

Section 2.22 Analysis of Alternatives

The Facility's principal purpose is to provide North American sourced crude oil to U.S. refineries to potentially offset or replace declining Alaska North Slope and California crude oil production and ~~more expensive~~ foreign crude oil imports. The Port site is the closest developed deep-water marine water terminal to the Midwest oil fields, therefore minimizing the distance needed for product transportation and shipping to West Coast refineries.

2.22.1 Site Selection

The Facility is designed to receive crude oil by rail, store it on site, and load it on marine vessels primarily for delivery to refineries located for shipment to various consumers and end users located primarily on the West Coast of North America. The Port issued a "statement of interest" seeking proposals to develop a petroleum by rail facility at the Port. Tesoro, a long term Port tenant, teamed with Savage Services Corporation to jointly submit a proposal to the Port for the formation of the Application and development of the Facility. The Port received four proposals and after consideration of a variety of criteria, including safety, environmental, community, financial, market and operations, selected the Applicant to enter into negotiations for the site.

~~Three elements are necessary to develop a facility of this type: 1) a deep draft Port facility; 2) rail infrastructure capable of handling unit trains; and 3) a site large enough to accommodate the various facility elements.~~ In order to meet the Applicant's purpose and need for the Facility, the following elements were deemed necessary to develop a facility of this type: 1) a deep draft marine terminal ideally owned by a public port, with existing land use zoning to allow the Facility and with existing marine infrastructure; 2) a project site that has existing, or can accommodate, rail infrastructure capable of handling multiple unit trains to accommodate the proposed project capacity; 3) a site that is in close proximity to mainline rail access, and as close as possible to the source of the product to minimize the cost of rail transportation with a relatively central location to serve west coast refineries; and 4) a site large enough to accommodate the remaining Facility elements, especially sufficient area for storage that allows product segregation to service multiple clients. In addition, a specific site has to be available for control by a potential applicant, and overall development of the project must be timely to meet current market needs.

Port locations in California do not meet the Applicant's purpose and need because they would be located furthest by rail from the crude production areas in the Midwest.

Of the eleven deep-draft ports in Washington State, three are located along the Washington side of the Columbia River system (Longview, Kalama, and Vancouver), seven are located in Puget Sound (Olympia, Tacoma, Seattle, Everett, Anacortes, Bellingham, and Anacortes), and one in Grays Harbor on the coast.

The Port of Kalama is currently advertising the "Northport" 70-acre Marine Heavy industrial site, located in the northern area of the port (Port of Kalama, 2014). This site is accessible from a BNSF spur, but is not currently developed to accommodate unit trains. A previous development proposal for this site investigated the potential to add rail infrastructure to accommodate unit trains (URS, 2006); however the proposal was dependent on the filling of wetlands to accommodate the rail infrastructure (as of January 2014, these wetlands had not yet been filled (Carrico, 2014)). In addition, rail capacity for use of this location has been identified as

constrained due to trains leaving/entering the main BNSF lines at Kalama (BST Associates, et al., 2011). Due to the lack of rail infrastructure and existing rail capacity constraints this location would not meet the Applicant's criteria for development of the Facility.

The former Reynolds Metal aluminum smelter site in Longview is already proposed for the location of a coal export facility (Millenium Bulk Terminal). The Port of Longview is currently advertising a heavy industrial zoned 49-acre site at its east industrial park (Port of Longview, 2014); an existing marine dock at the site services an existing grain terminal, and would not be available for use by another tenant. Due to the lack of marine infrastructure, this site does not meet the Applicant's criteria for development of the Facility.

Public port locations in northwestern Washington (Anacortes, Bellingham, Everett), though accessible directly by mainline rail, or spur to mainline rail, are also situated furthest from the crude production areas with respect to rail transportation, and for the most part lack the area necessary to implement unit train handling. The Port of Port Angeles is not served by rail. Potential sites that could accommodate unit train infrastructure at the Port of Tacoma were under the control of others. The Port of Seattle is specialized in containerized intermodal activities, and does not have the necessary infrastructure to accommodate unit trains. The Port of Olympia is accessible by rail spur from the BNSF mainline, but does not have any real estate currently available to accommodate a 45-acre development (Port of Olympia, 2014). Suitable project sites may exist at the Port of Grays Harbor. However these locations themselves are currently under development, and are not available for control by the Applicant.

