Chapter 2

Project Objectives, Proposed Action, and Alternatives

Millennium Bulk Terminals—Longview, LLC (Applicant) is proposing to construct and operate a coal export terminal for the shipment of coal (Proposed Action) on a 190-acre site (project area) in Cowlitz County, Washington, along the Columbia River. This chapter describes the Applicant's project objectives, the Proposed Action (project location, existing facilities and operations, and proposed facilities and operations) and the No-Action Alternative.

2.1 Applicant's Project Objectives

As part of the Washington State Environmental Policy Act (SEPA) process, the Applicant provided the SEPA co-lead agencies[1] with a description of the project objectives. This section presents the Applicant's objectives for the Proposed Action, which are listed below and described in the following sections.

- Enable western U.S. coal to compete in the Pacific international coal supply market.
- Diversify Washington State's trade-based economy.
- Reduce local unemployment.

2.1.1 Enable Western U.S. Coal to Compete in the Pacific International Coal Supply Market

The Applicant states the Proposed Action would enable western U.S. coal to compete in the Pacific international coal supply market by providing a terminal designed to efficiently transport western U.S. coal from rail to ocean-going vessels. Further development of western U.S. coalfields and the growth of Asian market demand for U.S. coal is expected to continue, and existing West Coast terminals are unavailable to support this need. To derive benefit from economies of scale, implementation of the Proposed Action would provide a coal export terminal sufficient in throughput to give U.S. coal producers the opportunity to expand their share of the international coal market.

Further, the Proposed Action would reuse an existing industrial terminal and use existing rail infrastructure and a direct shipping route to Asia, which would promote efficiency and minimize costs for handling and transferring U.S. coal for shipment to Asian markets. These factors would enable U.S. coal to compete in Asian energy markets.

[1] The two co-lead agencies responsible for this Draft Environmental Impact Statement (Draft EIS) under the Washington State Environmental Policy Act (SEPA) are Cowlitz County and the Washington State Department of Ecology (Ecology). Cowlitz County is the designated nominal lead agency for SEPA environmental review since the Proposed Action would occur within unincorporated Cowlitz County.

2.1.2 Diversify Washington State's Trade-Based Economy

The Applicant states the Proposed Action would support the diversification of Washington State's trade-based economy by providing a new coal export terminal to accommodate the anticipated growth in demand for the export of U.S. coal. Approximately 40% of all jobs in Washington State relate to trade, making international trade a key driver of the state's economy (Washington Council on International Trade 2014). Economic diversification of the trade-based economy is vital to Washington State's long-term economic growth. In times of market volatility, an economy that branches out to other sectors—such as exporting services—can help protect existing, and create new, jobs. Implementation of the Proposed Action would help support the state's diverse economy, which is essential for maintaining economic sustainability.

2.1.3 Reduce Local Unemployment

The Applicant states the Proposed Action would help reduce unemployment in Cowlitz County by creating employment opportunities in the Longview area. As of February 2016, Cowlitz County's unemployment rate was 8.0%, which was higher than both the national and state averages (Washington State Employment Security Department 2016). The Applicant states the Proposed Action would create approximately 1,350 construction employment opportunities and add approximately 135 new family-wage[2] jobs to operate the coal export terminal. This would also generate needed tax revenues for local economies.

2.2 Proposed Action

Lighthouse Resources, Inc.[3] and Arch Coal, Inc. own Millennium Bulk Terminals—Longview, LLC. In 2010, Millennium Bulk Terminals—Longview, LLC applied for and received a Shoreline Permit from Cowlitz County to build a coal export terminal. In March 2011, the permit was withdrawn. This SEPA Draft EIS addresses a separate, second application. In January 2011, Lighthouse Resources, Inc. began looking for a suitable location between northwest Washington and southern California to construct a coal export terminal and determined a 540-acre site in Cowlitz County, Washington, on the Columbia River as the most suitable location.

The Proposed Action would construct and operate a coal export terminal for the shipment of coal in Cowlitz County, Washington, along the Columbia River. The coal export terminal would receive coal from the Powder River Basin in Montana and Wyoming and Uinta Basin in Utah and Colorado via rail shipment. The coal would be stored on site then loaded and transported by ocean-going vessels via the Columbia River and Pacific Ocean to overseas markets in Asia. The coal export terminal would be capable of receiving, stockpiling, blending, and loading coal by conveyor onto vessels in the Columbia River for export.

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[2] Income that is sufficient to support a family.

[3] In April 2015, Ambre Energy North America, Inc. announced that it had changed its name to Lighthouse Resources, Inc. In 2014, Ambre Energy North America, Inc. separated from its Australian parent company, Ambre Energy Limited, when Resource Capital Funds became the majority owner of Ambre Energy North America, Inc. (Lighthouse Resources, Inc. 2015).

The Applicant determined there is sufficient Asian market demand for U.S. low-sulfur coal to warrant the development of a coal export terminal in the western United States for shipping Powder River Basin and Uinta Basin coal to Asian markets. Japan, South Korea, and Taiwan lack substantial coal resources and depend almost exclusively on foreign imports. According to the Applicant, Pacific Northwest ports are well positioned to provide western U.S. coal to trade partners in Japan, South Korea, and Taiwan at rates that are competitive in the international marketplace, and to provide a diversification of coal supply to those importing countries.

2.2.1 Project Location

The location for the Proposed Action is adjacent to the Columbia River in unincorporated Cowlitz County, Washington near Longview, Washington. Under the Proposed Action, the Applicant would develop a coal export terminal on 190 acres, primarily within an existing 540-acre site that is currently leased by the Applicant.[4] The 190-acre upland site is referred to as the *project area*, and the 540-acre site is referred to as the *Applicant's leased area* in this Draft Environmental Impact Statement (Draft EIS). Figure 2-1 illustrates the project area and vicinity for the Proposed Action and the Applicant's leased area.

Cowlitz County Land Use and Development Code (CCC) Title 18 designates the project area for heavy industrial use. As illustrated in Figure 2-1, the project area is bounded by existing industrial uses within the Applicant's leased area to the south and east, the closed Black Mud Pond facility[5] within the Applicant's leased area to the west, and Industrial Way (State Route [SR] 432) and the Reynolds Lead to the north. Existing industrial uses within and adjacent to the project area are described in Section 2.2.2, *Existing Facilities and Operations*.

Vehicular access to the project area is provided via Industrial Way. The Reynolds Lead and BNSF Spur—both jointly owned by BNSF Railway Company (BNSF) and Union Pacific Railroad (UP), and operated by Longview Switching Company (LVSW)[6]—provide rail access to the project area from a point on the BNSF main line (Longview Junction, Washington) located to the east in Kelso, Washington. The distance from the BNSF main line along the BNSF Spur and the Reynolds Lead to the project area is approximately 7 miles. Vessels access the project area via the Columbia River and berth at an existing dock (Dock 1) in the Columbia River.

2.2.2 Existing Facilities and Operations

This subsection describes the existing facilities and operations within the Applicant's 540-acre leased area (Figure 2-1).

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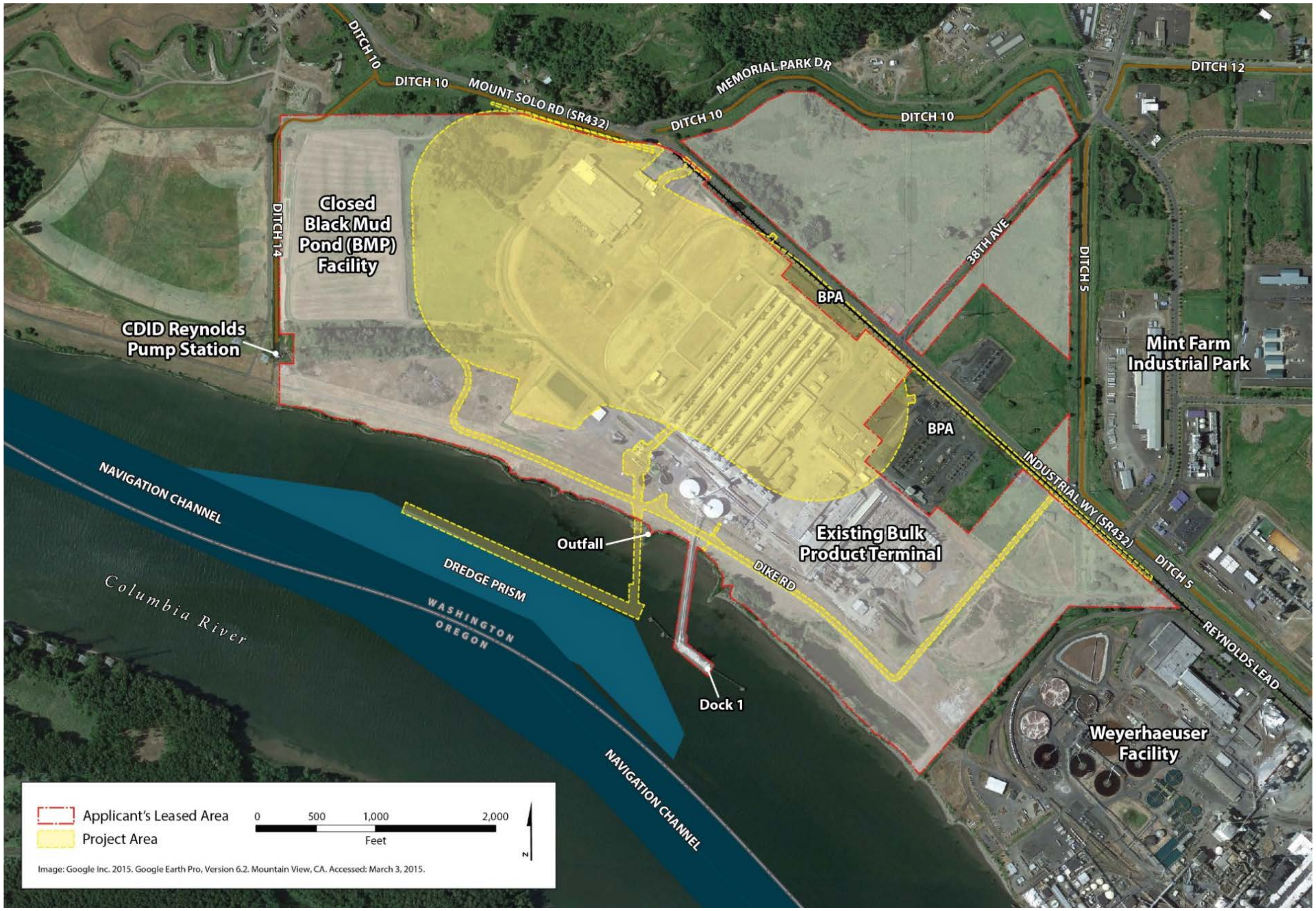
[4] The project area is also located on two parcels currently owned by Bonneville Power Administration and a portion of the Reynolds Lead.

