Summary

S.1 Introduction

Millennium Bulk Terminals—Longview, LLC (Applicant) is proposing to construct and operate a coal export terminal (Proposed Action) on a 190-acre site (project area) in Cowlitz County, Washington, along the Columbia River. The project area is located primarily within a 540-acre site currently leased by the Applicant (referred to as the Applicant's leased area).

The proposed coal export terminal would receive coal from the Powder River Basin in Montana and Wyoming and Uinta Basin in Utah and Colorado via rail. The coal would be unloaded and stockpiled in the project area and then loaded onto vessels for transport to Asian markets via the Columbia River and Pacific Ocean.

The Proposed Action would be constructed in two stages with a maximum throughput of 44 million metric tons of coal per year. The coal export terminal would consist of one operating rail track, eight rail tracks for storing rail cars, rail car unloading facilities, a stockyard for coal storage, and conveyor and reclaiming facilities. The terminal would include two new docks (Docks 2 and 3) in the Columbia River, and shiploading facilities on the two docks. Dredging would be required to provide access to and from the Columbia River navigation channel (navigation channel) and for berthing at Docks 2 and 3. A detailed description of proposed facilities and operations, as well as the existing facilities and operations in the project area is provided in Chapter 2, *Project Objectives, Proposed Action, and Alternatives*.

This *Summary* chapter provides an overview of key elements of this Final Environmental Impact Statement (Final EIS) in the following sections.

- **Section S.2, Environmental Review Process.** This section presents an overview of the environmental review process, including public involvement, and agency and tribal coordination.
- **Section S.3, Applicant's Project Objectives.** This section provides the Applicant's project objectives for the Proposed Action.
- **Section S.4, Alternatives.** This section provides an overview of the two alternatives evaluated in this Final EIS: the Proposed Action and No-Action Alternative.
- **Section S.5, Significant Areas of Concern.** This section summarizes the significant areas of concern identified in comments during the EIS scoping process for the Proposed Action.
- **Section S.6, Potential Environmental Impacts and Proposed Mitigation Measures.** This section summarizes the environmental impacts that would likely result from construction and operation of the Proposed Action, and proposed measures that have been identified to mitigate those impacts. This section also summarizes the resource areas with potential cumulative impacts. A table of potential impacts and proposed mitigation measures is provided at the end of this *Summary* chapter.
- **Section S.7, Unavoidable and Significant Adverse Environmental Impacts.** If proposed mitigation measures were implemented, they would reduce but not completely eliminate significant adverse impacts resulting from construction and operation of the Proposed Action.

This section summarizes the unavoidable and significant adverse environmental impacts of the Proposed Action that could remain.

- **Section S.8, Required Permits, Plans, and Approvals.** This section lists the permits, plans, and approvals that would be required for the Proposed Action.
- **Section S.9, Next Steps.** This section describes the next steps in the environmental review process.

Detailed technical information is provided in Chapters 1 through 8 of this Final EIS (Volume I), the EIS appendices (Volume II), and technical reports (Volume III). Volume IV presents responses to comments on the Draft EIS.

S.2 Environmental Review Process

This EIS was prepared for the Proposed Action as required by the Washington State Environmental Policy Act (SEPA) (Chapter 43.21C of the Revised Code of Washington [RCW]), the SEPA Rules (Chapter 197-11 of the Washington Administrative Code [WAC]), and Cowlitz County Code (Chapter 19.11). The Proposed Action triggers SEPA review because it would require permits from state and local agencies. Other local, state, and federal agencies responsible for permits for the Proposed Action will use this Final EIS along with other information to support permitting decisions. The permits, plans, and approvals that would be required for the Proposed Action are listed in Section S.8, *Required Permits, Plans, and Approvals*, of this of this *Summary* chapter. The Proposed Action is also being reviewed under the National Environmental Policy Act (NEPA), for which the U.S. Army Corps of Engineers (Corps), the NEPA lead agency, prepared a separate Draft EIS pursuant to NEPA. The Corps published the NEPA Draft EIS on September 30, 2016.

SEPA requires state and local agencies in Washington State to identify and consider the environmental impacts that could result from governmental decisions including issuing permits for private proposals, such as the Proposed Action. Under SEPA, an EIS is necessary if a proposed action is likely to result in significant adverse environmental impacts. The purpose of an EIS is to provide the public and agencies with information about the effects of a proposed action and inform local and state agency permitting decisions. An EIS is not a decision to approve or deny a proposal.

The co-lead agencies responsible for this EIS under 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. As SEPA co-lead agencies, Cowlitz County and Ecology issued a Determination of Significance and Request for Comments on the Scope of the EIS for the Proposed Action on August 9, 2013, and a revised Determination of Significance on September 9, 2013. This document determined the Proposed Action is likely to result in significant adverse impacts on the environment, pursuant to SEPA (RCW 43.21C.080), and an EIS under SEPA is required.

Separate and parallel to the environmental review process is the development of a Health Impact Assessment (HIA) for the Proposed Action. Information about the Health Impact Assessment is not provided in this Final EIS.

S.2.1 Public Involvement, Agency Coordination, and Tribal Coordination

The first step in the SEPA EIS process is called *scoping*. The co-lead agencies invited local agencies, state agencies, federal agencies, tribes, organizations, and members of the public to comment on the scope of the EIS during a 95-day scoping period. The scoping period began on August 16, 2013, and closed November 18, 2013. Approximately 217,500 comments were received. The co-lead agencies established the scope of the Draft EIS based, in part, on comments received during the scoping period and identified elements of the environment that should be addressed in the Draft EIS. The co-lead agencies coordinated with applicable state and local agencies with technical expertise or jurisdiction during the development of the Draft EIS.

Publication of the Draft EIS on April 29, 2016, triggered a second round of public outreach and involvement, including notification to interested parties about the document's availability and public hearings to solicit input on the Draft EIS. During the 45-day Draft EIS public comment period (April 29 through June 13, 2016), the co-lead agencies provided multiple opportunities to comment on the Draft EIS. The co-lead agencies invited members of the public, government agencies, tribes, and organizations to provide comments by mail, online, and in person at three public hearings held on the following days.

- May 24, 2016, 1:00 to 4:00 p.m. and 5:00 to 9:00 p.m., at the Cowlitz County Regional Conference Center, 1900 7th Avenue, Longview, WA 98632
- May 26, 2016, 1:00 to 4:00 p.m. and 5:00 to 9:00 p.m., at the Spokane Convention Center 334 W Spokane Falls Boulevard, Spokane, WA 99201
- June 2, 2016, 1:00 to 4:00 p.m. and 5:00 to 9:00 p.m., at the TRAC Center, 6600 Burden Boulevard, Pasco, WA 99301

Approximately 267,000 comment submissions were received during the 45-day Draft EIS public comment period. Of these submissions, approximately 263,000 were from mass-mailing form letter or petition campaigns and approximately 4,000 were unique submissions (i.e., not a form letter or petition). All comments submitted during the Draft EIS public comment period were reviewed and considered in the development of this Final EIS. Volume IV, *Responses to Comments on the Draft Environmental Impact Statement*, of this Final EIS presents responses to comments on the Draft EIS. Copies of all public comments received on the Draft EIS are included in an appendix to this volume.

S.3 Applicant's Project Objectives

As part of the SEPA process, the Applicant provided the co-lead agencies with its project objectives, summarized as follows.

