, and codified at 49 CFR 179.202. Finally, in section 1.4.1.18 of the ASC, Applicant has identified a plan for performance based facility throughput limitations that can be imposed to further reduce the probability of the transportation risk pending demonstration of specified performance measures.
4.9.2, DEIS Page 4-116,	Applicant	• Coordinate with potentially affected first responder agencies and contribute support to implement a plan that would facilitate:	As indicated in the revised ASC, sections 1.4.1.14 and 4.1.2.2 (Local Fire Fighter Training) and in response to Data Request 12, item PD 49, the Applicant proposes the

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
fourth and fifth[16], bullets.		- Training for full-time and voluntary first responders with jurisdiction along the delivery rail route in Washington and in the vicinity of the Port in the appropriate methods for combating volatile crude oil fires and explosions. Training should be modeled after or coordinated with similar training programs to be developed by the University of Findlay, the International Association of Fire Chiefs, and the Center for Rural Development (in cooperation with the Security and Emergency Response Training Center in Pueblo, Colorado) using Assistance for Local Emergency Response Training (ALERT) grants awarded by PHMSA. - Purchase of additional crude oil spill and crude oil fire and explosion response equipment to be stationed at appropriate locations along the delivery rail route and at the Port.	following alternative mitigation to address the issue of first responder preparedness. This alternative mitigation seeks to better specify training opportunities and methods to identify and fill gaps: The Applicant will offer training to the Vancouver Fire Department (VFD) and Clark County firefighters at the Texas A&M Engineering Extension Service Emergency Training Services Institute. Additionally, as explained in section 1.4.1.18, Applicant has committed to a voluntary Mitigation Fund that can be used to cover backfill pay for emergency responders from those departments who attend that training. Because the number of training slots is limited in any one year, the Applicant will work with the City and other fire districts within Clark County to select and prioritize the training of firefighters. Training will be offered to no fewer than 9 to 12 firefighters per year as agreed upon in coordination with the City and County fire districts. Additionally, the Applicant and BNSF will continue to offer training to emergency responders in communities along the rail route to improve emergency response preparedness in the event of a rail incident. The Applicant and BNSF will conduct emergency response training and tabletop drills at three locations in the rail corridor as indicated in sections 1.4.1.14 and 4.1.6.2, including Spokane, Vancouver, and a location in the Columbia River Gorge to be determined. These training and tabletop exercises will serve two purposes: (1) extending the training opportunities to include a broad array of interested parties; and (2) identifying any gaps in response strategy, response equipment, resources, or training. The Applicant and BNSF will identify participants and the scope of the drills with EFSEC and Ecology coordination. Each of the three exercises would result in preparation of a report that identifies any gaps and recommendations on how stakeholders will implement changes to address gaps. It is anticipated that first responders can use the information obtained through these exercises to pursue federal and state funding to resolve any training or equipment gaps identified in these exercises and identified in the final reports. For example, several federal and state agencies administer grants that fund first responder planning, preparedness, and equipment needs for hazardous materials incidents, including the following: • Sec. 7203 of the recent FAST Act reforms an underutilized grant program administered by the United States Department of Transportation to get more resources to states and Indian tribes for emergency response, while also granting

[16] Bullet numbering is relative to the list starting on page 4-116 of the DEIS.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			states more power to decide how to spend their planning and training grants to improve emergency response. It helps better leverage training funding for hazardous materials employees and those enforcing hazardous material regulations. (FAST Act PL 114-94, 129 Stat 1312 (2015)). • PHMSA administers a Hazardous Materials Grant Program that consists of several emergency preparedness grants, including Hazardous Materials Emergency Preparedness (HMEP) Planning Grants that fund efforts to develop, improve, and carry out emergency plans under the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA); HMEP Training Grants that fund efforts to train public sector employees to respond to accidents or incidents involving the transport of hazardous materials; Supplemental Public Sector Training (SPST) Grants that fund national nonprofit fire service organizations to train instructors and conduct hazmat response training programs for individuals with a statutory responsibility to respond to hazmat accidents and incidents; and Hazardous Materials Instructor Training (HMIT) Grants that provide funds to nonprofit employee organizations for expertise in conducting training programs for hazmat employees. • The Federal Emergency Management Administration (FEMA) administers several grants designed to facilitate first responder preparedness and training, including Staffing for Adequate Fire and Emergency Response (SAFER) Grants, which provide funding directly to fire departments and volunteer firefighter interest organizations to help increase or maintain the number of trained, "front line" firefighters available in their communities; and Assistance to Firefighters Grants that provide financial assistance to help fire departments, nonaffiliated Emergency Medical Service organizations and State Fire Training Academies attain needed resources to protect the public, train emergency personnel, and foster interoperability. • Ecology offers equipment response cache grants to emergency responders for oil and hazardous materials response equipment, firefighting public safety equipment, and training. The Applicant believes that this alternate mitigation, including the three specific exercises, will provide the appropriate structure to identify specific equipment gaps and the appropriate venues and responsibilities to fill the gaps. In addition, in section 1.4.1.18, Applicant has identified a plan for performance based facility throughput limitation that can be imposed to further reduce the probability of the transportation risk pending demonstration of specified performance measures. Finally, in section 1.4.1.18 of the ASC, Applicant has proposed a voluntary Mitigation Fund that can be used to contribute the Facility's proportional share of the costs of additional mitigation efforts that address potential impacts that are attributable to the Facility or its operation.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			The proposed mitigation will supplement ongoing developments in federal, state, and Ecology regulations and industry efforts that are designed to address this issue and further bolster first responder preparedness to hazardous materials incidents more generally. For example, as indicated in item PD-49 in the response to DR 12, because the issuance of the DEIS various federal and state requirements have been enacted regarding emergency response planning and spill response preparedness with respect to rail transportation of crude oil. For example, Ecology adopted Chapter 173-185 WAC, Oil Movement by Rail and Pipeline Notification and Chapter 173-186 WAC, Oil Spill Contingency Plan – Railroad, respectively on August 24 and 31, 2016. Additionally, BNSF has purchased a new foam trailer for Bingen to supplement its robust system of existing response equipment caches. And the Applicant has participated in a training conducted by the United States Army Corps of Engineers (USACE) with BNSF and the UPRR on September 21-22, 2016 to train USACE staff to exercise one or more Mid-Columbia GRP booming strategies. As a result of these regulatory requirements and voluntary ongoing coordination and training by and between local, state, and federal agencies and rail and marine carriers, gaps will continue to be identified and addressed on an ongoing basis.
		• Provide comprehensive instruction and training for VFD in the design, operation, and interaction with the proposed Facility's fire protection system. Additional specific training needs include annual training in crude oil transshipment response at a marine terminal, industrial rescue, water response, industrial fire suppression, flammable liquids handling and fire suppression, and foam application in a live fire event.	The alternative mitigation proposed above addresses training for the VFD. More generally, the training for VFD will include training on the design, operation, and interaction with Facility fire protection system. That more detailed training on the Facility fire protection system will occur as a normal part of design review, construction and commissioning of the Facility, as well as through ongoing training activities.
4.9.2, DEIS Page 4-117, sixth and seventh[17] bullets.	Applicant	• Provide support for additional research, technology, and equipment for responding to spills of heavy crude, such as dilbit. • Develop appropriate response strategies for cleaning up spills of heavy crude oil prior to transporting dilbit on the Columbia River.	Applicant has addressed this potential risk such that the additional mitigation measure is not required. Applicant's spill response plan includes response strategies adequate to address the full range of API gravity of crude oil that will be handled at the facility. This includes oil of API gravity between 15-45. Crude oil known as "dilbit" is included at the lower end of that range. In addition, as described in the Applicant's DEIS comment letter and in the May 2016 ASC, the Applicant conducted a tabletop exercise to test the response strategies in the Facility spill response plan. That drill confirmed that sufficient response resources are available to respond to a spill of crude oil within the range that will be handled at the Facility (i.e., 15-45 API gravity). More generally, as explained on page 4-86, lines 38-39 and page 4-87, lines 1-19 of the Applicant's comment letter to the DEIS, the scientific data and practices relative to responding to spills of heavier crude is well established.