[5] More information about the closed Black Mud Pond facility can be found in Chapter 3, Section 3.6, *Hazardous Materials*, of this Draft EIS.

[6] The Longview Switching Company (LVSW) is jointly owned by BNSF Railway Company (BNSF) and Union Pacific Railroad (UP).

Figure 2-1. Project Area



2.2.2.1 Background and History of the Applicant's Leased Area

The Applicant's leased area is the location of the former Reynolds Metals Company facility (Reynolds facility). The facility was constructed in 1941 to support World War II efforts. Reynolds Metals Company expanded in 1968, and operated as an aluminum smelter until 2001 when smelter operations ceased. The former Reynolds facility was an intensive industrial use and, at the time of its closure in 2001, employed approximately 800 workers, and operated 24 hours per day, 7 days per week. In 2000, Reynolds Metals Company was acquired by Alcoa as a wholly owned subsidiary. In 2001, the Longview facility site assets were sold to Longview Aluminum, but ownership of the land was retained by the Reynolds Metals Company. Longview Aluminum declared bankruptcy in 2003. In 2004, Chinook Ventures purchased Longview Aluminum's assets, including the buildings, structures and equipment, and entered into a long-term land lease with the Reynolds Metals Company, who owns the 540 acres. In 2005, Alcoa transferred ownership of the land from the Reynolds Metals Company to Northwest Alloys, a wholly owned subsidiary of Alcoa, Inc. Northwest Alloys also has an existing Aquatic Lands Lease No. 20-B09222 from the Washington Department of Natural Resources (WDNR) through January 2038.

In 2011, Chinook Ventures sold the plant assets to the Applicant, at which time, the Applicant entered into a long-term land lease with Northwest Alloys, a subsidiary of Alcoa. Work has been done to:

- Remove equipment and storage sheds left behind by Chinook Ventures.
- Dispose of wastes generated during the removal process.
- Clean other equipment and buildings.

The 190-acre project area was separated from the Applicant's leased area through a lot boundary adjustment to develop a coal export terminal. The remaining land within the Applicant's leased area is intended to be used for other purposes including the existing bulk product terminal.

Portions of the Applicant's leased area are also subject to ongoing hazardous materials cleanup activities resulting from contamination by the former aluminum smelting and casting uses. Northwest Alloys and the Applicant are actively engaged in site cleanup in the Applicant's leased area, and continue to work with local, state, and federal regulatory agencies to clean up the site. The Applicant's leased area continues to support industrial operations and is currently used as a bulk product terminal that includes both marine and upland facilities.

2.2.2.2 Existing Bulk Product Terminal

The existing bulk product terminal is within the Applicant's 540-acre leased area (Figure 2-1). The terminal includes buildings and equipment used for various activities. The terminal is served by Industrial Way and the Reynolds Lead. Vessels access the terminal from an existing dock (Dock 1), which is located on the Columbia River.

The existing bulk product terminal includes rail facilities, storage, conveyors and transfer stations, vessel facilities, and other buildings and employee-support facilities.

Rail Facilities

The existing bulk product terminal is located on the Reynolds Lead, an existing rail line serving several industries and connects via the BNSF Spur to the BNSF main line rail network approximately 7 miles away at Longview Junction. The BNSF Spur consists of a track through Longview Junction yard, across the Cowlitz River Bridge, and through the LVSW yard. The Reynolds Lead consists of a track from the LVSW yard to the project area. The Reynolds Lead covers the majority of the distance between the project area and the BNSF main line.

The Applicant has operating permits to load alumina and unload coal by rail. Bulk materials are received and shipped by railcars at an unloading area of the existing bulk product terminal called the Central Transfer Tower. The Central Transfer Tower is an enclosed building receiving bulk material from railcars using a gravity fed bin under the rail line.

Storage

Storage of alumina and coal at the existing bulk product terminal occurs in storage tanks (silos). Six vertical storage tanks, originally constructed by Reynolds Metals Company for alumina facility operations, store bulk material near the southern portion of the facility. Three of these tanks receive material from the Central Transfer Tower for storage prior to shipping the material by truck. Two of the remaining tanks are for the storage of bulk materials that then feed to the last of the six tanks for transfer and shipment by train. Maximum capacity for handling materials varies by tank from 30 to 100 tons per hour (Southwest Clean Air Agency 2014).

The existing bulk product terminal includes four additional storage tanks used during previous smelter operations. Currently, one tank is empty and the other three tanks contain material from previous operations, but are in the process of being emptied by the Applicant. In addition, there are miscellaneous storage tanks on site, including fuel tanks.

The bulk product terminal includes an area in the central portion of the site called the North Plant Potrooms, which contains six potline[7] buildings (approximately 600,000 total square feet). Various bulk products from previous operations were stored in these buildings. However, these products have been removed and the potrooms have been cleared by the Applicant.

Conveyors and Transfer Stations

The existing bulk product terminal includes a conveyor system extending from the bulk material unloading facilities to the storage silos or truck loading areas. Existing conveyors are enclosed and use either a wet suppression system or dust-collection equipment to minimize fugitive emissions during the transfer of bulk materials.

Vessel Facilities

The existing bulk product terminal includes Dock 1, which is currently used to unload alumina from vessels and to berth other ships. Dock 1 is directly south of the existing terminal's upland facilities and provides vessels access to the terminal via the Columbia River at the existing berthing area. The dock includes an overwater approach trestle and equipment to unload bulk materials from the

[7] Potlines are defined as a row of electrolytic cells connected electrically in series, used in the production of aluminum.

vessels. Current vessel traffic at the dock is relatively low, at approximately six to seven ships accessing the dock per year.

The Applicant has operating permits to unload alumina from vessels. Unloading facilities include a vacuum ship unloader used for alumina shipments. The existing ship berth has been periodically dredged to support alumina shipments.

Buildings and Employee-Support Facilities

The existing bulk product terminal includes a former cable plant building, an approximately 270,000-square-foot facility with associated ancillary structures occupying the northwestern corner of the area. The plant was constructed in the late 1960s, and until 1992, produced electrical cable products, including aluminum wire, rods, and insulated low and medium voltage cable.

The terminal also includes various buildings and employee-support facilities including four office buildings, two cast house buildings, a carbon plant, and several maintenance sheds.

2.2.2.3 Current Operations and Transport

Current operations of the bulk product terminal, allowed under current permits and zoning, include storing and transporting alumina and up to 150,000 metric tons per year of coal. On-site operations and off-site transport activities are described below. The transport of alumina has been put on hold because Alcoa announced in November 2015 that it will curtail the Wenatchee smelter, temporarily ceasing production while maintaining the facility for restart. The on-site and off-site operations related to alumina are discussed in this Draft EIS to describe alumina transport when the Wenatchee facility restarts.

On-Site Operations

On-site operations of the existing bulk product terminal involve receiving, storing, and loading (for transport) coal and alumina. Coal is delivered to the site by train, stored in the existing silos, and transferred by truck to the neighboring Weyerhaeuser facility. Alumina is delivered to Dock 1 by vessel, stored on site, and transported by train.

Portions of the project area are also undergoing hazardous waste cleanup activities resulting from contamination by former aluminum smelting operations (Washington State Department of Ecology 2014). Washington State Department of Ecology (Ecology) is overseeing work being done by Northwest Alloys, Alcoa, and the Applicant to investigate and cleanup the site under Washington's Model Toxics Control Act. A Remedial Investigation and Feasibility Study was finalized in January 2015. The study investigated contamination, identified soil and groundwater contaminants and identified cleanup options. The draft Cleanup Action Plan and Consent Decree were issued in January 2016, which describe cleanup methods and standards. Additional hazardous materials are described in Chapter 3, Section 3.6, *Hazardous Materials*, and its corresponding appendix.

Off-Site Transport

Trains currently deliver coal to the bulk product terminal where it is transferred by truck to Weyerhaeuser, located 1 mile to the east of the bulk product terminal. Vessels would deliver alumina to Dock 1 on the Columbia River. Alumina would be stored and then shipped to Chelan

County, Washington, by train. Table 2-1 identifies current activities and the means for transporting the commodities to and from the existing bulk product terminal.

Table 2-1. Current Activities and Transport Operations at the Existing Bulk Product Terminal

		Transport Operations		
Commodity	**Activity**	**Truck**	**Train**	**Vessel**
Coal	Trains deliver coal where it is transferred by truck to Weyerhaeuser, located approximately 1 mile southeast of the existing bulk product terminal	Operate on a continual basis (24 hours a day; 7 days a week)	1 train (25 to 30 rail cars) 1 to 2 times per week	N/A (trains deliver coal; trucks transport)
Alumina	Vessels deliver alumina to Dock 1; Alumina is stored and then shipped to Chelan County, Washington by train	Not applicable (vessels deliver alumina; trains transport)	60 rail cars per week shipped at a rate of 12 rail cars per day, 5 days per week	6 vessels per year

Notes:
N/A = not applicable

2.2.3 Proposed Facilities, Construction, and Operations

As described in the Section 2.2.2, *Existing Facilities and Operations*, the Applicant currently operates and would continue to operate the bulk product terminal on land leased by the Applicant, separate from and independent of the Proposed Action. Under the Proposed Action, the coal export terminal would be developed on 190 acres (project area), primarily within the Applicant's leased area and adjacent to the existing bulk product terminal (Figure 2-1). The proposed coal export terminal facilities and operations described in this section would occur within the 190-acre project area.