- **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 facility designed to transport western U.S. coal efficiently from rail to ocean-going vessels. The Applicant states 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. According to the Applicant, 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.

- **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 bulk commodity export terminal to accommodate the anticipated growth in demand for exporting U.S. coal. According to the Applicant, implementation of the Proposed Action would help support the state's diverse economy, which is essential for maintaining economic sustainability.
- **Reduce local unemployment.** The Applicant states the Proposed Action would help reduce unemployment in Cowlitz County by creating employment opportunities in the Longview area. The new employment opportunities would also generate needed tax revenues for local economies.

S.4 Alternatives

This section provides an overview of two alternatives: the Proposed Action and No-Action Alternative. Analysis of off-site alternatives is not required under SEPA for a private proposal.

S.4.1 Proposed Action

The Proposed Action would construct and operate a coal export terminal in Cowlitz County, Washington, along the Columbia River (Figure S-1). The coal export terminal would receive coal from the Powder River Basin in Montana and Wyoming and Uinta Basin in Utah and Colorado by rail. The coal would be unloaded and stockpiled in the project area and then loaded by conveyor to ocean-going vessels for transport to Asian markets via the Columbia River and Pacific Ocean. The Proposed Action would have a maximum annual throughput capacity of up to 44 million metric tons of coal per year at full export terminal operations.

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 the terminal on 190 acres (project area) primarily within an existing 540-acre site that is leased by the Applicant (Applicant's leased area). The Applicant currently operates and would continue to operate approximately 350 acres of the leased area as a bulk product terminal.

BNSF Railway Company (BNSF) or Union Pacific Railroad (UP) trains would transport coal in unit trains (rail cars that carry the same commodity) to Washington State. Trains would then travel on BNSF main line routes in Washington State and the BNSF Spur and Reynolds Lead in Cowlitz County. Coal would be unloaded from rail cars, stockpiled, and loaded by conveyor onto ocean-going vessels at the two proposed docks (Docks 2 and 3) on the Columbia River.

Figure S-2 shows the expected rail routes for Proposed Action-related trains. Figure S-3 shows the expected route for Proposed Action-related vessels.