In Oregon, reasonable rail access is available at the following deep draft ports: Astoria, Newport, Portland and St. Helens (Parsons Brinckerhoff, 2010). The Port of Portland is the only port served directly by a mainline railroad. The Port of Portland is in close proximity to the Port of Vancouver, and potential environmental issues would likely not be materially distinguishable from the Port of Vancouver site. Further, the Port of Vancouver, not the Port of Portland, solicited bids for this development. The remaining three Oregon ports are served by short line rail spurs. The Port of St. Helens is already the location of a smaller crude-by rail facility.

The site selected for the Facility meets all of these criteria:

- 1) The Port of Vancouver is located at head of the deep-water shipping channel on the Columbia River; the Facility will use an existing berth built in the 1990s and established specifically for deep draft vessels. The Port of Vancouver is one of the closest available port to the source of domestic crude oil, and is reasonably central in location to the West Coast refineries.
- 2) The Terminal 5 site represents the westernmost extension of the WVFA project and is designed to accommodate unit trains. The WVFA project also involves other improvements specifically designed to increase the ability to the Port to handle train traffic.
- 3) In addition to the developed WVFA rail loop at Terminal 5, sufficient land is available at Parcel 1A to accommodate the necessary storage tanks for the temporary storage of crude oil. Furthermore, the location proposed for facility elements have all been previously disturbed, and there will be no fill of wetlands or surface water bodies.

The Applicant has worked very closely with the Port to ensure the Facility will not impede overall terminal use by existing tenants or the development of other Port projects. All project elements have been carefully sited to avoid conflicts with existing easements and utilities, and to allow continued access to existing and future adjacent activities. In addition, the project will

reuse a former brownfield site for job creating activities and reduce pressures for the development of greenfield locations.

2.22.2 Unloading System Alternatives

During project design, the Applicant considered two variations for the unloading facility: An uncovered facility and a covered facility. Ultimately the development of a covered facility was selected for the following reasons:

- A covered facility minimizes the amount of stormwater that can potentially come in contact with an unintentional release of materials, and allows the use of the existing Port stormwater facilities as described in Section 2.11 above; exposure of stormwater in the unloading area to potential contaminants would have meant that stormwater collected from this area would have needed to be treated as process water and could not be sent to the City's WWTP, resulting in more ground disturbance to construct the necessary capture, treatment and discharge facilities.
- A covered facility minimizes the amount of stormwater that can potentially come in contact with an unintentional release of materials, and allows the use of the existing Port stormwater facilities for disposal as described in Section 2.11 above; exposure of stormwater in the unloading area to potential contaminants would have meant that stormwater collected from this area would have required additional control and treatment resulting in more ground disturbance to construct the necessary improvements.

2.22.3 Wastewater Discharge

As noted in Section 2.9.4, the total discharge amount of the Facility's wastewater flows is not significant when compared to the overall City treatment plant flows or capacity. The boiler units and effluent pretreatment systems are standard equipment. The location of the project within the City's service area and sanitary sewer service basin of the City WWTP eliminates further alternatives analysis. Discharges will be within the City discharge requirements.

2.22.4 Stormwater Discharge

The existing Port stormwater capture and treatment infrastructure at the site is fully developed. As described in Section 2.11, the conveyance facilities have the capacity to accept treated Facility stormwater. Establishment of a separate stormwater system would have required substantially more ground disturbance, including a new outfall to the Columbia River.

2.22.5 Marine Terminal

As noted above, overall site selection considered the availability of existing berthing facilities. The existing berths 13 and 14 are suited to the use being proposed by the Facility. Although modifications are required to meet industry standards, the impacts of these modifications are significantly lower than the impacts of developing a new marine terminal. Constructing a new marine terminal would have likely included dredging, driving a large number of pile, creating all new over-water surface, and possible bank modifications. Selection of the existing berths over a green-field location significantly minimized new impacts, and all additional new impacts will be fully mitigated.

2.22.6 Air Emissions Control

As part of the air permitting effort, the Applicant performed a BACT analysis to identify pollutant-specific alternatives for emission control, and the pros and cons of each alternative. This analysis is presented in detail in Section 5.1. This was made on a case-by-case basis and considered the technical, economic, energy and environmental costs of a certain type of control process for each emissions source.

2.22.7 Route Selection

Route Selection is not applicable to this Facility, as the Facility does not have any linear electrical or gas transmission elements.

2.22.8 No Action Alternative

Under the No Action Alternative, the Facility would not be built. U.S. refineries located along the West Coast would continue to receive crude oil from existing sources, i.e., domestic sources connected to existing overland transportation systems capable of moving the crude oil to the west coast, the Alaska North Slope, and foreign sources. ~~More costly~~ foreign imports would likely make up for declining Alaska North Slope and California crude oil production.