BNSF or UP trains would transport coal in unit trains (meaning all the rail cars carry the same commodity) from the BNSF main line at Longview Junction to the project area via the BNSF Spur and Reynolds Lead (Figure 2-2). Coal would be unloaded from rail cars, stockpiled and blended, and loaded by conveyor onto ocean-going vessels at two new docks (Docks 2 and 3) to be located in the Columbia River for export. Figure 2-3 illustrates the Proposed Action.

Construction of the Proposed Action would involve clearing and grading, construction of rail and coal handling facilities including eight storage track loops to provide staging for arriving and departing trains, as well as a tandem rotary dumper, conveyors, stackers, and reclaimers. The stockpile area would be located within the rail loop and consist of four discrete stockpile pads. The stockpile area would require ground improvements, which would entail preloading[8] of the stockpile area. Approximately 2.1 million cubic yards of preloading material (i.e., rock, dirt, concrete or other appropriate debris) would be placed on the stockpile area to a height of approximately 35 feet.

[8] Preloading is the consolidation or compression of soils to support coal stockpiles and associated infrastructure to prevent excessive future settlement.

Figure 2-2. BNSF Spur and Reynolds Lead

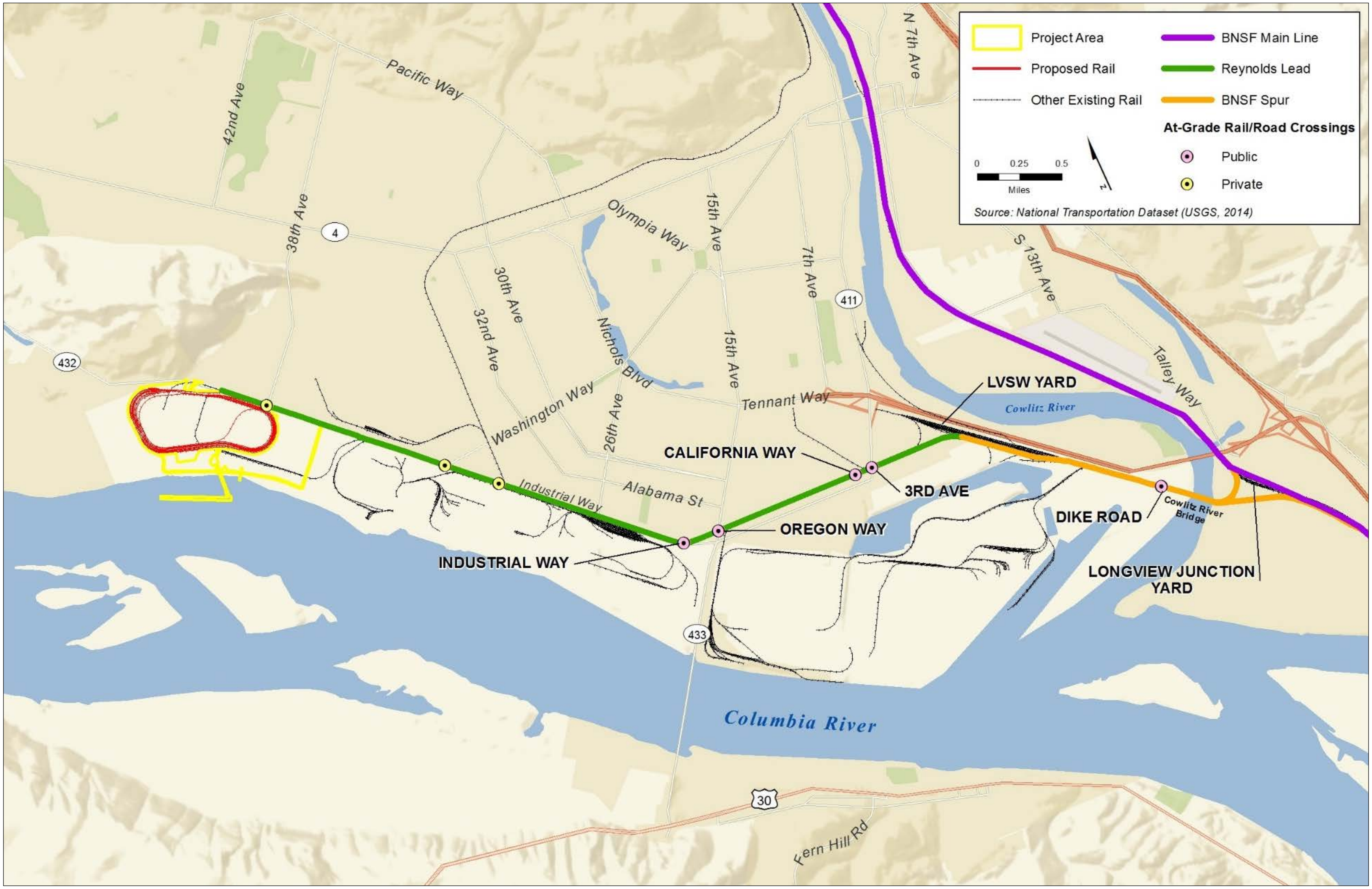
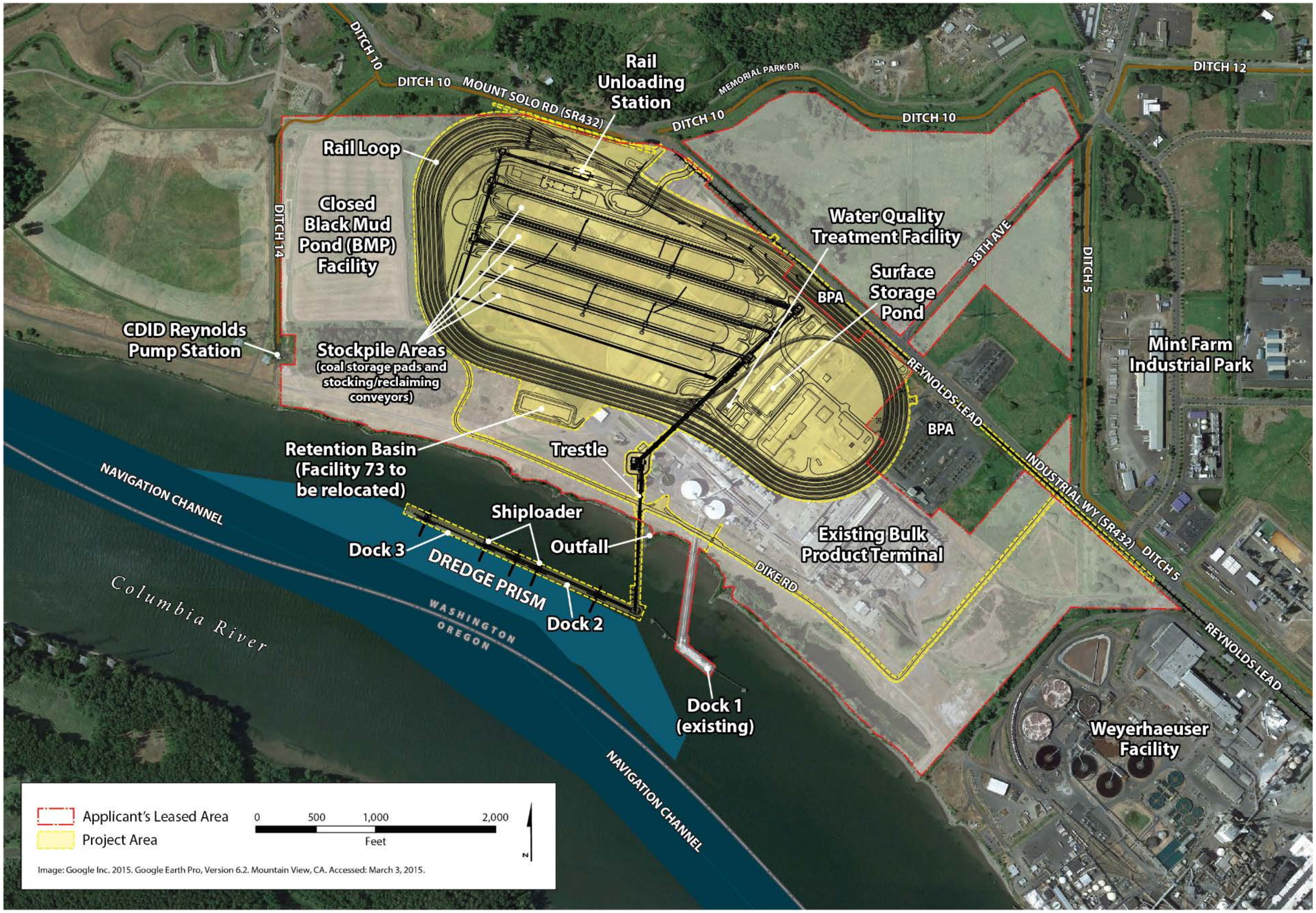


Figure 2-3. Proposed Action



Wick drains[9] would be placed within the stockpile area to reduce the time required for preloading, from an estimated 18 months to 9 months. The wick drains would allow groundwater to be expelled from beneath the stockpile area and allow the necessary ground settlement to occur.

The Proposed Action would also require constructing a trestle and two docks, with one shiploader on each dock. The trestle and docks would require 630 36-inch pilings, 610 of which would be installed below the ordinary high water mark (OHWM)[10] of the Columbia River. Most pilings would be installed approximately 140 to 165 feet below the mudline, using vibratory pile drivers and an impact pile driver for proofing. Shiploaders located on the docks would consist of a traveling structural steel portal, shuttle, and boom and would be fed coal by a dedicated conveyor. Shiploaders would be rail mounted to allow movement along the dock.

The Proposed Action could have a maximum annual throughput capacity of up to 44 million metric tons per year.[11,12] As illustrated in Figure 2-4, the Proposed Action would consist of one operating rail track, eight rail tracks for storing up to 8 unit trains, rail car unloading facilities, a stockpile area for coal storage, conveyor and reclaiming facilities, two new docks in the Columbia River (Docks 2 and 3), and shiploading facilities on the two docks. Dredging of the Columbia River would be required to provide access to the Columbia River navigation channel and for berthing at Docks 2 and 3. Figure 2-4 illustrates coal export terminal operations for unloading, stockpiling, transferring, and shipping coal.