[17] ID

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			Even though it is not required to address a spill of crude oil from the Facility, the Facility Spill Response Plan and the MFSA Vessel Response Plan each include strategies and resources to respond to sinking oils that are heavier than the range of crude oil that will be handled at the Facility. Specifically, the Facility Spill Response Plan includes contracts with Oil Spill Response Organizations (OSROs) that have capabilities and resources to respond to spills of sinking oils that have a heavier (i.e., lower) API gravity than those that will be handled at the facility. Similarly, the MFSA plan currently includes plans and response capabilities adequate to respond to spills of products, such as bunker fuel, that are heavier than the oils that will be handled at the Facility. Finally, in section 1.4.1.18 of the ASC, Applicant has identified a plan for performance based facility throughput that can be imposed to further reduce the probability of the transportation risk pending demonstration of specified performance measures.
4.9.2, DEIS Page 4-117, eighth[18] and ninth bullets.	Applicant	• Contribute to all updates of the Lower Columbia River GRP and other applicable Northwest GRPs in partnership with Ecology, ODEQ, USCG, and EPA for the lifetime of the proposed Facility to address the type and amount of crude oil moving to and from the proposed Facility. • Work with Ecology, ODEQ, and others to develop response strategies for environmentally sensitive areas on the Lower Columbia River and along the rail corridor within the state for inclusion in the Lower Columbia River GRP and reference in the Applicant's oil spill contingency plan.	Applicant will support ongoing Ecology-led efforts to update relevant Columbia River GRPs and will encourage Ecology to include tribal input in those updates. In addition, Applicant has offered to sponsor with BNSF three incident response drills as described in DEIS mitigation measures at 4.9.2, DEIS, page 4-116, fourth and fifth bullets that are intended to evaluate efficacy of existing GRPs and to identify any modifications deemed necessary to respond to incidents that may be associated with transport of crude oil to the Terminal. As an operating Terminal on the Lower Columbia River, Applicant agrees to test and update GRPs if needed, and in some cases, purchase and pre-stage equipment if necessary to update the GRP in question. Tesoro and BNSF recently did this at the McNary Dam and will be submitting changes to the GRP.
4.9.2, DEIS Page 4-117, tenth[19] bullet.	Applicant	Retain a licensed engineer to perform an independent engineering analysis and feasibility study to improve oil recovery in the case of a spill during vessel loading at the dock. The study would determine the number of days it is safe and effective to pre-boom oil transfers and would identify site-specific improvements to maximize successful pre-booming. The Applicant should submit this study to EFSEC. If improvements to allow for pre-booming are determined to be unfeasible, the Applicant would be required to implement alternative measures, including but not limited to, the following measures to mitigate the absence of preventative boom in the water during transfers: stage an appropriate number of dedicated response vessels, deploy additional containment and cleanup equipment, and station trained personnel at the terminal dock and/or at a nearby staging area during oil transfers.	As indicated in the revised ASC, sections 1.4.1.5 and 2.10.2.6, the Applicant proposes the following alternate mitigation to respond to EFSEC questions about the frequency with which the Applicant will be able to employ pre-booming strategies: The Applicant will comply with the pre-booming requirements of WAC 173-180-224 and provide spill response equipment at Area 400 Marine Terminal as described in detail in section 2.10.2.6. The Facility boom boat will be deployed during the entire duration of vessel loading operations, including when pre-booming cannot be conducted due to conditions identified in the pre-booming safe and effective threshold determination.

[18] ID
[19] ID

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			The Applicant will retain a licensed professional to gather and assess relevant weather and current data to determine, to the best extent possible and based on historical trends, the number of days per year conditions are projected to exceed two thresholds relevant to transfer operations: (1) the "safe and effective threshold" identified in Table 1 and Figure 2 of Appendix K (Safe and Effective Threshold Determination Report) of the Preliminary Operations Facility Oil Handling Manual; and (2) the conditions that determine when transfer operations must cease, as specified in Table 4 of the preliminary Operations Facility Oil Handling Manual. Additionally, Applicant will install equipment at the dock that measures wind speed, wind direction and current speed to facilitate ongoing compliance with these thresholds and to continue monitoring frequency with which conditions exceed these thresholds after Project construction. That data may be incorporated when assessing regularly required updates of the Operations Facility Oil Handling Manual and other spill planning documents. The Applicant believes that this alternate mitigation will provide requested data and conforms to the federal and state regulatory framework governing pre-booming. The safe and effective threshold in the preliminary planning documents is set at 1.5 knots and is based on site-specific conditions and the capacity of the boom technology that will be used for pre-booming to withstand currents. The threshold of 1.5 knots is in excess of the average current on the Columbia River for most of a calendar year. Based on experiences at Tesoro's nearby existing transfer facility, it is anticipated that the study contemplated by the proposed mitigation will confirm that conditions at the Facility site are regularly below the safe and effective threshold. Importantly, the regulations expressly permit operators of transfer facilities to continue transfer operations when conditions exceed the safe and effective threshold, so long as alternative measures are in place. *See* WAC 173-180-221; WAC 173-180-222. To address unlikely situations in which the current or wind speeds exceed the safe and effective threshold such that pre-booming will not occur but do not exceed the threshold at which Applicant must cease operations, the Applicant will comply with regulatory requirements to ensure that alternative measures are in place to respond to a spill when conditions prevent safe and effective pre-booming. Compliance with these requirements is explained in item PD-34 in the Applicants' response to DR 11. In addition to the requirements set forth in regulations, the Applicant has bolstered the ability to respond to a spill in currents that exceed the safe and effective threshold by purchasing and making available a "current buster" boom that can be operated in currents up to 5 knots.
4.9.2, DEIS Page 4-117,	Applicant	Conduct a study to identify an appropriate level of financial responsibility for the potential costs of response and cleanup of oil spills, natural resource damages, and costs to state and affected counties and cities for their response actions to reduce the risks and impacts from an oil spill. The study should be conducted prior to commencing operations and address the factors in RCW 88.40.025, Evidence of Financial Responsibility for Onshore or	The Applicant supports the DEIS mitigation measure that provides for a study to evaluate the appropriate level of financial assurances and the appropriate mechanism(s) to provide assurances and ensure timely access to funds if an incident occurs. This is consistent with mitigation proposed in the Grays Harbor Terminal EIS.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
eleventh[20] bullet.		Offshore Facilities, including a reasonable worst-case spill volume, the cost of cleaning up the spilled oil, the frequency of operations at the Facility, prevention measures employed by the Facility that could reduce impact through spill containment, immediate discovery and shutoff times, and the damages that could result from the spill (including restoration). The study should identify any constraints related to the commercial availability and affordability of financial responsibility. Based on the study, EFSEC shall determine the appropriate level of financial responsibility and require the Applicant to demonstrate their financial responsibility to the satisfaction of EFSEC. Proof of financial responsibility would be included as documentation in the Applicant's contingency plan.	The Applicant has conducted a regulatory and insurance industry assessment of probable worst case scenarios for similar crude oil storage and marine terminal operations as well as the amount of financial assurances provided by other terminals and concluded that the level of financial assurances appropriate to respond to an incident, including bodily injury, property damage, personal injury and pollution events, (including cleanup costs and natural resource damages), arising in any way from the Applicant's occupancy of and operations at the Facility site is available in the insurance market, as described in the testimony of Michelle Hollingsed during the adjudication. [Vol. 8, pp. 1708—1785 and Vol. 21, pp. 4913—4976 [Hollingsed] The Applicant will provide the insurance industry peer incident information as part of the study to be conducted when EFSEC is ready to initiate the study. Without intending to pre-determine the outcome of that financial assurance study recommended in the DEIS, the Applicant proposes insurance coverage for these liability risks in an amount consistent with the amounts required by regulation in California for similar facilities and operations (less than or equal to a maximum of $300 million). The Applicant will fully comply with the statutory requirements for Worker's Compensation as required with respect to all employees performing work in the subject property and premises. The Applicant also will insure its exposure with Employer's Liability insurance (Washington Stop Gap Liability) in an amount not less than $1 million. The Applicant will also provide property damage and business interruption insurance in an amount sufficient to cover the cost to reconstruct the Terminal facility and continue operations. The insurance will include coverage extension for the perils of earthquake, windstorm and flood coverage. The insurance will contain an agreed valuation provision in lieu of any co-insurance clause, an ordinance and law endorsement and debris removal coverage. The Applicant commits to utilize contracts designed to confirm a seamless chain of care, custody and control so that no gaps in coverage exist between responsible parties in the supply chain (rail, Terminal, marine vessel). All policies will include coverage for acts of terrorism and earthquake-related events. The insurance will be provided by insurance companies that have a financial strength rating of at least "A-, VII" as rated by A.M. Best. Prior to commencing work, upon each renewal and upon request, Applicant will provide to EFSEC acceptable certificates of insurance evidencing the required insurance policies. Rail and Marine Vessel financial assurance requirements are the responsibility of those carriers, as described in the May 2016 ASC, section 1.3.