Figure S-1. Proposed Action

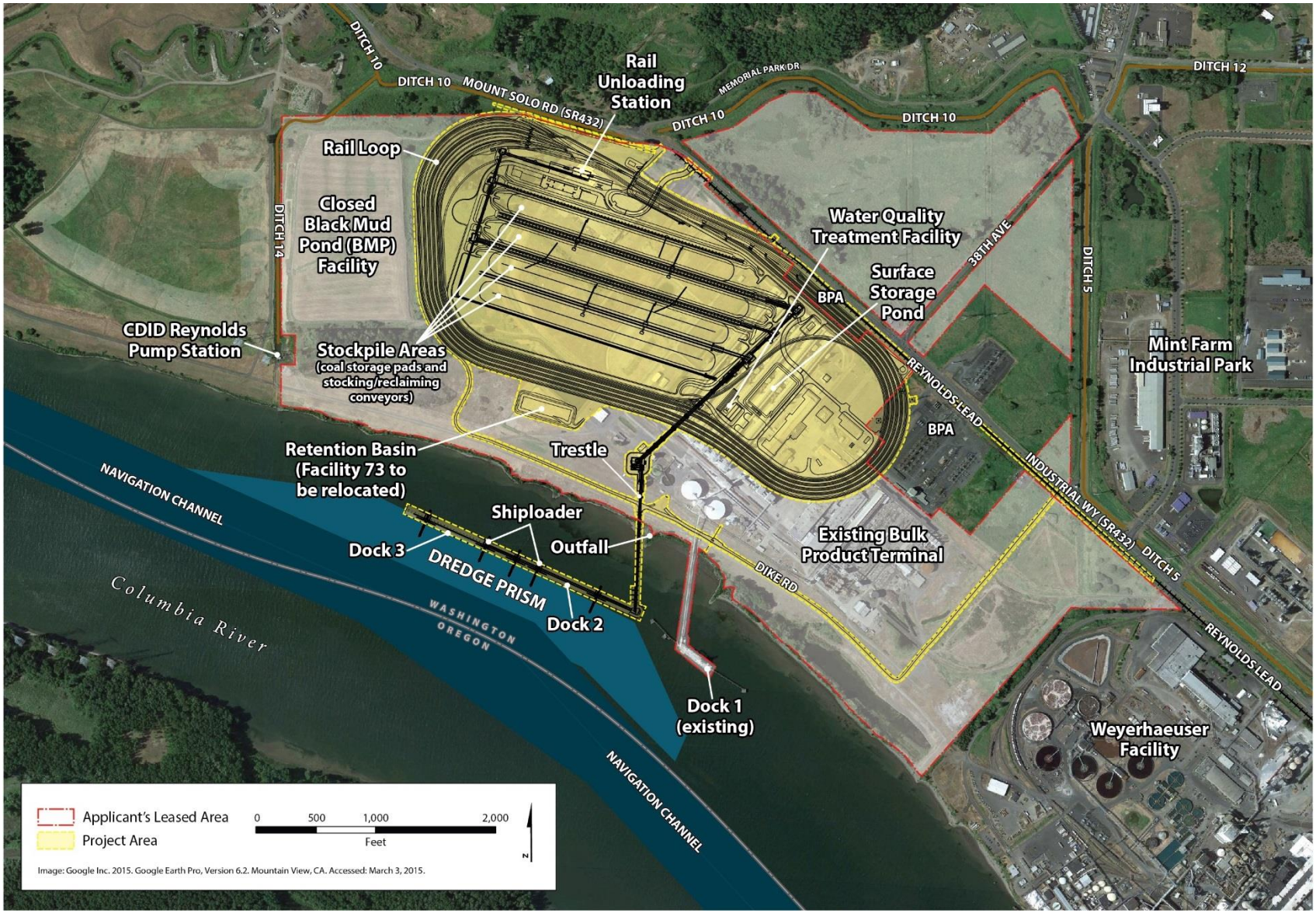


Figure S-2. Expected Rail Routes for Proposed Action-Related Trains

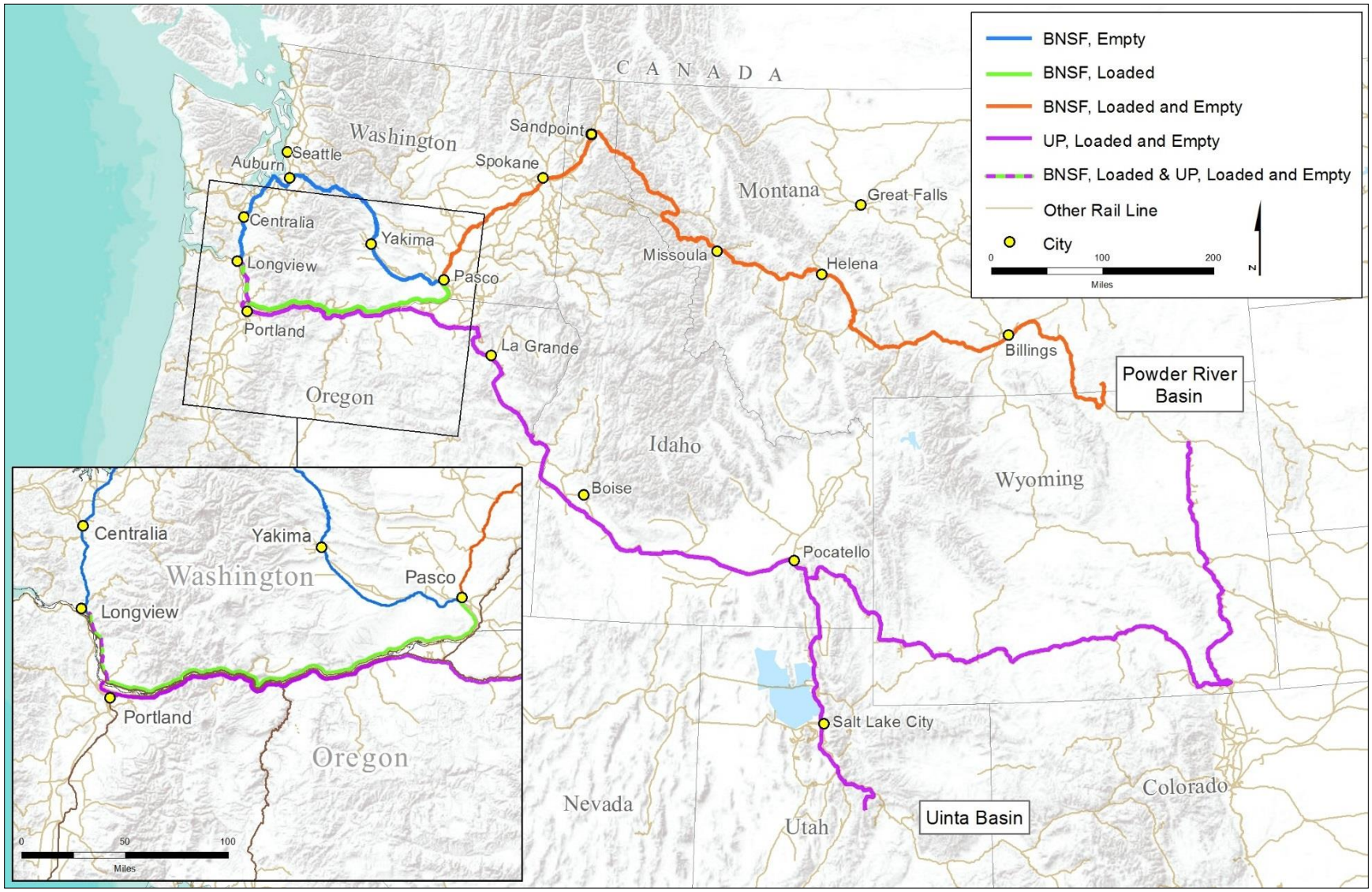
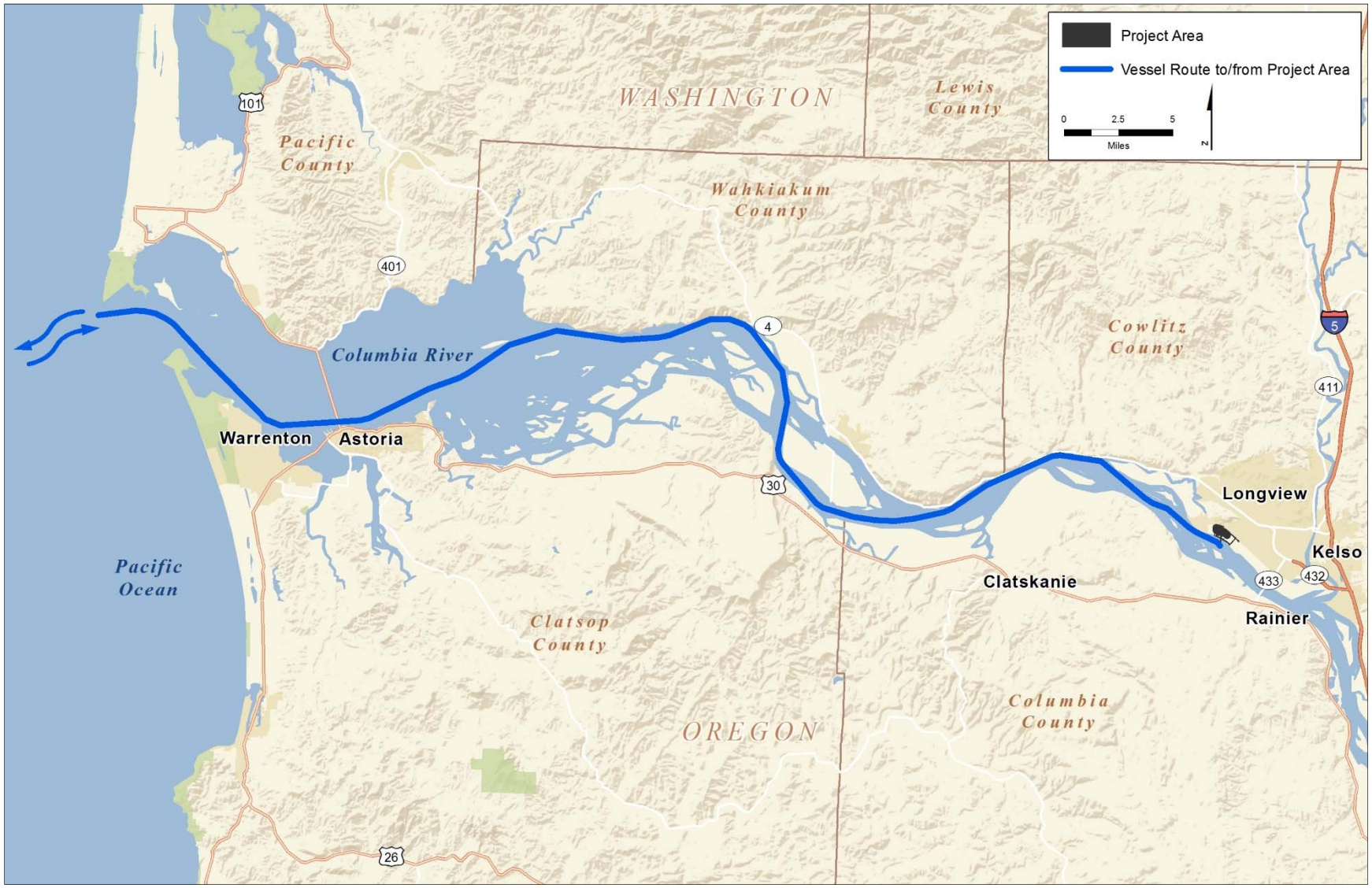


Figure S-3. Columbia River Vessel Route for Proposed Action-Related Vessels



Construction of the Proposed Action would involve clearing, grading, and constructing rail and coal-handling facilities. These facilities would include one operating rail track and eight loop tracks to provide staging for arriving and departing trains. Coal would be moved on the facility using 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. Each pad would require ground improvements, which would entail preloading[1] of each stockpile pad.

The Proposed Action would also require constructing a trestle and two docks, Docks 2 and 3, with one shiploader on each dock. Dredging of the Columbia River would be required to provide access to and from the Columbia River navigation channel and for berthing at Docks 2 and 3.

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. The Reynolds Lead and BNSF Spur—both owned by BNSF and operated by the Longview Switching Company (LVSW)—provide rail access to the project area from a point on the BNSF main line (Longview Junction) located to the east in Kelso, Washington. Operations of the Proposed Action would occur 24 hours per day, 7 days per week, and the terminal would be designed for a minimum 30-year period of operation.