Vehicles would access the project area from Industrial Way, and vessels would access the project area via the Columbia River and berth at Dock 2 or 3. Coal export terminal operations would occur 24 hours per day, 7 days per week. The Proposed Action would be designed for a minimum 30-year period of operation.

The Applicant anticipates construction would begin in 2018 and would be completed by 2024. Construction and operations would consist of two stages. Stage 1 would include two sub-stages: Stage 1a for start-up operations and Stage 1b for increased operations. Stage 2 would involve construction and operations for full build-out. For the purpose of the analysis in this document, it is assumed that the Proposed Action would be fully operational at maximum capacity by 2028.

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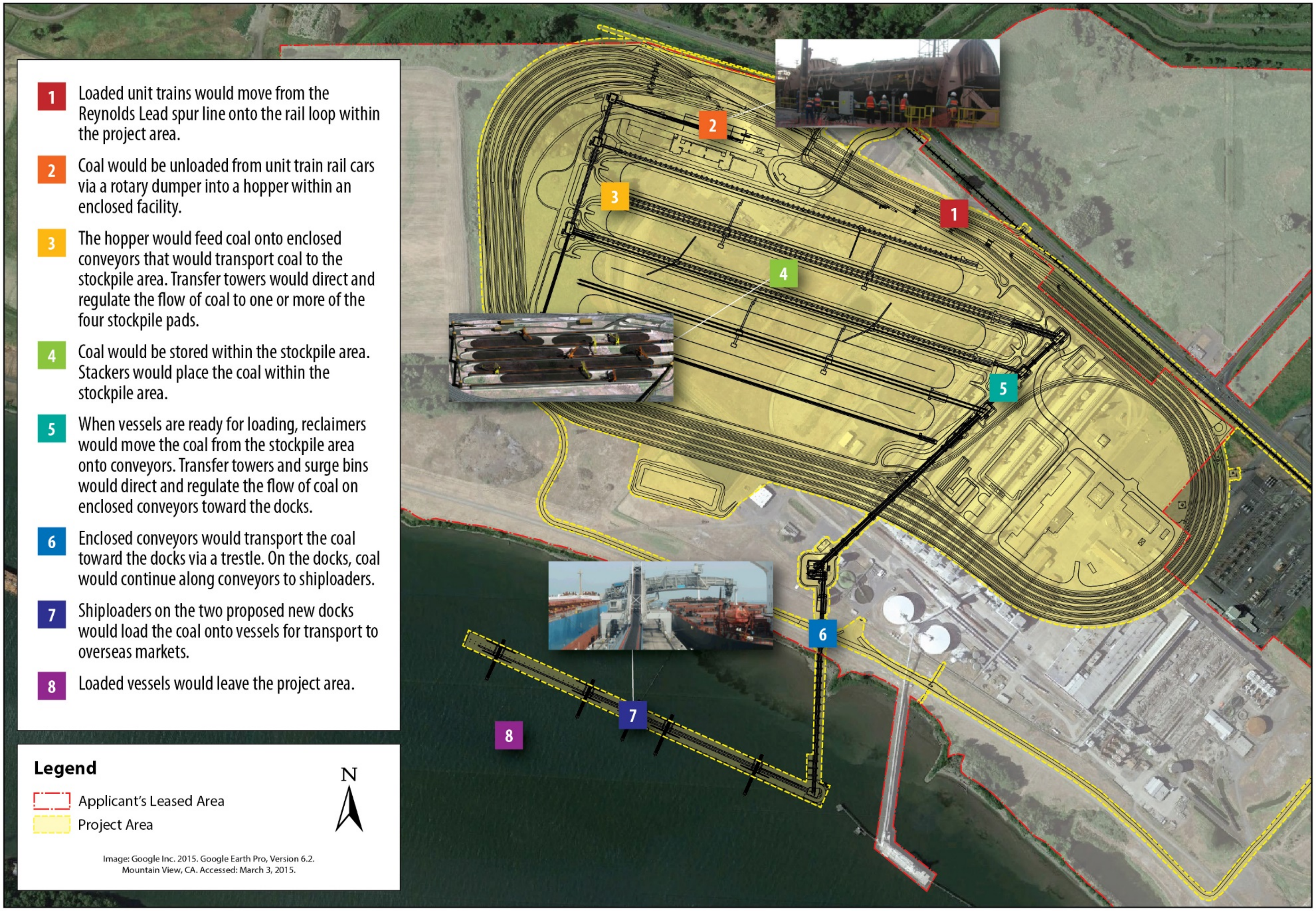
[9] Wick drains, also known as prefabricated vertical drains and vertical strip drains, are a ground-improvement technique that provides drainage paths for pore water in soft compressible soil, using prefabricated geotextile filter-wrapped plastic strips with molded channels.

[10] Per Washington State's Shoreline Management Plan, "that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or at it may change thereafter in accordance with permits issued by a local government or the Department of Ecology, provided, that in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining salt water shall be the line of mean higher high tide and the ordinary high water mark adjoining fresh water shall be the line of mean high water."

[11] According to the Applicant, proposed rail operations and coal export terminal design would support terminal throughput of 40 million metric tons per year. The Proposed Action is based on a throughput of up to 44 million metric tons per year. The Applicant assumes a 10% increase in throughput (4 million metric tons per year) from rail car capacity and operational efficiencies that could be achieved through industry process and technological improvements by 2028, the first year of assumed full operations.

[12] A metric ton is the U.S. equivalent to a tonne per the International System of Units, or 1,000 kilograms or approximately 2,204.6 pounds.

Figure 2-4. Proposed Action Operations



For the purposes of this Draft EIS, analyses were based on a construction year of 2018 and full operations by year 2028. The following provides more information regarding the physical components, construction, and operation of the coal export terminal.

2.2.3.1 Proposed Facilities

The proposed facilities of the Proposed Action would include the following.

- Rail facilities
- Coal stockpile area
- Conveyors, transfer stations, and buffer bins
- Vessel facilities
- Supporting facilities

The following provides a summary of these proposed facilities, based on the project design and project description provided by the Applicant.

Rail Facilities

The Reynolds Lead would be modified within the project area to accommodate unit train access to and from the coal export terminal. Unit trains would move from the Reynolds Lead into a rail loop system where the trains would be directed to an unloading station to unload coal (Figure 2-4). The rail loop would have one operating track and eight loop tracks to provide storage for arriving and departing trains, and to allow unit trains to travel to and from the Reynolds Lead. Grade-separated roadways above the rail tracks would be provided to allow access to and within the project area.

A small portion of the rail loop would be constructed on two parcels currently owned by Bonneville Power Administration (BPA) (Figure 2-3). One parcel contains an access road and substation. To maintain or provide for pedestrian and vehicular access to BPA facilities, the Applicant would construct an access road between the Proposed Action access road and the BPA yard, and install a gate to the BPA yard at a location to be determined by BPA. According to the Applicant, BPA will not make a determination whether to sell or grant an easement to the Applicant until after the U.S. Army Corps of Engineers (Corps) publishes the National Environmental Policy Act Final EIS for the coal export terminal.

Unit trains would enter the coal export terminal from the east and move through the rail loop in a counter-clockwise direction until the train was contained within the terminal rail loop. The rail loop would be able to accommodate up to 8 unit trains. Once unloaded, trains would be redirected in a clockwise direction on the inner-most rail loop and would then be able to exit the coal export terminal.

Unloading facilities would be constructed to unload coal from rail cars within an enclosed structure. Two rail cars would be simultaneously positioned inside a fully enclosed, metal-clad building (Appendix C, *Coal Export Terminal Engineering Plan Sheets*, Sheet 5). The unloading facilities would contain equipment to rotate rail cars and discharge the coal from the rail cars into a large hopper (Figure 2-5).

Figure 2-5. Typical Tandem Rotary Unloader

Source: Millennium Bulk Terminals—Longview 2013

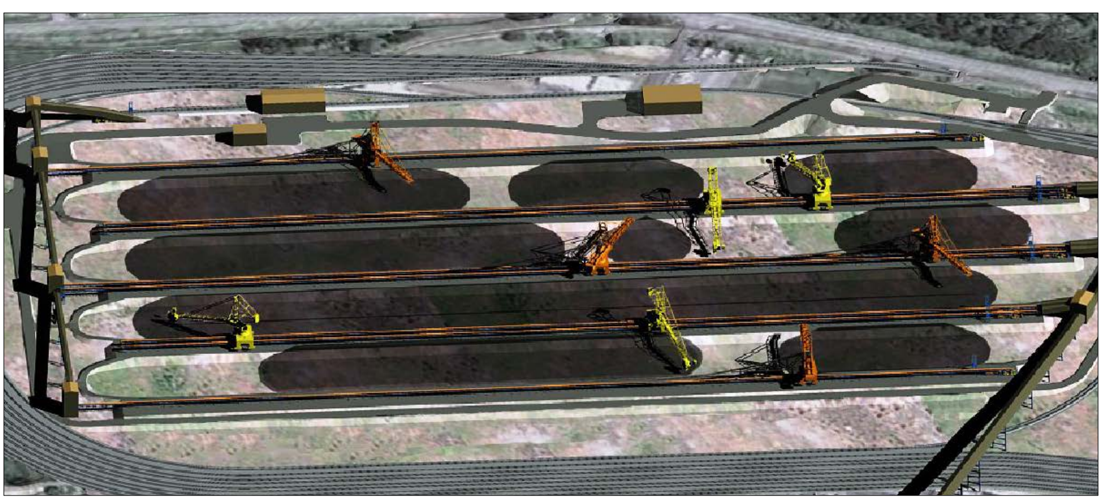
As the tandem rotary dumper rotates the rail cars and begins to unload the coal into hoppers beneath the dumper, sprayers would spray water to avoid and minimize dust dispersion within the enclosed structure. The hopper beneath the rotary dumper would feed coal onto a conveyor at a nominal rate of 7,500 metric tons per hour. The conveyor would move the coal to the stockpile area (Appendix C, *Coal Export Terminal Engineering Plan Sheets,* Sheets 5 through 13).