[20] ID

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
4.9.3, DEIS Page 4-117, first bullet	Ecology	Ecology should verify that the appropriate regulatory contingency spill planning volume used to develop appropriate spill containment at the proposed Facility is "the entire volume of the largest aboveground storage tank on the Facility site complicated by adverse weather conditions…" (the largest aboveground storage tank capacity at the proposed Facility is 375,000 bbl) or if "…a larger or smaller volume is more appropriate given a particular facility's site characteristics and storage, production, and transfer capacity" (WAC 173-182).	The applicant supports contingency spill planning in compliance with WAC regulatory requirements.
4.9.3, DEIS Page 4-117, second bullet[21]	EFSEC, the Applicant, and Other Agencies and/or Private Organizations	The Applicant should coordinate with EFSEC and the City of Vancouver to ensure that an independent technical review of the proposed Facility's fire protection systems is conducted at the 100 percent (final) design stage, consistent with the recommendations in Appendix B.	Applicant understands this mitigation measure applies to Facility fire protection system, in particular, the Facility recommendations in Appendix B, and agrees to implement this mitigation measure as part of construction plan review and approval. This mitigation measure was included in the May 2016 ASC, section 4.1.2.2, and is updated as follows: In addition to the Fire Protection Plan, a fire protection engineer licensed in the state of Washington will be responsible for the 100 percent design documents, shop drawings, supervision of the installation contractor to ensure system installation meets design requirements, and final commissioning/acceptance testing of the fire suppression and detection systems for these facilities. The respective fire protection engineer will work closely with the fire department and local code enforcement agencies to ensure the systems are code compliant and within the limitations of the codes and standards adopted by the local jurisdiction applicable to these facilities.
4.9.3, DEIS Page 4-118, third bullet[22]	Applicant and MFSA	The MFSA, with assistance from the Applicant, should update the existing MFSA VRP to: • Address a Handymax regulatory WCD volume of 319,925 bbl (Appendix J, Table 3) • Expand the plan's current focus on vessel shipments of refined petroleum products to include shipments of crude oil of various types on the Columbia River. • Mandate that all vessels loading at the proposed Facility adopt the MFSA VRP.	MFSA is currently updating the VRP, which is now available for public review and comment. The Applicant supports MFSA's revisions to the plan. The MFSA plan currently covers products with API gravity as low as 8 and lists contractors that are capable of responding to sunken oil. Accordingly, no further changes to the plan to address potential spills of crude oil of various types to be handled at the Facility. Applicant will work with MFSA to add appropriate resources to increase the planning standards. MFSA is responsible for submitting the revisions to Ecology for approval. Until that time, vessels calling at the Facility are precluded from carrying in excess of the planning standard. Applicant proposes a revision to the final bullet point as follows:

[21] Bullet numbering is relative to the list beginning at the bottom of page 4-117 of the DEIS
[22] Id

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			− Mandate that all vessels loading at the proposed Facility obtain coverage from an approved VRP such as the MFSA VRP State law mandates that all vessels calling at Ports must have a state-approved VRP. MFSA is one of the umbrella organizations that offer such plans. Some companies, such as Chevron, provide their own state-approved plan. While most vessels will choose to operate under MFSA's plan, the mitigating condition should not preclude a customer from using another approved VRP.
4.9.3, DEIS Page 4-118, fourth bullet[23]	EFSEC, the Applicant, and Other Agencies and/or Private Organizations	The Applicant and EFSEC should coordinate with the USCG, Lower Columbia River Harbor Safety Committee, Ecology, ODEQ, Columbia River Bar Pilots, and Columbia River Pilots to ensure that existing safety procedures and vessel traffic management systems are adequate to accommodate 365 additional crude oil vessels per year, primarily of the Handymax vessel size. These procedures should address at a minimum: • Safe speeds for laden tank vessels carrying crude oil and other vessels while in the traffic lane. • Appropriate capacities with regard to the Columbia River channel for laden tank vessels carrying crude oil. • Minimizing of vessel traffic and anchorage maneuvers during outbound transits.	Applicant has completed a Vessel Traffic Risk Assessment and the state is currently completing a similar study. Applicant is willing to participate in these and other efforts stated in this mitigation measure. The Applicant will coordinate with these entities regarding vessel traffic and vessel handling on the Columbia River to determine if any revisions to safety protocols are appropriate. See Applicant's DEIS comment letter at page 4-88. Finally, in section 1.4.1.18 of the ASC, Applicant has identified a plan for performance based facility throughput that can be imposed to further reduce the probability of the transportation risk pending demonstration of specified performance measures.
DEIS Page 4-118, fifth bullet[24]	Applicant EFSEC, the Applicant, and Other Agencies and/or Private Organizations	EFSEC should coordinate with Ecology, the Applicant, and vessel operators to revise Project-related vessel operation requirements based on the findings of Ecology's upcoming Columbia River vessel traffic risk assessment, required by ESHB 1449, as appropriate.	Applicant agrees with this mitigation measure and is participating in the committee convened by Ecology. In addition, the Applicant will revise Project-related vessel operations to be consistent with any requirements identified in Ecology's upcoming Columbia River Vessel Traffic Risk Assessment that are ultimately adopted by statute or regulation. See Applicant's DEIS comment letter at page 4-88.
4.9.3, DEIS Page 4-118, sixth bullet[25]	EFSEC, the Applicant, and Other Agencies and/or Private Organizations	EFSEC and the Applicant should communicate with LEPCs along the rail corridor and in the vicinity of the proposed Facility to determine or update the following information: LEPC contact information (phone, e-mail, and website), county/cities included in the LEPC plans, date of last LEPC plan update, regularity of LEPC meetings, LEPC funding status, LEPC emergency response training status, and components of LEPC emergency plan, including dangers and/or responses specifically affecting low-income or minority populations in the LEPC area.	Applicant is willing to participate in these efforts and expects LEPCs and LEPC information to be included in the three emergency response drills described in the response to 4.9.2, DEIS Page 4-116, fourth and fifth bullets above.

[23] Id
[24] Id
[25] Id

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
4.9.3, DEIS Page 4-118 seventh bullet[26]	EFSEC, the Applicant, and Other Agencies and/or Private Organizations	EFSEC and the Applicant should coordinate with the State Fire Defense Committee to update the Washington State Fire Services Resource Management Plan to ensure that the plan can facilitate the provision of adequate mobilization of personnel trained to address crude oil spill, fire, and/or explosion incidents anywhere along the rail and vessel corridors and at the proposed Facility, and to ensure that the plan can facilitate the provision of adequate mobilization of personal protective equipment and response equipment for these incidents.	The Applicant is willing to participate in this coordinated planning effort and expects the information received from the three planning drills will provide necessary information for this planning effort.
4.9.3, DEIS Page 4-118, eighth bullet[27]	EFSEC, the Applicant, and Other Agencies and/or Private Organizations	EFSEC, the Applicant, and the rail transporter of crude oil should coordinate with the State Fire Defense Committee, LEPCs, and local emergency responders along the rail corridor to ensure the development of specific evacuation plans for each residential community of greater than 50 residents within 0.25 mile of the rail route and within 1 mile of the proposed Project at the Port. This plan should include written instructions to all residents and emergency communication protocols for them to follow in the event of a crude oil spill, fire, or explosion event.	The Applicant is willing to participate in this coordinated planning effort following project approval and expects the information received from the three planning drills will provide necessary information for entities deemed necessary, in Washington along the rail route, to develop specific evacuation plans.
2.1, App B, Page 2-1	Applicant	<u>Area 200</u> 1. Provide containment calculations and capacities of containment pans and tanks.	1. The Applicant has complied with this mitigation measure. Please refer to the Applicant's 27 May 2016 NPDES response letter Section 3. The containment tanks have cumulative capacity of 1,500 bbl, the rail containment pans and surge tanks have a capacity of 69 bbls, and the concrete trenches have pump basins have a capacity to contain 33,400 bbls.
		2. Provide redundant auxiliary diesel fire pump in addition to the primary pump.	2. The Applicant is providing separate pumps in each area and fire department connections in each area that provide a level of redundancy that is adequate. Redundant auxiliary diesel pumps in each area are not warranted, as described in the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, Section 3.3, Fire Pumps and Emergency Power Supply, page 3-5 Appendix A, Section 3.3, page 3.
		3. Provide a second detection system to activate alarms prior to actual foam release and to provide fire detection in areas not protected/covered by heat detection strips.	3. The primary fire detection system is state of the art and robust. Failure of that system, no matter the cause, results in system shutdown and activation of fire system. Accordingly, a second detection system is not warranted as further explained in the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 4, Section 2.1, Facility Area 1 200 – Rail Unloading, page 2-1, bullet 3. The only areas not covered by heat detection strips in Area 200 are the offices and e-houses in which the fire risk is low. Those areas are equipped with smoke alarms.
		4. Provide specific electrical hazard classification boundaries to confirm compliance with Class I Div. 1 and Div. 2 installation requirements.	4. Applicant agrees to complete this mitigation upon completion of final design. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 3: "…the Applicant commits to reviewing the