The Applicant anticipates construction to begin in 2018 and 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 EIS analysis, the Proposed Action is assumed fully operational at maximum capacity by 2028. At full terminal operations, the Proposed Action would bring approximately 8 loaded unit trains each day carrying coal to the project area, send out approximately 8 empty unit trains each day from the project area, and load an average of 70 vessels per month or 840 vessels per year, which would equate to 1,680 vessel transits in the Columbia River annually.

The project area would be located within the Applicant's leased area. Portions of the Applicant's leased area are subject to ongoing hazardous materials cleanup activities resulting from contamination by the former aluminum smelting and casting uses. Ecology is overseeing work being done by the Applicant and Northwest Alloys/Alcoa to investigate and clean up the Applicant's leased area under Washington State's Model Toxics Control Act. Cleanup efforts are in progress and are separate from the EIS process. The Applicant's leased area is currently used as a bulk product terminal that includes both marine and upland facilities. 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.

S.4.2 No-Action Alternative

SEPA Rules (WAC197-11) require an EIS to evaluate a no-action alternative. By evaluating a no-action alternative, decision-makers and the public can meaningfully compare the impacts of a proposed action with a no-action alternative. Under the No-Action Alternative evaluated in this EIS, the Applicant would not construct the Proposed Action as described in Section S.4.1, *Proposed Action*. In 2014, the Applicant described its planned operations and expansion and potential future

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

operations to evaluate under the No-Action Alternative. The analysis of the No-Action Alternative looks at how the site could develop in the future if the coal export terminal were not built.

The Applicant plans to continue current activities under existing permits at the existing bulk product terminal adjacent to the project area and increase commodities storage regardless of whether the Proposed Action in the 190-acre project area is built. Current operations include storing and transporting alumina and up to 150,000 metric tons per year of coal. The importing of alumina would continue using Dock 1. Expanded operations could increase upland storage and transfer of bulk products. The Applicant would likely undertake demolition, construction, and other related activities to develop expanded bulk product terminal facilities adjacent to the project area. Maintenance of the bulk product terminal would continue, including maintenance dredging for the existing dock (Dock 1). Cleanup activities from past industrial uses would also continue.

The Applicant would expand its existing bulk product terminal business onto areas that would have been subject to construction and operation of the proposed coal export terminal. A future expansion scenario under the No-Action Alternative would involve handling bulk materials already permitted for offloading at Dock 1, including pet coke, coal tar pitch, cement, fly ash, sand, and gravel. The Applicant has stated that new development or operations would not require a Corps or shoreline permit. Any new construction would be limited to uses allowed under existing Cowlitz County development regulations. While future expansion of the Applicant's bulk product terminal business might not be limited to this scenario, it was analyzed to help provide context to the No-Action Alternative evaluation in this EIS.

S.5 Significant Areas of Concern

The co-lead agencies received over 217,500 comments on the Proposed Action during the scoping period and approximately 267,000 comment submissions during the 45-day Draft EIS public comment period. Many of these comments expressed concerns about the Proposed Action.

The most commonly expressed concerns centered on climate change and potential air quality impacts. Climate change concerns included impacts as a result of combustion of fossil fuels at coal power plants overseas and greenhouse gas emissions from the transportation of coal under the Proposed Action. Climate change concerns also focused on natural environment effects, including increasing temperatures, changes to ecosystem health, causing extreme weather conditions, and the view that the Proposed Action could conflict with or contradict public interest and/or government regulatory actions aimed to reduce greenhouse gas emissions. Concerns were also raised about air quality and the effects of coal dust deposition related to the Proposed Action.

Commenters expressed concern for aquatic resources and the potential for damage to aquatic ecosystems and fishing areas on the Columbia River. Vessel traffic concerns focused on the increased potential for incidents or vessel collisions and the risk of fuel and cargo spills into the Columbia River, as well as the potential for increased vessel traffic congestion. Water quality and surface water concerns centered on the potential for coal dust emitted from trains and vessels during transportation to be deposited on water bodies, and potential coal spills at the project area, along the rail routes, and along the vessel route.

Concerns were also raised about the potential for the Proposed Action to affect human health due to coal dust and diesel emissions. Commenters also expressed concern about rail transportation, including the scope of the analysis, potential delay at at-grade crossings, vehicle and pedestrian

safety, and the potential infrastructure improvements that would be necessary to accommodate the Proposed Action. Additional concerns were raised about the potential for the Proposed Action to affect public services and utilities, socioeconomic conditions, noise, and vibration. Commenters recommended a Health Impact Assessment be conducted concurrently with the environmental review process. Further concerns were tied to the cumulative impacts[2] of the Proposed Action with other reasonably foreseeable actions, including coal export terminal proposals in the Pacific Northwest and British Columbia, Canada.

S.6 Potential Environmental Impacts and Proposed Mitigation Measures

This section summarizes the environmental impacts that would likely result from construction and operation of the Proposed Action and proposed measures that have been identified to mitigate those impacts. Mitigation measures must be reasonable and capable of being accomplished. This section also summarizes the resource areas with potential cumulative impacts.

S.6.1 Environmental Resource Areas, Study Areas, and Types of Impacts Analyzed

This Final EIS studies potential impacts on 23 environmental resource areas. These environmental resource areas are divided into three categories: Built Environment, Natural Environment, and Operations, corresponding with Chapters 3, 4, and 5, respectively, of this Final EIS. Table S-1 lists the environmental resource areas by category.

Table S-1. Environmental Resource Areas

Built Environment	Natural Environment	Operations
Land and Shoreline Use	Geology and Soils	Rail Transportation
Social and Community Resources	Surface Water and Floodplains	Rail Safety
Aesthetics, Light, and Glare	Wetlands	Vehicle Transportation
Cultural Resources	Groundwater	Vessel Transportation
Tribal Resources	Water Quality	Noise and Vibration
Hazardous Materials	Vegetation	Air Quality
	Fish	Coal Dust
	Wildlife	Greenhouse Gas Emissions and Climate Change
	Energy and Natural Resources	

Section S.6.2, *Summary of Impacts and Proposed Mitigation Measures*, summarizes the potential impacts associated with construction and operation of the Proposed Action for each of the 23 environmental resource areas. Table S-2 at the end of this *Summary* chapter illustrates proposed mitigation measures identified by the co-lead agencies. Following the overview of impacts on

[2] Cumulative impacts are impacts that would result from the incremental addition of the Proposed Action to impacts from past, present, and reasonably foreseeable future actions.

environmental resource areas, there is a description of cumulative impacts that would result from the Proposed Action combined with other past, present, and reasonably foreseeable actions.

Each environmental resource area has a specific study area described in each section. The areas vary because physical characteristics or regulations may differ pertaining to the respective environmental resource areas.

The Final EIS considers impacts from construction and operation of the Proposed Action. Construction impacts would include temporary impacts from construction activity, or permanent impacts that result from changes to the project area due to construction of the coal export terminal. This includes vehicle and rail traffic associated with construction activities. Operation impacts would result from rail unloading, coal storage, machinery operations, equipment, vessel loading, and Proposed Action-related rail, vehicle, and vessel traffic.