During start-up operations of the Proposed Action, a rapid discharge (i.e., bottom) unloader, located within an enclosed building, would be used to unload rail cars. The rapid discharge unloader would be retained after start-up operations and might be used during maintenance periods of the rotary unloader. Both unloaders would not be able to operate simultaneously.

Coal Stockpile Area

The inner portion of the rail loop would include coal stockpile storage pads and associated stacking and reclaiming equipment to place and move coal (Figure 2-6). The open-air stockpile area would consist of four parallel stockpile pads and five berms. The stockpile area would cover approximately 75 acres and would be served by four rail mounted stackers and four bucket-wheel reclaimers that would be associated with conveyors.

Figure 2-6. Representation of the Stockpile Area with Stackers and Reclaimers



Source: Millennium Bulk Terminals—Longview 2013

The stockpile pads together would be able to hold approximately 1,500,000 metric tons of coal. The pads would vary in length from 2,200 to 2,500 feet and could hold from 360,000 to 400,000 metric tons each. Coal would be stacked to approximately 85 feet above the pads. The pads and berms would be made of low-permeability engineered material. The stockpiles and berms would be graded to allow the water to drain and be collected for treatment and reuse or discharge. The use of low-permeability engineered materials for formation of the pads and berms would control water from entering subsurface soil or groundwater.

Water Systems

Industrial water supply needed for operations of the coal export terminal and fire protection would be supplied from treated water stored on site from the terminal's water-treatment facility. During dry weather, water would be supplemented from on-site wells as needed. An on-site storage reservoir would provide water required for normal operations (i.e., dust control, stockpile spray, equipment wash-down) and emergency fire demand. A separate pumping system would be designated for the emergency fire system, where appropriate, to provide redundancy and to supply additional pressure where needed. Peak process water demand would be approximately 5,000 gallons/minute (gpm). Peak emergency fire water demand would be approximately 1,500 gpm. Peak potable water demand would be approximately 185 gpm based on anticipated labor force at full build-out. The bulk product terminal's stormwater detention pond would be relocated (Appendix C, *Coal Export Terminal Engineering Plan Sheets*, Sheet 2) and would store treated stormwater, collected from the bulk product terminal area and treated in the stormwater-treatment facilities. All water (stormwater and process water) within the limits of the proposed rail loop, trestle and docks would be collected and conveyed to new water-treatment facilities (including a new detention pond). Treated water would be used to maintain process water within the new water pond.

Excess treated water would be discharged to the Columbia River at the existing outfall (Outfall 002A, refer to Chapter 4, Section 4.2 *Surface Water and Floodplains,* for more information). Process water would be used for operations, such as for dust control and sprayers at the tandem rotary dumper, along all conveyers, the stockpile areas and transfer towers and surge bins. Appendix C, *Coal Export Terminal Engineering Plan Sheets*, provides plan sheets for various project elements. Process water would also be used for wash-down and cleanup of equipment such as conveyors, under-belt plating, bins, hoppers and walkways. All process water—as well as stormwater from the rail loop and those areas within the rail loop, trestle, and docks—would be collected, conveyed, treated, and stored on site. The proposed trestle and docks would have capture and containment measures beneath them and all water captured would be conveyed to water-treatment facilities. Excess treated water would be discharged to the Columbia River.

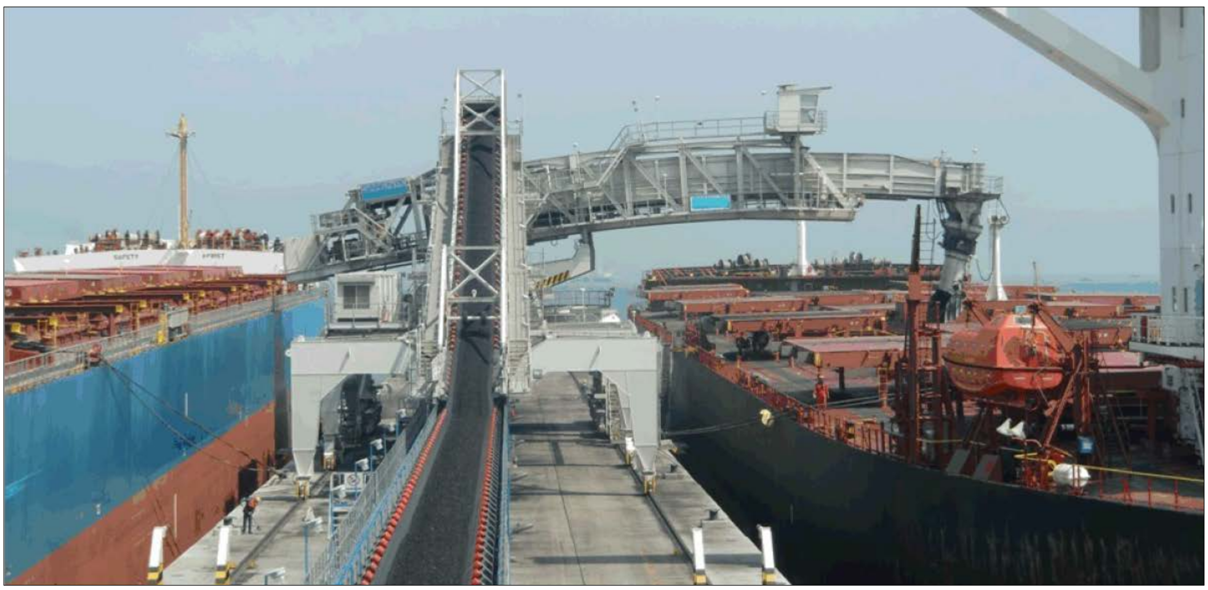
Conveyors, Transfer Stations, and Buffer Bins

A network of belt conveyors would transport coal from the rail car-unloading facilities to the stockpile area, and from the stockpile area to the vessel-loading facilities, or from rail cars directly to the vessel-loading facilities. Multiple conveyors would connect at transfer stations that would redirect the flow of coal. Buffer bins would provide storage capacity in the conveyor system to allow continuous coal reclaiming and transfer. All belt conveyors and transfer stations would be fully enclosed, except for the stockpile area and vessel-loading conveyors, which would be open due to their operational requirements.

Vessel Facilities

The proposed Docks 2 and 3 would be constructed west (downstream) of Dock 1 (Figure 2-3). Dock 2 would be up to 1,400 feet long and would vary in width from approximately 100 to 130 feet. Dock 3 would be up to 900 feet long and approximately 100 feet wide. Vehicle and pedestrian access and coal transfer to the docks would be provided by a single trestle approximately 800 feet long, varying in width from approximately 35 feet on the northern, landward end, up to 60 feet on the southern end. Each dock would include a shiploader and associated loading equipment (Figure 2-7). The main shipping channel in the Columbia River is 43 feet deep at low tide (-43 feet Columbia River Datum). The docks and shiploaders would be able to accommodate Panamax-class vessels[13] and Handymax-class vessels.[14] The fleet mix would be approximately 80% Panamax-class vessels and 20% Handymax-class vessels. The Applicant has stated there would be no vessel bunkering at Docks 2 and 3.

Figure 2-7. Typical Shiploader



Source: Millennium Bulk Terminals—Longview 2013

Vessels would be loaded using shiploaders that would each include an enclosed boom and loading spout. The loading spout would also be telescopic and would be inserted below the deck of the vessel during vessel loading to avoid and minimize dust dispersion. Shiploader cleanup and washdown would be done with pressurized water and all water would be captured and contained, and then conveyed to upland water-treatment facilities.

Dredging

Dredging of approximately 500,000 cubic yards of substrate from an approximate 48-acre berthing area along the riverward side of Docks 2 and 3 would be required to provide berthing access from

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[13] Panamax vessels would have a dead weight tonnage (dwt) between 60,000 and 100,000 tons with a draft of between 42 and 49 feet. For more information, see Chapter 5, Section 5.4, *Vessel Transportation*.

[14] Handymax vessels have a dwt of up to 60,000 tons with a draft of between 36 and 39 feet (Chapter 5, Section 5.4, *Vessel Transportation*).

the Columbia River navigation channel to the docks. Sediment transport, current, and river flow studies would be performed to determine the optimum dredge prism. Dredged material is expected to be suitable for flow-lane disposal or beneficial use in the Columbia River based on recent sediment sampling. A dredging and disposal quality control plan would be implemented in compliance with the dredged material management program as required by state agencies (Ecology and WDNR) and federal agencies (Corps and U.S. Environmental Protection Agency). Periodic future maintenance dredging of the berthing area would be required.

Water Drainage and Treatment

Drainage systems would be designed such that runoff within the coal export terminal would be collected for treatment before reuse or discharge. The terminal's water-treatment facility would be designed to treat all surface runoff and process water with capacity to store the water for reuse. Treatment would be as required to meet reuse quality or Ecology's requirements for off-site discharge. Additional water storage would be provided in the coal storage area during large storm events. Water volumes exceeding the demands for reuse would be discharged off site via an existing outfall into the Columbia River. Water released off site would be treated and would meet Ecology's requirements and required permits.

Supporting Facilities

The Proposed Action would also include the following support facilities.

- Roadways and bridges to provide vehicular access throughout the coal export terminal
- Service and administration buildings
- Stormwater-management facilities
- Utility infrastructure
- Electrical transformers
- Switchgear and equipment buildings
- Process-control systems

2.2.3.2 Construction

Construction of the Proposed Action is divided into three sections: construction elements; construction staging; and construction environmental controls.

Construction Elements

This section summarizes the following primary construction elements.

- Demolition and site preparation
- Preloading
- Rail loop construction
- Trestle and dock construction

Demolition and Site Preparation

An existing cable plant building (approximately 270,000 square feet), existing potline buildings (approximately 600,000 total square feet), and smaller ancillary structures in the project area would be demolished under the Proposed Action. The structures are primarily steel, aluminum, concrete, and wood. The demolition phase would take approximately 6 months.