[26] Id
[27] Id

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			electrical hazard classification areas based on final Facility design. Further, these classification areas will be evaluated in compliance with applicable National Fire Protection Association (NFPA) standards as detailed below..."
2.2, App B, Page 2-2	Applicant	<u>Area 300</u> 1. Provide tank dike containment calculations and stormwater containment system details with block valves and isolation operation methods noted.	1. The Applicant is providing the data requested by this mitigation measure. The Applicant agrees to provide final calculations and stormwater system description with submittal of the construction drawings. The tank dike containment area was modeled using Civil 3D. The available volume within the containment area was calculated to be 2,929,564 ft^3. The total volume of 110 percent of the storage tank plus a 100-year 24-hour storm event totals 2,532,788 ft^3. (R&M Engineering 2015) The stormwater system within the containment area includes block valves for each intermediate berm, a block valve located on the downstream side of the control structure, and stormwater is only capable of being evacuated from the containment dike through the use of a manually operated pump station. Contents of the containment area cannot be released from the containment area without manual intervention (NPDES ER)
		2. Provide clarification of the operation of the dike location monitors.	2. Applicant has completed this mitigation. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 5, Section 2.2, Facility Area 300 – Storage Area, page 2-2, bullet 2, wherein the applicant provided information regarding the operation of the monitors.
		3. Provide redundant auxiliary diesel fire pump in addition to the primary pump.	3. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, second bullet point.
		4. Provide additional fire detection systems to monitor and alarm tank external areas.	4. The Applicant does not propose additional mitigation. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 5, Section 2.1, Facility Area 300 – Storage Area, page 2-2, bullet 4, wherein the fire detection systems are described.
		5. Provide specific electrical hazard classification boundaries to confirm compliance with Class I Div 1 and Div 2 installation requirements.	5. Applicant agrees to complete this mitigation upon completion of final design. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 3: "…the Applicant commits to reviewing the electrical hazard classification areas based on final Facility design. Further, these classification areas will be evaluated in compliance with applicable NFPA standards as detailed below..."
2.3, App B, Page 2-2	Applicant	<u>Area 400</u> 1. Provide revised foam monitor details, including for proper height for the draft range of expected vessels.	1. Applicant has completed this mitigation. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 6, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 1, where it is explained that the height of the monitors has been provided.
		2. Provide locations of the manual release points, including some to be located on shore.	2. Applicant has completed this mitigation. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 6, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 2, where it is explained that manual activation stations have been provided.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		3. Provide spill containment at the dock in addition to the floating boom for the vessels, including curbing around the platform, all-welded (no flanges) oil piping over the water, and a slop tank.	3. The Applicant has incorporated this mitigation in the Facility design. Please refer to the Applicant's DEIS Comment Letter, Appendix B, Fire Protection Assessment Report, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 3. Spill containment at the dock has been provided as described in section 2.3.7.2 of the final commitments and revisions. The oil transfer pipeline is fully welded as described in section 2.10.2 of the May 2016 ASC.
		4. Provide redundant auxiliary diesel fire pump in addition to the primary pump.	4. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, second bullet point.
		5. Provide clarification on whether fire flow capacity is adequate considering comparable California standards (CA MOTEMS Chapter 31F, Section 8) would require 3,000 gallons per minute (gpm) fire flow for this terminal. If flow capacity is limited by the supply system, consider adding a vertical submersible river pump.	5. Please refer to the Applicant's DEIS Comment Letter, Appendix B, Fire Protection Assessment Report, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 5, where it is explained why the fire flow provided meets applicable requirements and that a vertical submersible pump is not required. The applicant intends to provide clarification on final fire flow capacity with final design, and if EFSEC determines that capacity is not adequate, the applicant would agree to add a vertical submersible river pump.
		6. Provide fire alarm detector type, locations, and functions.	6. Applicant has submitted this information in the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 6, wherein information is provided regarding the fire alarm detector type, locations, and functions. The Applicant will provide final details in construction drawings.
		7. Provide emergency shutdown valve details on dock, and ensure that surge pressures stay within allowable piping pressure limits.	7. Applicant has submitted this information in the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 7. Information has been provided regarding the emergency shutdown valve details on dock and that surge pressures stay within allowable piping pressure limits. The Applicant will provide final details in construction drawings.
		8. Provide required life-safety information, including portable extinguishers, hose reels, egress ladders to the water, life rings, etc.	8. Applicant has submitted this information in the Applicant's DEIS comment letter, please see comments to Appendix B: Fire Protection Assessment Report, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 8, where the information regarding portable extinguishers, hose reels, egress ladders to the water, life rings, etc. has been provided. The Applicant will provide final details in construction drawings
		9. Provide information and details for vessel drift envelope monitoring and protection.	9. Applicant submitted this information in the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, Section 2.3, Facility Area 1 400 – Marine Terminal, page 2-2, bullet 9, where the consideration of the vessel drift envelope has been presented.
		10. Provide specific electrical hazard classification boundaries to confirm compliance with Class I Div. 1 and Div. 2 installation requirements.	10. Applicant agrees to complete this mitigation upon completion of final design. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 3: "…the Applicant commits to reviewing the electrical hazard classification areas based on final Facility design. Further, these classification areas will be evaluated in compliance with applicable National Fire Protection Association (NFPA) standards as detailed below..."