Proposed Action-related rail and vessel trips would result in indirect environmental impacts along the transportation corridors. All vessel trips for the Proposed Action would travel along the Columbia River between the project area and the Pacific Ocean (Figure S-3). The rail corridors that would be affected by the Proposed Action would vary depending on the source of the coal. However, all rail trips for the Proposed Action would occur on the Reynolds Lead, BNSF Spur, and the BNSF main line in Cowlitz County. Representative BNSF and UP rail routes in and outside of Washington State were also identified (Figure S-2).

S.6.2 Summary of Impacts and Proposed Mitigation Measures

This section summarizes the impacts on the built environment, natural environment, and operations resource areas.

S.6.2.1 Built Environment

This section summarizes the impacts on the built environment resources: land and shoreline use; social and community resources; aesthetics, light, and glare; cultural resources; tribal resources; and hazardous materials.

Land and Shoreline Use

The assessment of land and shoreline use addresses potential impacts on land use, shoreline use, parks and recreation, and agricultural land.

The study area for direct impacts on land and shoreline use is the project area and the area within 500 feet of the project area; the indirect impacts study area is the Longview-Kelso urban area and nearby unincorporated areas of Cowlitz County. The study area for impacts on parks and recreation facilities is the area within 0.5 mile of the project area. The study area for impacts on agricultural land is the project area (direct impacts) and the area within 500 feet of the project area (indirect impacts).Construction

Construction of the Proposed Action would not result in direct or indirect impacts on land and shoreline use.

Operations

The Proposed Action would introduce a new industrial land use to the project area. The Proposed Action would not change the land use of the project area substantially and the project area would remain generally compatible with other land uses in the study area. The Proposed Action would be compatible with land use conditions in the indirect impacts study area. The Proposed Action would not result in significant land use impacts on parks and recreation facilities or agricultural land uses.

Proposed Action-related rail traffic would not affect land use because existing land uses currently coexist with rail traffic. The Proposed Action would increase commercial vessel traffic along the Columbia River. However, the Columbia River is currently used for marine transportation and the additional vessel traffic would be consistent with this ongoing use.

Operation of the Proposed Action would be consistent with the comprehensive plan designation, zoning ordinance, critical areas ordinance, and shoreline master program for the project area. The Applicant would be required to obtain the appropriate land use, shoreline, and critical areas permits from Cowlitz County and Ecology to ensure compliance and consistency with the applicable land use and shoreline management programs.

Social and Community Resources

The assessment of social and community resources addresses potential impacts on social and community cohesion, public services, and utilities. Potential impacts on minority and low-income populations are also evaluated. The study areas for each element are as follows.

- **Social and Community Cohesion and Public Services:** The project area, within 0.5 mile of the project area, and the area within 0.5 mile of the affected rail lines (Reynolds Lead, BNSF Spur, and BNSF main line) in Cowlitz County.
- **Utilities:** The project area and the area within 0.5 mile of the project area.
- **Minority and Low-Income Populations:** The area within 1 mile of the project area and 0.5 mile of the affected rail lines in Cowlitz County.

Social and Community Cohesion and Public Services

Construction

Construction of the Proposed Action would have negligible impacts on social and community cohesion and access to public services.

Operations

Proposed Action-related trains could affect access to community resources and public services during peak travel times because of increasing wait times at at-grade crossings along the Reynolds Lead, BNSF Spur, and BNSF main rail line. Proposed Action-related trains could also cause pedestrian and bicyclist delay at at-grade crossings.

The Proposed Action would place new demands on Cowlitz Fire & Rescue protection services. Required fire and life safety systems would be installed in the project area and the Applicant would maintain a surface water storage pond with a reserve capacity for fire suppression.

Proposed Action-related trains would increase noise from rail traffic in Archie Anderson Park, along the Highlands Trail, and in Gerhart Gardens Park. Proposed Action-related trains would be required to sound their horns for public safety at at-grade crossings per federal regulations. Implementation of the proposed mitigation measure (Table S-2) to support the implementation of and fund a Quiet Zone[3] along the Reynolds Lead would reduce noise impacts at Archie Anderson Park and along the Highlands Trail.

Utilities

Construction

Construction activity would generate a modest demand for potable water that would be partially offset by the reduction in water demand from the existing use in the project area. Construction of the Proposed Action is not anticipated to result in significant impacts on water and sewer service.

Construction of the Proposed Action would affect two Bonneville Power Administration (BPA)-owned parcels in the project area. The Applicant would coordinate with BPA on potential impacts on BPA infrastructure. Significant adverse impacts on BPA operations are not anticipated.

Operations

Operation of the Proposed Action would create new sanitary sewage flows and new water demand. New sanitary sewer flows from the Proposed Action would be small and would be offset by the reduction in flows from the existing uses in the project area. Industrial process wastewater would be treated in the on-site water treatment facility, used on site, and would not add new demands to public sewer and wastewater utilities.

The Proposed Action would use potable municipal water supplies for domestic uses such as drinking, sinks, and toilets. The Proposed Action would not use potable water supplies for industrial needs and would not place new demands on the Longview water supply.

If the Applicant obtains an easement from BPA, the coal export terminal would be partially located on the two BPA-owned parcels in the project area. Significant adverse impacts on BPA operations are not anticipated.

Minority and Low-Income Populations

Construction

Construction activities would not have disproportionately high and adverse effects on minority and low-income populations.

Operations

Proposed Action-related trains would be required to sound their horns for public safety at at-grade crossings, and noise levels would exceed applicable criteria at noise-sensitive receptors near four public at-grade crossings on the Reynolds Lead (3rd Avenue, California Way, Oregon Way, and Industrial Way). Because there are minority and low-income populations adjacent to the Reynolds

[3] A Quiet Zone is a public at-grade crossing(s) where additional safety precautions have been constructed, reducing the federal requirement for trains to sound their horns when approaching the crossing(s). A Quiet Zone is subject to Federal Railroad Administration approval.

Lead rail line in Cowlitz County, the Proposed Action would have a disproportionately high and adverse effect on minority and low-income populations if no measures were implemented to mitigate this noise impact. Implementation of the proposed mitigation measure (Table S-2) to support the creation of a Quiet Zone along the Reynolds Lead would remove the disproportionately high and adverse noise effect on minority and low-income populations. If the Federal Railroad Administration does not approve a Quiet Zone, the impacts would be unavoidable and significant, as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

With the current track infrastructure on the Reynolds Lead, a Proposed Action-related train traveling during the peak traffic hour would result in a vehicle delay impact at four public at-grade crossings on the Reynolds Lead (Industrial Way, Oregon Way, California Way, and 3rd Avenue) in minority and low-income areas in 2028. These vehicle delay impacts would have a disproportionately high and adverse effect on minority and low-income populations. If no improvements are made to reduce vehicle delay at these crossings, this disproportionately high and adverse effect on minority and low-income populations would be unavoidable and significant, as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Based on the inhalation-only health risk assessment, diesel particulate matter emissions primarily from Proposed Action-related train locomotives traveling along the Reynolds Lead, BNSF Spur, and BNSF main line in Cowlitz County would result in areas of increased cancer risk. The maximum modeled cancer risk increase in the City of Longview would be 50 cancers per million in the Highlands neighborhood, a low-income and minority community. This impact would constitute a disproportionately high and adverse effect on minority and low-income populations and would be unavoidable and significant, as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Aesthetics, Light, and Glare

The study area for aesthetics, light, and glare is the area within a 3-mile radius of the project area. This study area encompasses ground-based locations from which the activities and structures on the project area could be observed in detail.