Site preparation would include operating heavy machinery to prepare the site, including clearing of vegetation, grading, earthmoving, earthworks, and constructing erosion-control facilities (including settlement ponds). Heavy machinery could include cranes, wheeled loaders, dozers, dump trucks, excavators, graders, rollers, compactors, drill rigs, vibratory and impact pile-driving equipment, portable ready-mix batch plant, ready-mix trucks, concrete pumps, elevated work platforms, forklifts, rail track laying equipment, welders, water pumps, and other similar machinery. Site preparation would last approximately 3 months.

Preloading

Preloading of the site would be required to strengthen the existing soil conditions and improve the load-bearing capacity of the coal stockpile areas. Import of preloading material and installation of wick drains would be required for ground improvement for the stockpile areas. Approximately 2.1 million cubic yards of material would be imported to be used as preloading material. Material imported for preloading would be clean and obtained from an approved facility. Approximately 2.5 million cubic yards of material would be moved around the project area during preloading activities.

Ground improvement would occur progressively and would take up to 7 years to complete. Preloading material would be imported by truck, rail or barge[15] and could include dredge spoils if the material was suitable.

A rolling preload of material would be used to improve the load-bearing capacity of the soils (i.e., one stockpile pad at a time would be preloaded). Preloading material would be placed in a pile approximately 35 feet high covering the area of the berm and adjacent stockpile pads and would be left in place until soil consolidation is achieved. Following consolidation, preloading material would be moved to another berm and stockpile pad location, with supplementary import material added to achieve a pile approximately 35 feet high. The process would be repeated at each berm and stockpile location until soil consolidation is achieved across the entire stockpile area. After completion of soil consolidation, the excess preloading material would be used on site, stockpiled, or removed from the area and disposed of at an approved facility.

Rail Loop Construction

Rail loop construction would include the following activities.

- Importing ballast rock
- Constructing railroad foundations
- Placing railroad ties
- Laying steel rail

[15] Most of the deliveries of preload material would occur early in the construction period with up to 753 barges making deliveries in the first year.

- Installing signaling
- Installing switching equipment
- Installing track lighting

This work would involve the operation of heavy machinery, cranes, and specialized rail laying equipment.

The rail loop would include one operating track (i.e., turn-around track) and eight rail storage tracks. Construction of the rail loops would require 130,000 cubic yards of ballast rock for rail foundations. All construction activities work would involve operating heavy machinery, cranes, and specialized rail laying equipment. Once completed, trains would enter the coal export terminal from the east and move through the rail loop in a counter-clockwise direction until the train was contained within the terminal rail loop. The rail loop would be able to accommodate up to 8 unit trains. Once unloaded, trains would be redirected in a clockwise direction on the inner-most rail track and would then be positioned to exit the terminal.

Trestle and Dock Construction

Dredging would occur as part of the construction of Docks 2 and 3, which would include removing approximately 500,000 cubic yards of material. Dock and trestle construction would include pile driving of approximately 630 36-inch-diameter steel pipe piles, 610 of which would be installed in aquatic areas below the OHWM. Most piles would be driven to a depth of 140 to 165 feet below the mudline. Each would be installed using a vibratory driver until the pile meets resistance and vibratory driving is no longer effective, at which point an impact driver would be used to complete pile installation. Docks 2 and 3 would consist of 36-inch-diameter piles driven into the riverbed to support the shiploader runway beams, shiploader conveyors, and reinforced concrete decking. The dock structures would be equipped with fenders, mooring bollards, and capstans to facilitate the docking of vessels.

Upon completion of Stage 2 construction, Docks 2 and 3 would be served by two rail-mounted shiploaders. Each shiploader would be fed coal by a dedicated conveyor that would move coal from the stockpile area to the shiploader.

Construction Scenarios and Staging

The Applicant has identified three construction-material-delivery scenarios: delivery by truck, rail, or barge.

- **Truck.** If material is delivered by truck, it is assumed that approximately 88,000 truck trips would be required over the construction period. Approximately 56,000 loaded trucks would be needed during the peak construction year.
- **Rail.** If material is delivered by rail, it is assumed that approximately 35,000 loaded rail cars would be required over the construction period. Approximately two-thirds of the rail trips would occur during the peak construction year.
- **Barge.** If material is delivered by barge, it is assumed that approximately 1,130 barge trips would be required over the construction period. Approximately two-thirds of the barge trips would occur during the peak construction year. Because the project area does not have an existing barge dock, the material would be off-loaded at an existing dock elsewhere on the Columbia River and transported to the project area by truck.

The Applicant would construct the Proposed Action in two stages and anticipates that construction activities would primarily occur during daylight hours.

Stage 1

Stage 1 of construction would consist of two sub-stages: Stage 1a Construction and Start-Up Operations, and Stage 1b Construction and Increased Operations. Stage 1 would include the following tasks.

- Perform project-area ground improvements.
- Construct one operating rail track and up to eight rail storage tracks.
- Construct the stockpile area including two stockpile pads.
- Construct rail car unloading facilities and associated facilities and infrastructure.
- Construct Docks 2 and 3, including the shiploader and related conveyors on Dock 2 and the berthing facilities on Dock 3.
- Perform the necessary dredging within the Columbia River for Docks 2 and 3.

After Stage 1 construction, nominal coal export terminal throughput capacity would be up to 25 million metric tons per year. To allow for a start-up of export activities during the project-area preloading activities and construction, Stage 1 would include a start-up facility that would directly unload coal from rail cars to an enclosed hopper and onto vessels via conveyors and would have a nominal throughput capacity of approximately 5 to 10 million metric tons per year (Table 2-2).

Table 2-2. Construction Staging

Element	Stage 1a Construction and Start-Up Operations	Stage 1b Construction and Increased Operations	Stage 2 Construction and Full Build-Out Operations
Description	Start of Stage 1 construction for start-up operations	Continuation of Stage 1 construction through completion of Stage 1 construction	Start of Stage 2 construction through completion of Stage 2 construction and start of full operations
Approximate Timing and Duration	0–1.5 years (18 months) from the start of construction	0–3 years from the start of construction	4–6 years from the start of construction
Approximate Year	2018-2020	2020-2021	2022–2024
Year Used for the Analyses in this Document	2018	2018	2028[a]
Terminal Throughput Capacity During Stage of Construction	None	5 to 10 MMPTY	Up to 25 MMTPY
Terminal Throughput Capacity After Stage of Construction	5 to 10 MMTPY	Up to 25 MMTPY	Up to 44 MMTPY

Notes:

[a] The Applicant anticipates construction would begin in 2018 and would be completed by 2024. For the purpose of the analysis in this Draft EIS, it is assumed that the Proposed Action would be fully operational by 2028.

MMTPY = million metric tons per year

Stage 2

Stage 2 Construction and Full Build-Out Operations would involve the following tasks.

- Construct a shiploader on Dock 3.
- Construct additional stockpile pads.
- Construct additional conveyors and associated infrastructure to support additional throughput.

After Stage 2 construction, nominal coal export terminal throughput capacity would increase to up to 44 million metric tons of coal per year. Table 2-2 summarizes the three construction stages. Table 2-3 identifies the primary elements of the Proposed Action that would be constructed for the Stage 1a Construction and Start-Up Operations, Stage 1b, Construction and Increased Operations, and Stage 2 Construction and Full Build-Out Operations.

Table 2-3. Primary Construction Elements by Stage

Construction Stage	Description	Primary Construction Elements
Stage 1a Construction and Start-Up Operations	Start of Stage 1 Construction and Start-Up Operations (construction activities for 5 to 10 MMTPY)	• One operating track and up to eight rail storage tracks. • One rapid discharge tandem rail car unloader (bottom dumper). • Conveyors, buffer bins, and transfer towers (approximately 4,300 lineal feet of conveyors, of which approximately 1,000 lineal feet would be open conveyors and approximately 3,300 lineal feet would be enclosed). • Construct Docks 2 and 3. • One shiploader on Dock 2. • Support structures, electrical transformers, switchgear and equipment, process-control systems, and buildings.
Stage 1b Construction and Increased Operations	Continuation of Stage 1 Construction and Increased Operations (construction activities for up to 25 MMTPY)	• Tandem rotary unloading facility (rotary dumper, capable of unloading two rail cars simultaneously). • Three berms for stackers and reclaimers. • Two stackers. • Two reclaimers. • Conveyors, buffer bin, and transfer towers (approximately 16,100 lineal feet of conveyors, of which approximately 4,900 lineal feet would be enclosed). • Support structures, electrical transformers, switchgear and equipment, process control systems, and buildings.
Stage 2 Construction and Full Operations	Construction and Full Operations (construction activities for up to 44 MMTPY)	• The remaining rail storage tracks (for a total of eight rail storage tracks). • The remaining two berms (for stackers and reclaimers) (for a total of five berms). • Two additional stackers (total of four). • Two additional reclaimers (total of four).

Construction Stage	Description	Primary Construction Elements
		• Conveyors, buffer bin and transfer towers (approximately 26,200 lineal feet of conveyors, of which 8,300 lineal feet would be enclosed). • One shiploader on Dock 3. • Support structures, electrical transformers, switchgear and equipment, buildings, process-control equipment, etc.

Notes:
MMTPY = million metric tons per year

Appendix D, *Coal Export Terminal Stages of Construction and Operations*, provides detailed information on the construction and operational elements associated with the start of Stage 1 Construction and Start-Up Operations (Stage 1a), continuation of Stage 1 Construction and Increased Operations (Stage 1b), and Stage 2 Construction and Full Operations.

2.2.3.3 Operations

This section describes on-site operations and off-site transport for the Proposed Action.

On-Site Operations

Similar to construction, operations of the Proposed Action would include two stages: Stage 1 and Stage 2.

- **Stage 1.** Stage 1 includes Stage1a Start-up Operations and Stage 1b Increased Operations.
- **Stage 2.** Stage 2 includes Full Build-Out Operations.

All operations stages would follow the completion of the appropriate construction stages (Stages 1a, 1b, and 2). Table 2-4 summarizes operations by stage and component. Appendix D, *Coal Export Terminal Stages of Construction and Operations*, provides detailed information on the operational elements associated with Stage 1 and Stage 2. Appendix E, *Coal Export Terminal Design Features*, provides design elements of the coal export terminal provided by the Applicant.

Off-Site Transport

Coal would be transported to the project area by rail and transported from the project area by vessel.