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
2.4, App B, Page 2-3	Applicant	<u>Area 500</u> 1. Provide locations of isolation valves and emergency shutdown valves on all main pipelines.	1. The Applicant submitted this information in the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 7, where the location of isolation valves and other pressure sensing equipment has been provided.
		2. Provide details on pipeline inspection and testing methods, including frequency of inspections and testing.	2. The Applicant submitted this information in Appendix B.3: Operations Spill Prevention Control and Countermeasures Plan, Section 4.8, page 4-3 for a description of aboveground pipeline inspections. Please refer to Appendix B.5: Facility Oil Handling Manual, Appendix H: General Inspection, Maintenance, and Product Control Procedures, Annual Procedures, page H-2 for a description of underground pipeline inspections.
		3. Provide pipeline thermal stress analysis methods, surge analysis methods, and protective measures.	3. The piping systems were designed in accordance with ASTM B31 Design Standards which are designed to include these measures.
		4. Provide piping design and welding specifications, welder qualifications, and weld inspection methods.	4. The Applicant submitted this information in the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 3, where the description of welding specifications and weld inspection methods has been presented.
2.5, App B, Page 2-3	Applicant	<u>Area 600</u> 1. Provide information on any special fire detection systems required for boiler installations.	1. There are no special fire detection systems required for boiler installations per the manufacturer.
		2. Provide additional fire protection design information when available later in the design.	2. The Applicant agrees with this mitigation measure. Final details will be provided in the construction drawings.
2.5, App B, Page 2-3	Applicant	<u>Off-site Water Supply System</u> 1. Additional technical and supporting data from the City would be useful to support the City's claim.	1. The Applicant will verify these preliminary off-site water system conclusions during the development of final project design.
		2. The water supply system from the City to the western area of the Port is not looped for redundancy.	2. The Applicant has committed to installing a water line loop, at no cost to the City, as presented in the May 2016 ASC, section 4.1.2.2 and added to the revised ASC at section 1.4.1.10 to address available flow: <u>As an additional mitigation measure, the Applicant has committed to installing a water line loop, at no cost to the City, to address available flow.</u>
		3. The City's single supply main to the proposed Facility area reduces to 12 inches before increasing again to 24 inches. This is a flow bottleneck for the high-volume flows required at the Facility.	3. See the response to bullet one and two above.
2.7, App B, Pages 2-3 to -4	Applicant	<u>Fire Department Resources</u> 1. For train derailment oil spills, VFD reported being deficient in staffing levels, training, hard boom, sorbent boom, fire apparatus (unspecified), overhead support and equipment to support an extended operation, aqueous film-forming (AFF) foam, personal protective equipment, foam applicators, and appropriate air monitors. 2. VFD reported that any incident on the rail line would have an impact on their ability to respond to and maintain the adopted level-of-service for the rest of their response area.	Please refer to the response to DEIS mitigation measures at 4.9.2, DEIS, page 4-116, fourth and fifth bullets.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
2.8, App B, Page 2-4		Fire Department Response – Proposed Facility 1. The Applicant needs to provide fire department connections on the Facility side of the fire protection system so that VFD can connect to and augment that system.	1. Applicant has agreed to this and recommends the following condition: Final system design shall include VFD connections on the Facility side of the fire protection system that will allow VFD to augment that system with back-up water and/or foam supply. See Applicant's DEIS comment letter at Appendix B: Fire Protection Report Section 6.2, Compatibility of Hose and Hydrants, Hydrant Locations, page 6-1, wherein the location of fire department connections was explained. Please also refer to the response to PD-45 in EIS Data Request 12.
		2. The Applicant should be required to provide comprehensive instruction and training for VFD in the design, operation, and interaction with the Facility fire protection system.	2. The Applicant has agreed to this, and recommends the following condition: Applicant shall provide comprehensive instruction and training for VFD in the design and operation of the proposed Facility fire protection system.
2.9, App B, Page 2-3		Fire Department Response - Rail 1. There are at least 27 at-grade rail crossings along the rail route within the VFD response area that present identifiable risks for residents and industrial tenants along the rail route in Vancouver. 2. Poor visibility for drivers combined with restrictions on sounding train horns creates additional crossing hazards for residents. 3. Access by VFD to riverfront homes is at risk due to limited rail crossing locations, leading to the potential need for water access response methods in case of a rail derailment, or even a nonemergency stoppage of a train. 4. VFD has reported the need for additional staff, training, and equipment to effectively respond to any size rail oil spill of 100 barrels or larger. 5. It is recommended that a formal at-grade crossing study be undertaken to analyze these risks in a detailed manner and to identify appropriate recommendations. 6. It is also recommended that a study be undertaken to determine if a reduction in train speeds would be warranted for crude oil trains traveling through at-risk areas within the VFD response area.	1. The Applicant is willing to participate with local, state, and federal agencies and other responsible parties, as appropriate, in ongoing discussions or diagnostic review of existing rail crossing design and safety in the context of the existing regulatory framework for evaluation, prioritizing, and funding for crossing improvements, taking into account Applicant's proportionate share of total volume of rail traffic. Additionally, in section 1.4.1.18 of the ASC, Applicant has identified a plan for performance based facility throughput that can be imposed to further reduce the probability of the transportation risk pending demonstration of specified performance measures. Section 1.4.1.18 of the ASC, also proposes a voluntary Mitigation Fund that can be used to contribute the Facility's proportional share of the costs of additional mitigation efforts that address potential impacts that are attributable to the Facility or its operation. 2. Same response as No. 1. 3. With specific respect to water response effort, note the MFSA grant to address marine fire response efforts, via Fire Protection Agencies Advisory Council (FPAAC) 4. Please see the response to 4.9.2 DEIS, page 4-116, fourth and fifth bullets. 5. Same response as No. 1 above. 6. BNSF currently operates unit trains of crude oil in high threat urban area at speeds below federal requirements. Additionally, trains on Port rail lines are restricted to 10 miles per hour.
2.10. App B, Page 2-5		Fire Department Response – Vessels 1. Specialized training for VFD for vessel fires would be necessary, particular related to the berth layout and operation at the Marine Terminal.	Please refer to the response to DEIS mitigation measures at 4.9.2, DEIS, page 4-116, fourth and fifth bullets for training and a process for identifying gaps for the VFD. These training opportunities will supplement ongoing efforts to improve first responder capabilities, including marine response. For example, MFSA recently obtained a grant to help update planning for the FPAAC, a multiagency, regional entity responsible for marine fire responses in the lower Columbia River.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
3.3, App B, Page 3-5		1. At this time, the Applicant has no plans for the Project to have a backup power system. As stated in the Fire Protection System Review (Appendix A), some emergency power must be provided for control and operation in order to monitor and allow safe shutdown of all systems, such as valves, pumps, boilers, etc. Emergency power is also required for critical lighting for safe personnel movement and egress.	Please see the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, second bullet point. In the event of an electrical outage, the facility systems default to a "safe mode" meaning that in the systems will all safely shutdown at the time of the outage The fire alarm and monitoring systems have continuous battery back-up systems capable of monitoring and activating the alarm systems during power failures. In the event of a power failure for any reason, leased portable power generators (i.e., emergency engines) would be delivered to the site, connected, and started up to operate critical safety, security, and environmental equipment. Emergency engines will not be stored on site. The emergency engines would be fueled by ultralow sulfur diesel or biodiesel. Immediately following power failure transfer operations will be shut down and battery powered systems will illuminate egress routes for personnel.
4.1, App B, Page 4-1	Applicant, Port	1. Several weak points in the system were noted. The first weak point in the system is the section of single 12-inch water main along NW Lower River Road that supplies the west Port area. This is a restriction of line size considering the demands of the Port area and is evidenced by the fact that it increases again to 24-inches farther west. This may also explain the somewhat low fire flow rates and pressures measured by the City testing. Note also that the Applicant added fire pumps to increase pressures at the different connection points. It is possible that the 12-inch line size shown on the map is an error and this should be confirmed with the City. It is also possible that the City intends to extend the northern 12-inch main at a later date to connect to the 24-inch or 16-inch main. 2. The second weak point is that the 12-inch and 24-inch supply mains along NW Lower River Road are dead end routes to the west side of the Port, thus, there is no looped supply to provide redundancy in case of a water main failure or leak. Again, this may be resolved by the City at a later date with westward expansion and additional mains. 3. While these weak points do not necessarily invalidate the City's assertion of reliable 3,500 gpm supply, they do represent areas of concern and should be considered when determining if auxiliary water supply is needed for the Facility fire system, such as a water pump in the Columbia River.	Please see the response above in 2.5, App B, Off-site Water Supply System.
6.1, App B, Page 6-1	Applicant, Port	1. A second access to Terminal 5 would be available at the west end of the loop track. This access either may be a staffed security gate or operated remotely, but this has not yet been confirmed. Access to the inside of the rail loop from this location would need to be built into the design. Track crossings may be available, but this needs to be confirmed during additional design review.	The Applicant agrees with this mitigation measure, and this access point is included in the preliminary Project design. Gates will have knox locks or a knox box for emergency responder access. Hard wood ties for crossing are expected to be used to allow egress across the track section.
6.2, App B, page 6-1	Applicant	1. One area of concern that was noted in the Fire Protection System Review (Appendix A) was that there was no clear indication that the Applicant was providing fire department connections on the Facility side of the fire protection system, which would allow VFD to augment that system with back-up water and/or foam supply.	Applicant has resolved this concern through the following recommended condition: Current and final system design shall include VFD connections on the Facility side of the fire protection system that will allow VFD to augment that system with back-up water and/or foam supply.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			See Applicant's DEIS comment letter at Appendix B: Fire Protection Report Section 6.2, Compatibility of Hose and Hydrants, Hydrant Locations, page 6-1, wherein the location of fire department connections was explained. Please also refer to the response to PD-45 in EIS Data Request 12.
6.3, App B, Page 6-2	Applicant	1. An important aspect of being prepared for any potential incident at the proposed Facility would be the preparation of site-specific response plans, training, and regular site visits. VFD emphasized this during meetings with EFSEC staff and EFSEC's consultants on the topic of proposed Facility response requirements. It is expected, and should be required, that the Applicant provide comprehensive instruction and training for VFD in the design and operation of the proposed Facility fire protection system to the extent that VFD can effectively interface and assist with that system.	Please refer to the response to DEIS mitigation measures at 4.9.2, DEIS, page 4-116, fourth and fifth bullets.
7.4, App B, Page 7-6		1. VFD reported they would require additional staff, training, and equipment to respond to any size rail oil spill of 100 barrels or larger and identified the following needs to effectively respond to a rail car spill or fire: • Additional Staff • Additional Training • Logistical Support • PPE • AFF Foam • Foam Applicators • Appropriate Air Monitors • Hard Boom • Sorbent Boom • Fire Apparatus (unspecified) • Overhead support and equipment to support an extended operation.	Please refer to the response to DEIS mitigation measures at 4.9.2, DEIS, page 4-116, fourth and fifth bullets.
9.1, App, B, Page 9-1	Applicant	1. There are at least 27 at-grade rail crossings along the rail route within the VFD response area that present identifiable risks for residents and industrial tenants along the rail route in Vancouver. 2. Poor visibility for drivers combined with restrictions on sounding the train's horn creates additional crossing hazards for residents. 3. Access by VFD to riverfront homes would be at risk due to limited rail crossing locations, leading to the potential need for water access response methods in case of a rail derailment, or even a nonemergency stoppage of the train. 4. VFD has reported the need for additional staff, training, and equipment to effectively respond to any size rail oil spill of 100 barrels or larger. 5. It is recommended that a formal at-grade crossing study be undertaken to analyze these risks in a detailed manner and to identify appropriate recommendations. 6. It is also recommended that a study be undertaken to determine if a reduction in train speeds would be warranted for crude oil trains traveling through at-risk areas within the VFD response area.	Please refer to the response to the DEIS mitigation measures at Appendix B, 2.9, Page 2-3, Fire Department Response - Rail.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
9.2, App. B, Page 9-1	Applicant and BNSF	The Applicant should provide comprehensive instruction and training for VFD in the design, operation, and interaction with the proposed Facility's fire protection system. Additional specific training needs include annual training in crude oil transshipment response at a marine terminal, industrial rescue, water response, industrial fire suppression, flammable liquids handling and fire suppression, and foam application in a live fire event.	Please refer to the response to DEIS mitigation measures at 4.9.2, DEIS, page 4-116, fourth and fifth bullets.
9.3, App. B, Page 9-1	Applicant	The Applicant and BNSF should provide VFD with this training, but it will take time and expense for VFD to free up staff and resources to acquire this training. It is not clear how this financing would be provided to VFD. The rail issues are by far the most serious issues to be dealt with by VFD, and this will require further communication with VFD, the Applicant, and involvement by BNSF. It is also recommended that a study be undertaken to assess the risk to public safety posed by the numerous existing at-grade crossings in the VFD response area to determine if additional crossing controls or grade separations are warranted. The study should also investigate whether a reduction in train speed would be warranted for crude oil trains traveling through known high-risk areas.	Please refer to the response to DEIS mitigation measures at 4.9.2, DEIS, page 4-116, fourth and fifth bullets.
Please note the majority of these items in the following section pertaining to Appendix A of Appendix B are duplicative of the comments related to Appendix B. Cross-references are provided for convenience and new items are addressed with additional explanation. New items are in bold print.			
Appendix A to App. B		1. Specialized training for VFD would be required to familiarize them with the special conditions associated with crude oil vessel incidents. VFD does not have existing experience in vessel response of this type, and requires additional training for the large crude oil vessels of the type expected to call at the Marine Terminal. The Applicant should provide training for VFD on the important aspects of the vessels.	Please refer to the response to DEIS mitigation measures at 4.9.2, DEIS, page 4-116, fourth and fifth bullets.
Appendix A to App. B		<u>Area 200</u> 1. Review and confirm containment calculations and capacities of containment pans and tanks. (Duplicate entry to 2.1, App B, Page 2-1) 2. Evaluate overflow volumes, direction, and mitigation measures in case system capacity is exceeded. 3. Provide overall Facility water supply analysis, including independent verification of source points of water onto the property, distinguishing between City of Vancouver-provided water supplies and Port of Vancouver-provided water supplies; provide water main map showing source points, fire hydrants, and loops in system for redundant supply; provide updated supply system hydraulic analysis for flow and pressure; and show specific fire hydrant sizes, type, and location for all project specific locations. Fire hydrants were mentioned external to the building, but they are not shown on plans at this time. 4. The water supply system testing and hydraulic analysis as provided indicates that an auxiliary diesel fire pump is needed to provide adequate	1. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, first bullet point. 2. Applicant provided this information in its responses to the 19 February 2016 Letter Regarding Industrial NPDES Permit Application Review dated 27 May 2016; Section 3 (Makarow 2016b). 3. Applicant commits to providing analysis with final design. 4. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, second bullet point. 5. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, page 4