Construction

Construction of the Proposed Action would change the visual features of the project area. Construction activities in the project area would be visible to residents, workers, commuters, recreationalists, and boat operators, but these activities would be temporary and consistent with the general industrial context of the surrounding area. More distant viewers would not likely perceive noticeable changes during construction. Construction of the Proposed Action would result in a low level of impact on aesthetics and visual quality.

Operations

Operation of the Proposed Action would introduce new visual features and new sources of light and glare from the project area. The visual features of the Proposed Action would be consistent with the existing industrial aesthetics of the project area and the surrounding area. The Proposed Action would result in no visual impacts or low visual impacts, except for the view from Dibblee Beach. At the Dibblee Beach viewpoint, the Proposed Action would be visible to recreational users on the beach and in the Columbia River, and new sources of light would be visible and reflected in the waters of the Columbia River. Therefore, the Proposed Action would result in a moderate level of

impact from the Dibblee Beach viewpoint. Implementation of proposed mitigation (Table S-2) to modify lighting and appearance of facility surface to minimize visual impacts would reduce impacts on viewers at this viewpoint.

Cultural Resources

The study area for cultural resources consists of the project area, the areas of the Columbia River that would be directly affected by overwater structures and dredging, and surrounding areas that would be affected by construction of the Proposed Action. The study area also includes vantage points on the Oregon side of the Columbia River along U.S. Route 30 (US 30) to account for potential visual effects.

The cultural resources analyses and findings are based on research prepared by the Applicant pursuant to Section 106 of the National Historic Preservation Act. The Corps is carrying out the Section 106 review concurrent with the NEPA process.

No precontact archaeological resources have been identified in the study area through previous and current archaeological surveys and geotechnical monitoring conducted for the Proposed Action. The historic resources survey identified four built environment resources in the study area. These resources are the Reynolds Metals Reduction Plant Historic District, the Consolidated Diking Improvement District (CDID) #1 levee, the BPA Longview Substation, and the Reynolds Federal Credit Union. Of these resources, the Reynolds Metals Reduction Plant Historic District, CDID #1 levee, and BPA Longview Substation have been determined eligible for listing on the National Register of Historic Places. The Lewis and Clark National Historic Trail, which is a nationally significant trail that traverses the study area, was also considered. Outside the study area, the nearest recorded historic property is the J.D. Tennant House, or Rutherglen Mansion, which is listed in the National Register of Historic Places and located approximately 0.5 mile north of the study area at the base of Mount Solo. No other culturally significant properties were identified in the study area.

Construction

Construction of the Proposed Action would demolish 30 of the 39 identified resources in the study area that contribute to the historical significance of the Reynolds Metals Reduction Plant Historic District. The Proposed Action would adversely affect cultural resources associated with the Reynolds Metals Reduction Plant Historic District through the demolition of buildings and structures that contribute to the Reynolds Metals Reduction Plant Historic District. The anticipated adverse impacts on these resources would diminish the integrity of design, setting, materials, workmanship, feeling, and association that make the historic district eligible for listing in the National Register of Historic Places. If the Proposed Action is constructed, the Reynolds Metals Reduction Plant Historic District would no longer be eligible for listing in the National Register of Historic Places. Demolition of the Reynolds Metals Reduction Plant Historic District would be an unavoidable and significant adverse environmental impact, as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*. A Memorandum of Agreement is currently being negotiated between the Corps, Cowlitz County, Washington State Department of Archaeology and Historic Preservation (DAHP), City of Longview, BPA, National Park Service, potentially affected Native American tribes, and the Applicant. If it is successful, the Memorandum of Agreement could resolve this impact in compliance with Section 106 of the National Historic Preservation Act.

The demolition of buildings and structures associated with the former Reynolds facility would diminish the integrity of setting and association of the CDID #1 levee and the BPA Longview Substation. The CDID #1 levee and BPA Longview Substation would remain individually eligible for listing in the National Register of Historic Places. Construction of the Proposed Action would not adversely affect the J.D. Tennant House.

Preparation of an Inadvertent Discovery Plan and implementation of proposed mitigation (Table S-2) to monitor ground-disturbing activities would address potential construction impacts on unidentified archaeological resources.

Operations

Routine operations and maintenance of the Proposed Action are not expected to affect cultural resources in the study area. Remaining portions of the Reynolds Metals Reduction Plant Historic District would no longer be eligible for listing in the National Register of Historic Places, due to a loss of integrity caused by the removal. The CDID #1 levee and BPA Longview Substation would remain individually eligible for listing in the National Register of Historic Places.

Portions of the Lewis and Clark National Historic Trail are located in in the study area. However, these portions of the trail do not retain historic integrity; the features present during the Lewis and Clark expedition have been significantly modified by existing industrial development.

Archaeological resources in the project area discovered during construction could be vulnerable to inadvertent disturbance during routine operations and maintenance. If previously undocumented archaeological resources are encountered in the project area during routine operations, they would be addressed through implementation of an Inadvertent Discovery Plan.

Tribal Resources

The study area for impacts on tribal resources consists of tribal resources in and near the project area that could be affected by construction and operation of the Proposed Action. The study area also includes tribal resources and access to those resources that could be affected during rail transport along the expected rail routes for Proposed Action-related trains in Washington State. The study area for vessel transport is the route for Proposed Action-related vessels in the Columbia River from the project area to 3 nautical miles offshore, as well as the Columbia River upriver to McNary Dam, including the tribal commercial, subsistence, and ceremonial fishing zone on the Columbia River known as Zone 6.

Construction

Construction activities of the Proposed Action could cause physical or behavioral responses in fish and would affect aquatic habitat. These impacts could reduce the number of fish surviving to adulthood and returning to areas upriver of Bonneville Dam, thereby affecting the number of fish available for harvest by the tribes. Implementation of proposed mitigation measures to reduce the Proposed Action's potential impacts on fish (Table S-2) could reduce potential impacts on tribal resources.

Operations

Proposed Action-related trains would travel along the BNSF main line adjacent to the Columbia River and could result in increased at-grade crossing delays to tribal fishers' access to traditional

fishing sites compared to conditions under the No-Action Alternative. Specifically, Proposed Action-related trains could affect access via designated roads to the managed tribal fishing sites on the Washington side of the Columbia River. Tribal fishers also access the river at multiple unmapped locations using unimproved, at-grade crossings. Proposed Action-related trains also could delay tribal fishers' access to these unmapped traditional fishing locations.

Operation of the Proposed Action could cause physical or behavioral responses in fish and affect aquatic habitat. These impacts could reduce the number of fish surviving to adulthood and returning to areas east of Bonneville Dam, thereby affecting the number of fish available for harvest by the tribes.

Coal dust particles could enter the aquatic environment through movement of coal into and around the project area during terminal operations and during rail transport, but would not be expected to affect behavior or survival of fish significantly.

Impacts on tribal resources are further described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Hazardous Materials

The study area for evaluating hazardous materials is the area within 1 mile of the project area, and the area within 1 mile of the project area. The study area includes the former Reynolds facility and the existing bulk terminal operations located on the Applicant's leased area. Cleanup of contamination from operations of the former Reynolds facility is presently occurring as required by state cleanup laws and is separate from the EIS process.