Rail

The coal export terminal would receive coal from the Powder River Basin in Montana and Wyoming and possibly the Uinta Basin in Utah and Colorado via rail shipment. BNSF trains would most likely ship Powder River Basin coal and UP trains would ship Powder River Basin and Uinta Basin coal.[16]

[16] UP has the capability to ship Powder River Basin coal. However, the route to the project area would be longer than the BNSF route from the Powder River Basin.

Table 2-4. Coal Export Terminal Operations by Stage and Component

Component	Stage 1a Start-Up Operations	Stage 1b Increased Operations	Stage 2 Full Build-Out Operations
All Coal Export Terminal Operations			
Appx. Timing	1.5 years from the start of construction	3 years from the start of construction	6 years from the start of construction
Appx. Years of Operation	2020–2021 Follows Construction Stage 1a (2018–2020)	2021–2024 Follows Construction Stage 1b (2018–2021)	2024 and beyond Follows Construction Stage 2 (2022–2024)
Year Used for the Analyses in this Document	N/A	N/A	2028[a]
Terminal Throughput Capacity	5 to 10 MMTPY	Up to 25 MMTPY	Up to 44 MMTPY[b]
Number of Employees	Approximately 60 employees for operations.	Approximately 115 employees for operations.	Approximately 135 employees for operations.
Operations Equipment	Same type of equipment for each stage: Wheel loaders, cranes, forklifts, trucks, welders, pumps, track dozers, and other similar equipment. The equipment would be powered by diesel, liquid petroleum gas, or gasoline engines.		
Land Operations			
Rail	• All coal would arrive by unit train. • Unit trains would consist of 3 locomotives and 125 coal cars, with a total length of 6,844 feet. • Up to 60 loaded unit trains would arrive and 60 empty unit trains would depart monthly (average of 120 unit train trips monthly). This equals approximately 4 trains a day (2 trains arriving and 2 trains departing). • Inbound/outbound trains would be stored on site, on a maximum of eight available storage tracks.	• All coal would arrive by unit train. • Unit trains would consist of 3 locomotives and 125 coal cars, with a total length of 6,844 feet. • An average of 150 loaded unit trains would arrive and 150 empty unit trains would depart monthly (average of 300 unit train trips monthly). This equals approximately 10 trains a day (5 trains arriving and 5 trains departing). • Inbound and outbound trains would be stored on site, on a maximum of eight available storage tracks.	• All coal would arrive by unit train. • Unit trains would consist of 3 locomotives and 125 coal cars, with a total length of 6,844 feet. • An average of 240 loaded unit trains would arrive and 240 empty unit trains would depart monthly (average of 480 unit train trips monthly). This equals approximately 16 trains a day (8 trains arriving and 8 trains departing). • Inbound and outbound trains would be stored on site on up to a maximum of eight available storage tracks.

Component	Stage 1a Start-Up Operations	Stage 1b Increased Operations	Stage 2 Full Build-Out Operations
Rail Car Unloading	• Delivered directly from the rail cars to the shiploader by way of a rapid discharge unloading facility and interconnecting conveyors. • No stockpiling of coal.	• Rail cars would be unloaded by an electrical-powered tandem rotary unloader. • A mechanical positioner would index unit trains, position two rail cars at a time, and dump the coal into a hopper and onto the stacking conveying system.	• The Stage 1 tandem rotary unloader would service Stage 2 Operations; no additional unloading equipment would be required. • The rapid discharger tandem rail car unloader installed for Stage 1 would remain operable and may be used during maintenance of tandem rotary unloader.
Conveyor Systems	• Conveyors would transport coal directly from the rail cars to the shiploader by way of a rapid discharge unloading facility and interconnecting conveyors.	• Conveyors would transport coal from rail car unloading to the stockpile area and from the stockpile area to the shiploader. • Conveyors would be enclosed except where required to feed onto or reclaim from stockpiles or onto the shiploaders. • When unloading rail cars, the conveyors from rail car unloading to the stockpile area would operate, and when loading ships, the conveyors from the stockpile area to the shiploader would operate. • Rail car unloading and shiploading would at times occur both independently and simultaneously. • Conveyors would operate for approximately 45% of the available time.	• Conveyors would transport coal from rail car unloading to the stockpile area and from the stockpile area to the shiploader. • Conveyors would be enclosed except where required to feed onto or reclaim from stockpiles or onto the shiploaders. • When unloading rail cars, the conveyors from rail car unloading to the stockpile area would operate, and when loading ships, the conveyors from the stockpile area to the shiploaders would operate. • Rail car unloading and shiploading could occur independently or simultaneously. • Conveyors would operate for approximately 80% of the available time.
Stockpiling	None.	Two electrical-powered traveling stackers would stockpile coal at an average rate of 7,500 metric tons per hour onto two longitudinal stockpiles with an estimated total storage capacity of 750,000 metric tons.	Four traveling stackers would stockpile coal at an average rate of 7,500 metric tons per hour onto two additional longitudinal stockpiles with a total storage capacity of up to 1.5 million metric tons.

Component	Stage 1a Start-Up Operations	Stage 1b Increased Operations	Stage 2 Full Build-Out Operations
Reclaimers	None.	Two electrical-powered traveling bucket wheel reclaimers would transfer coal from the stockpile to the shiploading system (each with an average rate of 6,500 metric tons per hour).	Two additional traveling bucket wheel reclaimers (total of four at Stage 2) would transfer coal from the stockpile to the shiploading system (each with an average capacity of 6,500 metric tons per hour).
Dock Operations			
Shiploading	Performed using an electrical-powered single traveling shiploader installed on Dock 2 with average capacity of 6,500 metric tons per hour.	Would use the shiploader installed for Stage 1 Start-Up Operations (Dock 2 only).	One additional traveling shiploader would be installed on Dock 3 with an average rated capacity of 6,500 metric tons per hour.
Vessels	Up to 15 vessels per month (80% Panamax, 20% Handymax) would be loaded.	Up to 40 vessels per month (80% Panamax, 20% Handymax) would be loaded.	Up to 70 vessels per month (80% Panamax, 20% Handymax) would be loaded.

Notes:

[a] The Applicant anticipates construction would begin in 2018 and would be completed by 2024. For the purpose of the analysis in this Draft EIS, it is assumed that the Proposed Action would be fully operational by 2028.

[b] According to the Applicant, proposed rail operations and coal export terminal design would support terminal throughput of 40 million metric tons per year. The Proposed Action is based on a throughput of up to 44 million metric tons per year. The Applicant assumes a 10% increase in throughput (4 million metric tons per year) from rail car capacity and on-site operational efficiencies that can be achieved through industry process and technological improvements by 2028, the first year of assumed full operations.

MMTPY = million metric tons per year; N/A = not applicable

Proposed Action-related train routes from mines in the Powder River Basin and Uinta Basin to the project area, and the return of empty trains from the project area, was assumed to be the same as current BNSF and UP train operational protocols in Washington State, as documented in adopted publications, including the *Washington State Rail Plan* (Washington State Department of Transportation 2014a) and *Washington State Freight Mobility Plan* (Washington State Department of Transportation 2014b). In 2012, BNSF changed its train operations protocol in Washington State using directional running to enhance use of existing capacity. This strategy routes all westbound-loaded unit trains (including coal) from Pasco via the Columbia River Gorge to Vancouver, where they continue on the BNSF north-south main line to their final destination. Empty unit bulk trains north of Vancouver, including Cowlitz County, return to Pasco and to points east via Auburn and Stampede Pass.

Loaded and empty Proposed Action-related BNSF trains would travel on the same route between the Powder River Basin and Pasco, Washington. West of Pasco, westbound loaded trains are expected to travel to the project area via the Columbia River Gorge route through Vancouver to Longview Junction. Empty trains are expected to travel from Longview Junction on the Stampede Pass route through Centralia, Auburn, and Yakima to Pasco, Washington (Figure 2-8).

However, as volume increases on any one-line segment, BNSF may revise its operations within Washington State to distribute the traffic over existing infrastructure. Railroad companies may also expand their infrastructure, which occurs on an ongoing basis based on demand. For these reasons, empty and loaded BNSF trains could travel through the Columbia River Gorge or across Stampede Pass, depending on BNSF system operations for maintenance or traffic flow.

Loaded and empty Proposed Action-related UP trains would travel on the same route between the Uinta Basin and Powder River Basin and Longview Junction. Within Washington State, UP operates over the same track that carries BNSF trains between Vancouver and Longview Junction (Figure 2-8).