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		flow and pressure for the suppression system at Area 200. This single pump concept is considered inadequate due to the lack of redundancy in case of an engine or pump problem. This is discussed in more detail in section 3.3, "Fire Pumps and Emergency Power Supply." 5. Fire detection system only appears to use heat detection strips in critical areas. These automatically start foam flow to sprinklers and alarm at the same time. There should be a second detection system to activate alarms prior to actual foam release, and to provide fire detection in areas not protected/covered by heat detection strips, such as areas outside building, in "dead zones" in building, etc. 6. Review and confirm the specific electrical hazard classification boundaries, and that Class I Div. 1 and Div. 2 installation requirements are followed correctly. 7. Review specific catalogue cut sheets for all fire protection equipment and systems. 8. Review design drawings when they are at the 100 percent design stage.	6. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, fourth bullet point. 7. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, seventh bullet point. 8. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, eighth bullet point.
Appendix A to App. B		<u>Area 300</u> 1. Review and confirm tank dike containment calculations. Evaluate overflow volumes, direction, and mitigation measures in case system capacity is exceeded. Review stormwater containment system, block valves, and isolation operation methods. 2. Provide overall facility water supply analysis, including independent verification of source points of water onto the property, distinguishing between City of Vancouver-provided water supplies and Port of Vancouver-provided water supplies; provide water main map showing source points, fire hydrants, and loops in system for redundant supply; provide updated supply system hydraulic analysis for flow and pressure; and show specific fire hydrant sizes, type, and location for all project specific locations. There was no mention of fire hydrants to be located upstream of the fire pump for fire department access. 3. It is not clear if the dike location monitors are pre-aimed, or if they are remote controlled. This needs to be verified later in the design. The proposed use of hand carried "buckets" of foam to these monitors is not a desirable approach. Suggest installing drums or cans of foam at each monitor. 4. The water supply system testing and hydraulic analysis as provided indicates that an auxiliary diesel fire pump is needed to provide adequate flow and pressure for the suppression system at Area 300. This single-pump concept is considered inadequate due to the lack of redundancy in case of an engine or pump problem. This is discussed in more detail in section 3.3, "Fire Pumps and Emergency Power Supply." 5. Provide additional fire detection systems and alarms in addition to the linear heat strips within the tank roof annular spaces. These are needed to monitor and alarm tank external areas.	1. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.2, page 2-2, first bullet point. 2. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, second bullet point. 3. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.2, page 2-2, second bullet point. The Applicant will pre-aim a monitor on each storage tank. The monitors are manually operated and can be adjusted manually. The design specifies that a minimum of two monitors can be positioned on each tank. Per manufacturer's recommendations, foam cannot be stored at the monitor locations due to temperature and weather exposure. Applicant will maintain foam on site in accordance with manufacturer's recommendations. 4. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, page 2-1, second bullet point. 5. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.2, Page 2-2, fourth bullet point. 6. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, fourth bullet point. 7. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, seventh bullet point. 8. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, eighth bullet point.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		6. Review and confirm specific electrical hazard classification boundaries, and that Class I Div. 1 and Div. 2 installation requirements are followed correctly. 7. Review specific catalogue cut sheets for all fire protection equipment and systems. 8. Review design drawings when they are at the 100 percent design stage.	
Appendix A to App. B		<u>Area 400</u> 1. The foam monitors should be checked for proper height considering the height range of the vessel from loaded draft to ballast draft. They may be too low. 2. The location of the manual release points is unclear, but in any case, they should be located on shore because locating on the dock structure will be potentially too close to the fire. 3. There does not appear to be any spill containment provided at the dock, other than the floating boom that would be placed around the vessel during transfer operations. Other spill containment and prevention measures should include curbing around the platform manifold working area, all-welded (no flanges) oil piping over the water, a slop tank for hose draining after loading is complete, and maintenance of strainers, etc. 4. Provide overall facility water supply analysis, including independent verification of source points of water onto the property, distinguishing between City of Vancouver-provided water supplies and Port of Vancouver-provided water supplies; provide water main map showing source points, fire hydrants, and loops in system for redundant supply; provide updated supply system hydraulic analysis for flow and pressure; and show specific fire hydrant sizes, type, and location for all project specific locations. 5. The water supply system testing and hydraulic analysis as provided indicates that an auxiliary diesel fire pump is needed to provide adequate flow and pressure for the suppression system. This single-pump concept is considered inadequate due to the lack of redundancy in case of an engine or pump problem. This is discussed in more detail in section 3.3, "Fire Pumps and Emergency Power Supply." 6. Applicant indicates adding a fire pump will provide 2,000 gpm flow at 125 psig. Confirm if this is adequate considering that, according to California Standards (CA MOTEMS Chapter 31F, Section 8), this would be classified as a "High Hazard" Terminal, requiring 3,000 gpm fire flow, 6x20 lb portable dry chemical fire extinguishers, and 4x165 lb wheeled dry chemical extinguishers. 7. No fire alarm detectors were indicated on plans or documents. Provide information on the type, locations, and functions. 8. Review and evaluate emergency shutdown valves on dock for closing speed, activation methods, fail safe operation, and check that surge	1. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, Page 2-2, first bullet point. 2. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, Page 2-2, second bullet point. 3. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, Page 2-2, third bullet point. 4. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, second bullet point. 5. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, second bullet point. 6. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, Page 2-2, fifth bullet point. 7. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, Page 2-2, sixth bullet point. 8. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, Page 2-2, seventh bullet point. 9. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, Page 2-2, eighth bullet point. 10. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, Page 2-2, ninth bullet point. 11. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, Page 2-1, fourth bullet point. 12. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, seventh bullet point. 13. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, eighth bullet point.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		pressures stay within allowable piping pressure limits. The 6-inch return line is intended as a pressure relief route in case of emergency shutdown of the loading pipeline. 9. Check that additional life-safety information is added to dock and trestle structures, including portable extinguishers, hose reels, and egress, including ladders to the water, life rings, etc. 10. Review and confirm what vessel drift envelope protection (if any) is provided to prevent overstressing the loading hoses (limit switches with alarms, mooring line load measurement and alarms, etc.). 11. Review and confirm specific electrical hazard classification boundaries, and that Class I Div 1 and Div 2 installation requirements are followed correctly. 12. Review specific catalogue cut sheets for all fire protection equipment and systems. 13. Review design drawings when they are at the 100 percent design stage.	
Appendix A to App. B		Area 500 Review and evaluate location of isolation valves and emergency shutdown valves on all main pipelines for closing speed, activation methods, fail safe operation, and check that surge pressures stay within allowable piping pressure limits.	Please refer to the response to the DEIS mitigation measures at Appendix B, 2.4, Page 2-3, first bullet point.
		Review proposed pipeline inspection and testing methods and frequency.	Please refer to the response to the DEIS mitigation measures at Appendix B, 2.4, Page 2-3, second bullet point.
		Review proposed pipeline thermal stress analysis methods, surge analysis methods, and protective measures.	Refer to prior bullet on thermal stress methods.
		4. Review all piping design and welding specifications, welder qualifications, and weld inspection methods.	Please refer to the response to the DEIS mitigation measures at Appendix B, 2.4, Page 2-3, fourth bullet point.
App A, 3, App B, Page 1		Area 600 Only smoke detectors were observed for detection. Review later to see what special systems may be used for boilers.	Please refer to the response to the DEIS mitigation measures at Appendix B, 2.5, Page 2-3, first bullet.
		Review this location in more detail when additional design information is available later in the design.	Please refer to the response to the DEIS mitigation measures at Appendix B, 2.5, Page 2-3, second bullet.
App A, 3, App B, Page 1		1. Provide overall facility water supply analysis, including independent verification of source points of water onto the property, distinguishing between City of Vancouver-provided water supplies and Port of Vancouver-provided water supplies; provide water main map showing source points, fire hydrants, and loops in system for redundant supply; provide updated supply system hydraulic analysis for flow and pressure; and show specific fire hydrant sizes, type, and location for all project specific locations. Except at Area 200, there was no mention of fire hydrants to be located upstream of the fire pumps for fire department access. This is important to allow the fire department to access fire water and provide independent support.	1. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, second bullet point. 2. The May 30, 2013 test of the water system will no longer be relevant. Applicant has proposed alternate mitigation to address water supply, including loop line improvements. The water supply to the Terminal would be tested again by an independent party prior to operation, and documentation of that test will be provided to EFSEC at that time.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		2. Applicant must provide independent documentation from the City of Vancouver for the tests on May 30, 2013. This should include statements by the City that the water supply system is reliable and adequate.	
App A, 3, App B, Page 1		Area 400 As previously discussed in the Executive Summary, the water supply conditions must be verified and detailed, including supply points (City of Vancouver or Port of Vancouver); the water main distribution system with main sizes, maps, hydrant locations, supply pressures, and flows; possible impacts on other users in this port area; and reliability/redundancy of the system.	Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, second bullet point.
		The maximum water flow requirement of 2,000 gpm at the marine terminal should be considered the minimum required for this location. As a point of reference, California requirements for a similar marine terminal are 3,000 gpm, but this includes flows for the fire monitors, hose reels, and fire department demands. It is recommended that this be considered in the hydraulic calculations. That is, if 2,000 gpm is to be pumped for the two 750 -gpm monitors and 500 gpm for hose allowance, check that 1,000 gpm is available in the system at this area through fire hydrants for VFD connection to their pumpers.	Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, page 2-2, fifth bullet point.
		It is expected that all hydraulic calculations will be rerun and updated once all supply conditions, distribution system, and area demands are confirmed.	The Applicant will rerun and update all hydraulic calculations once all supply conditions, distribution system, and area demands are confirmed as part of final design.
		Fire Pumps and Emergency Power Supply. The comment that "There are no plans for the Project to have a backup power system," while not solely a fire protection issue, is none the less a deficiency that needs to be addressed by the Applicant. At a minimum, some emergency power must be provided for control and operation. For control, to monitor and shutdown in a safe manner all critical systems. For operation, to allow safe shutdown of all systems, such as valves, pumps, and boilers, etc. Emergency power is also required for critical lighting for safe personnel movement and egress. The plans and documents tend to indicate that there will be (one) 100 percent capacity pump at each location. This is highly risky because if a pump fails to start for any reason, or is down for maintenance, there is no fire protection through the on-site fire system. It is recommended that either of the following changes be made: − Install a second 100% percent capacity electric pump at each location as the primary device, with the 100 percent diesel serving as a backup in case of power failure. − Install two 100 percent capacity electric pumps at each location, with one diesel serving as a backup in case of maintenance or failure to start. − In addition, either of the above recommends installing fire hydrants upstream of pump suctions for fire department connection for additional redundancy.	Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1 and 3.3, page 2-1, second bullet point and Appendix B, 3.3, Page 3-5.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
		Suppression Systems Area 200 Review and confirm containment calculations and capacities. 1. Provide overall facility water supply analysis including independent verification of source points, water main maps, revised system hydraulic analysis, and recommendations. 2. Consider installing (2) 100 percent fire pumps at this location. 3. Provide emergency power backup control and operation capability. 4. Update and supplement the fire detection system components. 5. Review and confirm the specific electrical hazard classification boundaries. 6. Review specific catalogue cut sheets for all fire protection equipment and systems. 7. Review design drawings when they are at the 100 percent design stage.	1. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, page 2-1, first bullet point. 2. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, second bullet point. 3. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, page 2-1, second bullet point. 4. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1 and 3.3, page 2-1, second bullet point and Appendix B, 3.3, Page 3-5. 5. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, fifth bullet point. 6. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, page 2-1, fourth bullet point. 7. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, seventh bullet point. 8. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, eighth bullet point.
		Suppression systems Area 300 1. Review and confirm tank dike containment calculations. 2. Provide overall facility water supply analysis, including independent verification of source points, water main maps, revised system hydraulic analysis, and recommendations. 3. Consider installing (2) 100 percent fire pumps at this location. 4. Provide emergency power backup control and operation capability. 5. Verify if the dike location monitors are pre-aimed, consider installing drums or cans of foam at each monitor. 6. Update and supplement the fire detection system components. 7. Review and confirm specific electrical hazard classification boundaries. 8. Review specific catalogue cut sheets for all fire protection equipment and systems. 9. Review design drawings when they are at the 100% design stage.	1. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.2, page 2-2, first bullet point. 2. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, second bullet point. 3. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, page 2-1, second bullet point. (duplicate) 4. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1 and 3.3, page 2-1, second bullet point and Appendix B, 3.3, Page 3-5. 5. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.2, page 2-2, second bullet point. 6. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.2, page 2-2, fourth bullet point. 7. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, page 2-1, fourth bullet point. 8. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, seventh bullet point.