Construction

The Applicant would be required to obtain a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit. Construction of the Proposed Action could encounter or expose hazardous materials in the project area. Construction of the Proposed Action would occur in areas separate from where cleanup actions are being done as part of the Cleanup Action Plan, with the exception of two small areas. In these areas, construction and remediation activities would be coordinated to avoid and minimize potential exposure of hazardous materials to construction workers and the surrounding environment. Cleanup actions are expected to remove or isolate hazardous materials and ensure that remaining hazardous materials are below thresholds established by federal, state, and local regulations.

Demolition of existing structures could expose possible lead- and asbestos-containing materials, chemically treated wood, and polychlorinated biphenyls (PCBs). Releases of these materials could migrate to the air, soil, surface water, or groundwater and affect the health and safety of construction personnel and others. Lead- and asbestos-containing material, treated wood debris, and caulking waste (containing PCBs) would be managed properly and recycled or disposed of at approved off-site facilities, thereby minimizing potential impacts on human health and the environment.

The transport, use, storage, and disposal of hazardous materials during construction would comply with applicable federal, state, and local regulations. In addition, the Applicant would be required to follow local and state construction and demolition standards, including best management practices. These actions would minimize the potential for a spill, release, or explosion, and would ensure a timely cleanup response. The Applicant would also be required to comply with water pollution laws

to avoid or minimize pollutants entering surface waters and groundwater by obtaining and complying with the NPDES Construction Stormwater Permit.

Impacts, such as a release associated with the routine transport, use, storage, and disposal of hazardous materials (e.g., fuels, solvents) during construction, could occur; however, all construction activities would be required to comply with applicable federal, state, and local regulations. In addition, the Applicant would be required to comply with local and state construction and demolition standards, including best management practices that would minimize the potential for a spill, and ensure a timely cleanup response.

Operations

The Applicant would be required to obtain a NPDES Industrial Stormwater Permit. Operations would occur concurrently with, but would be independent of, environmental cleanup and monitoring as required in the Cleanup Action Plan for the former Reynolds facility. The Applicant would conduct cleanup activities in accordance with applicable regulations and coordinated with operations to avoid contact and exposure to personnel and the environment.

Operation of the Proposed Action could introduce new sources of hazardous materials, such as fuel, oil, grease, lubricants, hydraulic fluids, solvents, and acids. Because these substances would be used and stored in small quantities, spills would be expected to be small and rapidly cleaned up and reported, as required by federal, state, and local laws. The Applicant would include design features that would avoid and minimize the potential release of hazardous materials during operations.

During operations, the transport, use, storage, and disposal of hazardous materials by the Applicant would be required to comply with applicable federal, state, and local regulations. The Applicant would also be required to comply with water pollution laws to avoid or minimize pollutants entering surface waters and groundwater by obtaining and complying with the NPDES Industrial Stormwater Permit.

The maximum amount of hazardous materials would be a 5,000-gallon locomotive fuel tank. There is the potential for impacts related to the release of hazardous materials during rail operations. Day-to-day rail operations could increase the potential for hazardous materials (e.g., fuel, oil, grease) to be released through leaks and spills from the locomotives and rail cars along the rail line. Fuel spills could occur if any of the trains or rail cars collide or derail. If a release of hazardous materials in the project area were to result from a collision or derailment, emergency response and cleanup measures would be implemented as required by the federal and state law, including Washington State regulations under RCW 90.56.

S.6.2.2 Natural Environment

This section summarizes the impacts on the natural environment resources: geology and soils; surface water and floodplains; wetlands; groundwater; water quality; vegetation; fish; wildlife; and energy and natural resources.

Geology and Soils

The study area for impacts on geology and soils is the project area and the broader geologic environment in the surrounding area that could influence the project area. These broader geologic influences include earthquakes (seismicity) and their associated impacts (ground shaking), as well

as tsunamis (large earthquake-generated waves that can affect coastal zones and could travel some distance up large rivers) or landslides that might reach the project area.

Construction

Construction of the Proposed Action would involve ground-disturbing activities such as grading, railroad and road construction, and excavating for foundations, which could increase soil erosion in the project area. The on-site erosion hazard is relatively low due to the flat condition of the site. Bare soils could be exposed during construction, resulting in the potential for soil erosion from rainfall or wind. Implementation of best management practices would be expected to reduce the potential for erosion.

Underlying soils at the project area could affect Proposed Action-related structures and infrastructure through corrosion or settlement. Impacts related to corrosion could be avoided through standard engineering and construction methods. Potential impacts associated with compaction and settlement of underlying sediments in the coal stockpile areas are addressed in the project design through preloading, which involves installing wick-drains to expel the water and compacting the soils beneath the stockpile areas prior to operations to improve its load-bearing capacity and consolidate the soils to avoid further settlement during operations.

Operations

Operation of the Proposed Action could expose people and structures to potential impacts involving catastrophic events such as strong seismic ground shaking, seismic-related ground failure (liquefaction), and landslides. The Proposed Action would be required to comply with applicable building codes. A geotechnical report would also be prepared as part of the Proposed Action to inform project design and construction techniques that could reduce potential risks associated with ground shaking and liquefaction. Additionally, preloading the stockpile areas would reduce the susceptibility of the soils to liquefaction and would reduce the potential for damage to proposed structures that occur in the immediate vicinity of the preloading area. Other geologic hazards, such as landslides are not anticipated to affect the Proposed Action.

Surface Water and Floodplains

The study area for impacts on surface water encompasses the project area and the CDID #1 drainage ditches adjacent to the project area and the Columbia River downriver 1 mile from the project area. The study area for impacts on floodplains is the project area and the surrounding 500-year floodplain on the north side of the Columbia River near the project area.

Construction

Construction of the Proposed Action could affect surface water in the study area by altering drainage patterns from heavy equipment/staging areas, construction of Docks 2 and 3 and removal of existing pile dikes in the Columbia River, and water used for construction. Construction activities could redirect drainage and increase erosion, which could introduce sediment to the surrounding drainage system. This could result in the need for additional channel maintenance; however, this is unlikely because the Applicant would be required to comply with erosion and sediment control best management practices and the requirements of an NPDES Construction Stormwater Permit. The NPDES Construction Stormwater Permit would outline best management practices that must be implemented to avoid and minimize potential impacts on surface waters during construction.

The project area is protected by levees and does not currently function as a floodplain in its ability to retain or absorb floodwaters. Thus, activities that occur landward of the levee would not modify conditions in the Columbia River and would not decrease the ability of the Columbia River to retain floodwaters within the floodplain.

Water would be supplied by either rainfall runoff collected and/or on-site groundwater wells and would be used for dust suppression, washdown water, and fire-protection systems. Water would be collected, treated, and either stored in a detention pond to be constructed on site or discharged to the Columbia River through an existing stormwater outfall (Outfall 002A). Discharge would be regulated under the NPDES Construction Stormwater Permit. The Proposed Action would not withdraw water from the Columbia River or other surface waters in the study area to meet construction water demands. Thus, no significant impacts on surface water and floodplains are anticipated during construction of the Proposed Action.

Operations

Operations would use water in ways very similar to construction, including dust suppression (i.e., coal dust), washdown water, and fire-protection systems. Impacts on surface water and floodplains resulting from operation of the Proposed Action would be considered low. Water use to meet water demands for operation of the Proposed Action would be supplied by rainfall runoff that would be collected, treated, and stored on site, and from existing on-site groundwater wells. If stormwater is collected and used for industrial beneficial use (such as dust control), a Water Rights Permit would be required in accordance with Chapter 90.03 RCW 90.03. Excess water not needed for operations would be treated and discharged to the Columbia River through Outfall 002A, in compliance with conditions the NPDES Industrial Stormwater Permit. No withdrawal of water from the Columbia River or other surface waters in the study area would occur.