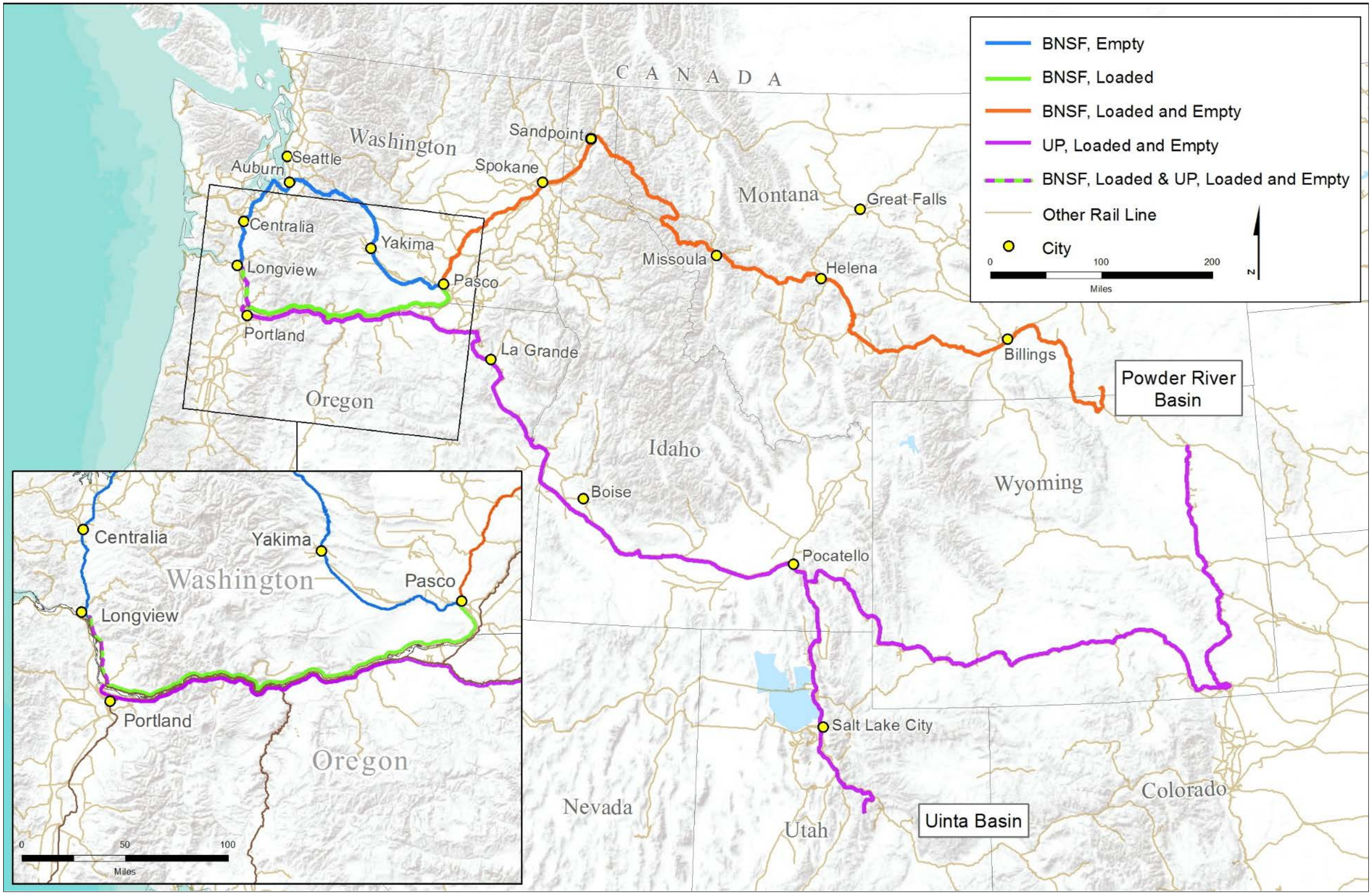
Between Longview Junction and the project area, BNSF and UP trains would travel over the BNSF Spur and Reynolds Lead rail line. Rail transportation is discussed in detail in Chapter 5, Section 5.1, *Rail Transportation*.

Increased train traffic would consist of unit trains 125 cars long (approximately 1.3 miles long). Unit trains would be typically hauled by three locomotives. At full capacity, an average of 8 loaded trains and 8 empty coal trains per day (average of 16 trains daily; 480 trains monthly) would operate on BNSF and UP rail lines inside and outside of Washington State as they travel to and from the project area.

Vessel

Coal would be transported from the project area by vessel to Asian markets. The Applicant anticipates these markets would be Japan, South Korea, and Taiwan. Vessels would travel from the project area via the Columbia River and across the Pacific Ocean. Vessel transportation is discussed in Chapter 5, Section 5.4, *Vessel Transportation*. Vessel trips would use Panamax-class (including new Panamax-class) and Handymax-class vessels. The fleet mix is estimated to be 80% Panamax and 20% Handymax vessels. The Proposed Action would result in an average of 840 vessel trips per year (an average of 2.3 vessel trips per day).

Figure 2-8. Route of Loaded and Empty Trains



2.3 No-Action Alternative

Under the No-Action Alternative, the Applicant would not construct the Proposed Action. Current operations of the adjacent existing bulk product terminal under existing permits would continue, which include storing and transporting alumina and up to 150,000 metric tons per year of coal. Importing of alumina would continue using Dock 1. Upland areas of the project area are zoned Heavy Industrial and it is assumed that future proposed industrial uses in these upland areas could be permitted. Cleanup activities caused by past industrial uses would also continue.

The Applicant could expand the existing bulk product terminal onto the project area, developing storage and shipment facilities to increase bulk product terminal operations. Coal and alumina would continue to be stored, transferred, and shipped. Additional bulk product transfer activities involving products such as calcine pet coke, coal tar pitch, cement, fly ash, and sand or gravel could also be pursued, and new or revised permits could be required based on the operations. These operations could involve storage and upland transfer of bulk products, which would use existing or new buildings. Construction of new buildings could involve demolition and replacement of existing buildings and new or modified permits. The No-Action Alternative does not include activities that could require a Corps permit or shoreline permit. Any new construction would be limited to uses allowed under existing Cowlitz County development regulations (CCC Title 18, Land Use and Development).

Under the No-Action Alternative, new construction, demolition, or related activities to develop the project area into an expanded bulk product terminal would occur on previously developed upland portions of the project area. The quantity of impervious surface area would not change and new construction, demolition, or different activities would not require new docks or new unloading structures on Dock 1. For the assessment of potential impacts in this Draft EIS, the No-Action Alternative includes current roadway and rail infrastructure near the project area that will be implemented by 2018. It is assumed that continued operation of the bulk terminal within the 20-year analysis period (2018 to 2038) would continue to be economically viable. The following describes planned operations and transport and potential future operations and transport under the No-Action Alternative.

2.3.1 Planned Operations and Transport

The Applicant plans to continue current activities at the bulk product terminal and increase commodities storage regardless of whether the Proposed Action in the 190-acre project area is built. Maintenance of the bulk product terminal would continue, including maintenance dredging for the existing dock which would occur every 2 to 3 years (Table 2-5).

Table 2-5. Planned Activities and Transport Operations at the Existing Bulk Product Terminal

		Transport Operations[a]		
Commodity	**Activity**	**Truck**	**Train**	**Vessel**
Coal	Trains would continue to deliver coal where it would be stored on site and transferred as needed by truck to Weyerhaeuser, located approximately 1 mile southeast of the existing bulk product terminal. An increase in the receipt and transfer of Weyerhaeuser coal by 50% began in late 2014, and is separate from the coal export terminal.	Operate on a continual basis (24 hours a day; 7 days a week)	1 train (38 to 45 rail cars); 3 times per week	N/A (trains deliver coal; trucks transport)
Alumina	Vessels deliver alumina to Dock 1. Alumina is stored on site and then shipped to Chelan County by train.	N/A (vessels deliver alumina; trains transport)	80 rail cars per week at a rate of 16 rail cars per day, 5 days per week	8 vessels per year
Other Commodities	Other commodities that are assumed to be delivered by vessel, stored, and shipped via truck and train to various locations	Transported by truck for local distribution at the rate of 16 trucks per day (4,160 trucks per year)	4 rail cars per day (1,040 rail cars per year) for non-local distribution	6 vessels per year

Notes:
[a] Includes existing transport operations as identified in Table 2-1.
N/A = not applicable

2.3.1.1 On-Site Operations

On-site operations under the Applicant's planned operations would be similar to those associated with the current operations of the existing bulk product terminal. Planned activities would include increasing the amount of the existing commodities stored and shipped. Thus, planned operations for handling the increase in existing commodities would be similar, but would be more frequent.

2.3.1.2 Off-Site Transport

The Applicant plans to increase commodities shipment regardless of whether the Proposed Action is built. Table 2-5 provides information about the planned activities and the means for transporting commodities to and from the existing bulk product terminal.

2.3.2 Potential Future Operations and Transport

In addition to current and planned activities described in Tables 2-1 and 2-5, the Applicant is also considering receiving and shipping any products permitted by the terms of an existing WDNR aquatic lands lease[17] including pet coke, coal tar pitch, cement, fly ash, and sand/gravel.

2.3.2.1 On-Site Operations

The following are estimates of the amount and method for transporting each of the commodities permitted per the terms of the existing aquatic lands lease. These operations would be separate from, and independent of, the Proposed Action.

- Calcine pet coke would be imported by vessel from Asia, unloaded from vessels on Dock 1 using a vacuum unloader, and stored in an existing on-site building. Approximately 600,000 tons of calcine pet coke per year could be imported.
- Coal tar pitch would arrive by vessel via super-sacks, and unloaded from either vessel mounted unloading gear or new equipment. Approximately 200,000 tons of coal tar pitch per year could be imported.
- Cement would arrive by vessel and distributed either by rail or truck.
- Fly ash would arrive by rail and depart by truck, or come in by truck and depart by rail.
- Sand or gravel would likely come in by rail and depart by truck, or come in by truck and depart by rail.

2.3.2.2 Off-Site Transport

The following are estimates of the anticipated transport operations of the potential future commodities by the year 2028 (Table 2-6) and estimates of the anticipated transport operations of the potential future commodities combined with the existing and planned activities and transport operations at the bulk product terminal (Table 2-7). These operations would be separate from, and independent of, the Proposed Action.

Table 2-6. Potential Future Commodities and Transport Operations at the Bulk Product Terminal by Year 2028

	Anticipated Transport Operations		
Future Commodity	**Truck**	**Train**	**Vessel**
Calcine pet coke, coal tar pitch, cement, fly ash, sand, or gravel	24 hours per day, 7 days per week	6 to 7 trains per week (30 rail cars per train)	10 to 12 additional vessels per year

[17] Northwest Alloys holds a 30-year aquatic lease (20-B09222) with the Washington State Department of Natural Resources (WDNR) allowing the use of WDNR property for three docks. The lease expires January 2, 2038. Per the existing lease:

- The existing dock can be used for off-loading alumina ore from vessels for transfer to rail car or trucks, off-loading cement for transfer to rail cars and trucks, and off-loading any product that can be moved by vacuum including any type of powder or granulated product.
- Two new fixed docks can be used for products not compatible with the existing system on Dock 1. The products include coal, silica sand, dry fertilizer, potash, coke, cement clinker and other general bulk cargo.

Table 2-7. Total Transportation Operations for Existing, Planned, and Potential Future Activities at the Bulk Product Terminal

	Total Transport Operations		
Activities	**Truck**	**Train**	**Vessel**
Existing (Table 2-1), Planned (Table 2-5), and Potential Future (Table 2-6)	24 hours per day, 7 days per week	2 trains per day; 12 to 14 trains per week: • 2 to 4 incoming trains (between 38 and 45 rail cars) • 10 outgoing trains (between 12 and 16 rail cars)	26 vessels per year