Location in DEIS	Responsible Party	DEIS Mitigation Measure Text	Applicant Response
			9. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, eighth bullet point.
		Suppression systems <u>Area 400</u> 1. Check the foam monitors for proper height. 2. Check for proper spill containment features at the dock. 3. Provide overall facility water supply analysis, including independent verification of source points, water main maps, revised system hydraulic analysis, and recommendations. 4. Consider installing (2) 100 percent fire pumps at this location. 5. Provide emergency power backup control and operation capability. 6. Confirm if 2,000 gpm flow is adequate at the dock. 7. Update and supplement the fire detection system components. 8. Review and evaluate functions of emergency shutdown valves on the dock. 9. Check for additional life-safety information at the dock. 10. Check for vessel drift envelope measurement and protection. 11. Review and confirm specific electrical hazard classification boundaries. 12. Review specific catalogue cut sheets for all fire protection equipment and systems. 13. Review design drawings when they are at the 100 percent design stage.	1. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, page 2-2, first bullet point. 2. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, page 2-2, third bullet point. 3. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, second bullet point. 4. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, page 2-1, second bullet point. 5. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1 and 3.3, Page 2-1, second bullet point and Appendix B, 3.3, Page 3-5. 6. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, page 2-2, fifth bullet point. 7. Please refer to the Applicant's DEIS comment letter, comments to Appendix B: Fire Protection Assessment Report, Section 2.3, Facility Area 400 – Marine Terminal, page 2-2, bullet 6, where the type, location, and function of the fire detection system has been provided. 8. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, page 2-2, seventh bullet point. 9. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, page 2-2, eighth bullet point. 10. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.3, page 2-2, ninth bullet point. 11. Please refer to the response to the DEIS mitigation measures at Appendix B, 2.1, page 2-1, fourth bullet point. 12. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, seventh bullet point. 13. Please refer to the response to the DEIS mitigation measures at Appendix A to Appendix B, Area 200, eighth bullet point.

Section 1.5 Sources of Information

The following references are added to Section 1.5.

1.5.1 General

1.5.1.4 Mitigation Measures

Bayer, M. 2016a. Our Principles of Operation. EX-0127-TSS. June 2016.

Bayer, M. 2016b. Tesoro, Marine Assurance, 23-Environmental, health and safety, 23.10.240. Ex-0128-TSS. June 2016.

BNSF. 2016. BNSF Comment Letter in Response to the Draft Environmental Impact Statement. Section O, p. 37. January 21, 2016.

Hollingsed, M. 2016. Testimony of Michelle Hollingsed. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 7, 2016. 1708 to 1785. See also Testimony of Michelle Hollingsed, July 28, 2016. 4913 to 4976.

Kaitala, D. 2016. Pre-Filed Testimony of Dava Kaitala. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. May 12, 2016.

Kittleson & Associates, Inc. 2016. At-Grade Rail Crossing Analysis for Tesoro Savage Vancouver Energy Distribution Terminal Facility. May 12, 2016.

Fixing America's Surface Transportation (FAST) Act. 2015. PL 114-94, 129 Stat 1312. December 4, 2015.

Larrabee, J. 2016. Testimony of Jared Larrabee. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 5064:13-5065:8.

Makarow, I. 2015. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 1. January 12, 2016.

Makarow, I. 2016a. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

Makarow, I. 2016b. Response to 19 February Letter Regarding Industrial National Pollutant Discharge Elimination System Permit Application Review. May 27, 2016.

R&M Engineering. 2015. Vancouver Energy – Area 300 Storage Calculations. August 15, 2015.

U.S. Department of Transportation, Federal Railroad Administration (FRA). 2013. Guide to the Quiet Zone Establishment Process. September 2013.

Worley Parsons and DNVGL, 2014. Vessel Traffic Risk Assessment Traffic, Impact Analysis, Prepared by Worley Parsons and DNVGL. September 4, 2014, page 52.

1.5.1.6 Consultation

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

1.5.2 Proposal

1.5.2.3 Construction on Site

Bayer, M. 2016a. Our Principles of Operation. EX-0127-TSS. June 2016.

Bayer, M. 2016b. Tesoro, Marine Assurance, 23-Environmental, health and safety, 23.10.240. Ex-0128-TSS. June 2016.

Corpron, D. 2016. Vancouver Energy Decommissioning Costs. Exhibit EX-0278-000002-TSS. June 1 2016.

Makarow, I. 2016. Response to Questions dated 21 June 2016. Vancouver Energy, Application for Site Certification No. 2003-01. Docket No. EF13590. June 24, 2016.

Roach, B. 2016a. Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 5047:23–25.

Roach, B. 2016b. Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 4978: 8–4979:22.

Roach, B. 2016c. Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 4981:5–7 ; 4982; 4984:2–6; 4985:2–5; 4986:1–10; 4980:18; 4981:7.

Roach, B. 2016d. Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 4986:1–10; 4980:18; 4981:7.

Roach, B. 2016e. Pre-Filed Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. June 2016. 4:13–6:8, 16:6–20.7.

Roach, B. 2016f. Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 4989:21; 4990:5.

Roach, B. 2016g. Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. June 27, 2016. 166:5-13. See also Testimony of Bradley Roach, July 28, 2016. 4990:2-5.

Roach, B. 2016h. Pre-Filed Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. June 2016. 17:3–22. See also Testimony of Bradley Roach, July 28, 2016. 5031:22–23.

Roach, B. 2016i. Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 4995–96.

Roach, B. 2016j. Pre-Filed Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. June 2016. 18:20–19:7. See also Testimony of Bradley Roach, July 28, 2016. 166:5 –19.

Roach, B. 2016k. Testimony of Bradley Roach. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 4991:7–4993:12; 4996:4–10.

Worley Parsons and DNVGL, 2014. Vessel Traffic Risk Assessment Traffic, Impact Analysis, Prepared by Worley Parsons and DNVGL. September 4, 2014, page 52.

1.5.2.6 Water System Supply

Larrabee, J. 2016. Testimony of Jared Larrabee. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 5064:13-5065:8.

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

1.5.2.7 System of Heat Dissipation

BergerABAM. 2016. Vancouver Energy, National Pollutant Discharge Elimination System Permit, Engineering Report. EFSEC Application for Site Certification No. 2013-01, Docket No. EF131590. August 12, 2016.

1.5.2.8 Spill Prevention and Control

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

1.5.2.10 Spill Prevention and Control

Makarow, I. 2016a. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590, Response to EFSEC Data Request 10. June 17, 2016.

Makarow, I. 2016b. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

Makarow, I. 2016c. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590, Response to EFSEC Data Request 11. August 5, 2016.

Taylor, E. 2016. Testimony of Dr. Elliott Taylor. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 7, 2016. 1891:2-1893:7.

1.5.2.11 Surface Water Runoff

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

1.5.2.17 Construction Methodology

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

1.5.2.18 Protection from Natural Hazards

Makarow, I. 2016a. Letter to Sonia Bumpus, EFSEC. Tesoro Savage Vancouver Energy Distribution Terminal Project Application No. 2013-0 [sic]; Docket: EF-131590. August 5, 2016.

Makarow, I. 2016b. Letter to Sonia Bumpus, EFSEC. Tesoro Savage Vancouver Energy Distribution Terminal Project Application No. 2013-0 [sic]; Docket: EF-131590. August 19, 2016.

Makarow, I. 2016c. Letter to Sonia Bumpus, EFSEC. Tesoro Savage Vancouver Energy Distribution Terminal Project Application No. 2013-0 [sic]; Docket: EF-131590. August 29, 2016.

1.5.2.19 Security Concerns

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

1.5.2.23 Pertinent Federal, State, and Local Requirements

International Maritime Organization. 2016. International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM). Available at: http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships'-Ballast-Water-and-Sediments-(BWM).aspx. Accessed September 12, 2016.

1.5.3 Natural Environment

1.5.3.4 Habitat, Vegetation, Fish and Wildlife

BNSF. 2016. BNSF Comment Letter in Response to the Draft Environmental Impact Statement. Section O, p. 37. January 21, 2016.

Grette Associates. 2016. Wake stranding in the Lower Columbia River. Revised May 10, 2016.

1.5.3.6 Energy and Natural Resources

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

1.5.4 Built Environment

1.5.4.1 Environmental Health

Risk of Fire or Explosion

Clark County. 2014. Cark County Hazardous Materials Emergency Response Plan. January 2014.

Fixing America's Surface Transportation (FAST) Act. 2015. PL 114-94, 129 Stat 1312. December 4, 2015.

Larrabee, J. 2016. Testimony of Jared Larrabee. Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. July 28, 2016. 5064:13-5065:8.

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

Releases or Potential Releases to the Environment Affecting Public Health.

Stott, T. 2016. Vancouver Energy, Potential Classification of Area 600 Boiler Building Combine Effluent as Dangerous Waste. July 15, 2016.

Safety Standards Compliance

Makarow, I. 2016. Vancouver Energy, EFSEC Application No. 2013-01, Docket No. EF131590. Response to EFSEC EIS Data Request 12. September 1, 2016.

Emergency Plans

Clark County, 2014. Emergency Support Function 10 – Hazardous Materials. Clark County Hazardous Materials Emergency Response Plan. Clark County, Washington. January 2014. Ex-0376-000092-TSS. Also available at: http://cresa911.org/wp-content/uploads/2014/06/CCHazMat_ERP14.pdf

1.5.4.2 Land and Shoreline Use

Historic and Cultural Preservation

Butler, S. 2016a. Pre-filed Testimony of Stephanie Butler, Before the State of Washington Energy Facility Site Evaluation Council, In the Matter of: Application No. 2013-01, Tesoro Savage, LLC, Tesoro Savage Distribution Terminal. Case No. 15-001. May 13, 2016.

Butler, S., Mayer, J., and Ranzetta, K. 2016. Cultural Resources and Shoreline Erosion: A Study for the Vancouver Energy Proposed Crude Oil Rail-Marine Terminal Transloading

Facility – REDACTED Clatsop, Columbia, and Multnomah Counties, Oregon, Pacific, Wahkiakum, Cowlitz, and Clark Counties, Washington. March 5, 2016.

Pearson, W. H., Fleece, W.C., Gabel, K., Jenniges, S., and Skalski, J. R. 2008. Spatial Analysis of Beach Susceptibility for Stranding of Juvenile Salmonids by Ship Wakes. Final Report Prepared for the Port of Vancouver, Vancouver, Washington by ENTRIX, Inc., Olympia, Washington, Project No. 4154501. 2008.

Washington State Energy Facility Site Evaluation Council (EFSEC). 2015. Tesoro Savage Vancouver Energy Distribution Terminal Facility, Draft Environmental Impact Statement. November 2015.

Section 1.6 Consultation

The following information is added to Section 1.6. (Makarow 2016b).

In late summer 2013, Archeological Investigations Northwest (AINW) contacted the Cowlitz Indian Tribe, the Confederated Tribes of Grande Ronde, the Chinook Nation, the Chehalis Tribe, and the Yakama Nation to coordinate meetings with the Applicant's project team. Members of the Applicant's project team met in October 2013 with staff members from the Confederated Tribes of the Grand Ronde (Eirik Thorsgard, Cultural Protection Specialist) and the Cowlitz Indian Tribe (Dave Burlingame, Director, Cultural Resources) to provide a project overview and discuss cultural resources. Prior to the October 2013 meeting, the Applicant initiated tribal coordination, as required by WAC 463-62-362(5), by sending letters (dated August 20, 2013) to cultural resource representatives of the Cowlitz Indian Tribe, the Confederated Tribes of Grande Ronde, the Chinook Nation, the Chehalis Tribe, and the Yakama Nation. With the exceptions of the Confederated Tribes of the Grand Ronde and the Cowlitz Indian Tribe, the tribes did not respond to the request to initiate coordination either through the letter mailed in August 2013 letter, or subsequent requests made in September 2013.

As identified above, in October 2013 AINW, on behalf of the Applicant, contacted representatives from the following tribes by phone to request meetings regarding the project (* indicates that multiple staff were contacted at the tribe): Cowlitz Indian Tribe, Confederated Tribes of Grande Ronde, Chinook Nation*, Chehalis Tribe, and Yakama Nation*. Of these contacts, the following two tribes accepted to meet with the Applicant: Confederated Tribes of the Grande Ronde, October 24, 2013, Eirik Thorsgard, David Harrelson, and Jordan Mercier from the Tribe attending; and Cowlitz Indian Tribe, October 28, 2013, dAVe burlingame from the Tribe attending.

In accordance with the work plan regarding the archeological geoprobe investigation conducted by AINW (as approved by the Department of Archaeology and Historic Preservation and the USACE), AINW provided notice to the tribes of the sampling activities in October and November 2014. Members from the Grande Ronde Tribe also visited the geoprobe sampling activities. See Appendix A.4.

Since 2014, Vancouver Energy has retained consultants to reach out to tribes to explain the Vancouver Energy project and to offer to meet with tribal representatives regarding the project. Through our consultants, contact was made with Confederated Tribes and Bands of the Yakima Nation, Confederated Tribes of the Warm Springs Reservation of Oregon, Coeur D'Alene Tribe of Idaho, Cowlitz Tribe, and Confederated Tribes of the Umatilla Indian Reservation. Meetings with the Cowlitz Tribe occurred in 2014 and 2015. The Yakima and Umatilla tribes declined to meet with Vancouver Energy; however, they indicated they may want to have a discussion in the future.

In August 2016, the BNSF and Union Pacific invited representatives from the Confederated Tribes of the Yakama Nation to participate in a spill response training event, along with to be conducted at McNary Dam (see Attachment 9). In addition, BNSF has also conducted outreach to tribes in relationship to the rail transportation component. Appendix A.5 summarizes this outreach.

In addition, as part of the federal permitting process for the Terminal, the Army Corps of Engineers has initiated consultation with Tribes to address its obligation to engage Tribes on a wide range of issues in a government-to-government consultation. The Corps is also consulting with Tribes on potential tribal resources issues, specifically, pursuant to Section 106 of the National Historic Preservation Act.