Water from the stockpile areas, rail loop, office areas, docks, and other developed areas in the project area would be collected, treated, and either stored for reuse or discharged to the Columbia River, in accordance with the new NPDES Industrial Stormwater Permit. Also, construction of the Proposed Action would modify existing drainage, such that during operations less stormwater would be discharged to CDID #1 (estimated to be 26.3 million gallons/year compared to 88 million gallons/year currently). This change could have a beneficial indirect impact on the ditches by reducing the risk of flooding during significant rain events.

Operations would include modifications to the existing stormwater management system to accommodate the Proposed Action and address anticipated operational needs. Compliance with the conditions likely to be outlined in the required permits would reduce impacts on surface water and floodplains. No significant adverse impacts on surface water and floodplains related to operational water needs or use are anticipated.

Wetlands

The study area for impacts on wetlands is the project area and the immediate vicinity, where wetlands might be affected by the construction and operation of the Proposed Action.

Construction

Construction of the Proposed Action would result in 24.10 acres of permanent wetland loss. Loss of wetlands would result from placing fill material to construct the rail loops and facilities associated

with the transfer and stockpiling of coal. Compliance with applicable federal, state, and local permits to place fill in wetlands and implementation of proposed mitigation (Table S-2) would compensate for the loss of wetlands. Impacts during construction would also include filling 0.57 acre of a 3.40-acre wetland. Implementation of the proposed mitigation (Table S-2) to prepare a comprehensive wetland mitigation plan would offset the impact.

Impacts on wetland water quality would not be likely to occur, as runoff from the project area would be directed to on-site drainage systems and would be treated and reused on site, or discharged in accordance with a NPDES Construction Stormwater Permit that would be required during construction.

Operations

Vegetation for one wetland would likely be affected by coal dust deposition. Coal dust deposition on vegetation would depend on the dust load, climatic conditions, and physical characteristics of the vegetation. Potential impacts related to coal dust deposition would be reduced by project design measures, best management practices, and permit requirements to control dust emissions. Implementation of proposed coal dust mitigation (Table S-2) would further reduce impacts.

Groundwater

The groundwater study area is the project area and the Applicant's leased area.

Construction

Preloading would involve installing wick-drains to expel water and consolidate soils. Preloading could temporarily disrupt existing drainage and groundwater recharge patterns in the shallow aquifer within the study area. Changes to groundwater recharge patterns on the deep and shallow aquifers would not result in a significant impact. Groundwater required for dust suppression would represent approximately 6.5% of the original groundwater extraction rights[4], which would not have a significant impact on groundwater supply.

Construction of the Proposed Action could degrade groundwater quality. Leaks and spills during construction could introduce contaminants to groundwater. Implementation of proposed mitigation (Table S-2) to locate spill response kits in the project area could reduce impacts on groundwater. Stormwater generated during construction would be collected and treated in compliance with the required NPDES Construction Stormwater Permit prior to discharge and, thus, would not be expected to degrade water quality in the Columbia River, which is the source of shallow aquifer groundwater recharge.

Construction activities would not significantly affect the deep-water aquifer. Additionally, construction of the Proposed Action would not likely affect the wellfield at the Mint Farm Industrial Park, which pulls municipal water from the deep-water aquifer.

Operations

The Applicant would be required to obtain a NPDES Industrial Stormwater Permit and would develop a separate system of stormwater collection, treatment, and discharge regulated by the

[4] The EIS does not verify the amount of Northwest Alloys' water rights; verification will occur outside of the environmental review process.

separate permit. Operations under the separate permit would not be expected to change groundwater recharge patterns measurably. The total demand on groundwater supplies during operation would account for less than 10% of the maximum pumping limits allowed under the original water rights. Potential impacts on groundwater recharge or effects on groundwater supply during operations of the Proposed Action are not considered significant.

Runoff from the project area would be directed to on-site drainage systems and would be treated and either reused on site, or discharged to the Columbia River in accordance with the new NPDES Industrial Stormwater Permit. Stormwater reused on site would require a water right and would be brought to Washington State Class A Reclaimed Water standards. Additionally, the potential for infiltration of surface water containing coal dust would be relatively low based on the low recharge rates of the soil characteristics that exist in the study area. Thus, the potential for coal dust or constituents of coal to infiltrate and affect groundwater quality is relatively low. Operation of the Proposed Action would be unlikely to affect groundwater quality significantly.

Materials released onto the ground by a rail car collision or derailment could degrade groundwater quality. If a release of hazardous materials were to occur, the rail operator would implement emergency response and cleanup actions as required by federal and state law. A potential release of hazardous materials would not be expected to affect groundwater significantly. Operations would not likely affect the wellfield at the Mint Farm Industrial Park.

Water Quality

The study area for analysis of in-water construction and dredging impacts on water quality associated with suspended sediment and elevated turbidity is the project area and the area extending 300 feet from the project area into the Columbia River. The study area also incorporates potential in-river dredged material disposal sites and an area extending 300 feet downriver of each disposal site. The study area for impacts on water quality also incorporates the CDID #1 drainage ditches adjacent to the project area, the Columbia River downriver 1 mile from the project area, and 300 feet downriver from the potential dredged material disposal sites.

Construction

Construction activities would disturb soil, which could result in impacts on water quality. The Applicant would be required to obtain an NPDES Stormwater Construction Permit and to avoid and minimize impacts on water quality. Monitoring and reporting would be required and would document if short-term or long-term impacts were occurring.

Construction activities would require using materials and products that could introduce pollutants to surface waters, which could degrade water quality. Development and implementation of a site-specific construction Stormwater Pollution Prevention Plan that includes best management practices for material handling and construction waste management would reduce the potential for water quality impacts. Implementation of proposed mitigation (Table S-2) to locate spill response kits in the project area during construction could reduce potential impacts from hazardous materials or fuels on water quality.

Construction of the Proposed Action would require in-water work, including dredging, that would disturb sediment on the river bottom and temporarily increase turbidity. Additionally, a long-term increase in the exposure of creosote in the project area could occur from removing the existing pile dikes. The Applicant would be required to use standard best management practices for working in

aquatic areas, and follow permit requirements that would help maintain acceptable water quality conditions during construction.

Demolition of the existing structures in the project area has the potential to affect water quality by disturbing soil or debris that could contain hazardous or toxic materials (i.e., asbestos, lead). This impact would be minimized by collecting and removing all concrete and other structural debris and collecting and treating all stormwater from the site prior to discharge to surface waters. The Applicant will be required to use best management practices in compliance with the NPDES Construction Stormwater Permit to reduce the potential for demolition-related pollutants to enter and contaminate surface waters. Overall, the demolition activities associated with the Proposed Action would not be expected to cause a measurable impact on water quality.

Steps to avoid and minimize potential impacts on water quality from in-water and over-water work would be addressed in the Water Quality Monitoring and Protection Plan to be prepared by the Applicant. The Applicant would develop a Dredge Material Management Plan for approval by state and federal agencies to avoid and minimize impacts on water quality. The Applicant would be required to follow the approved plan and permits to ensure that potential impacts are temporary and localized in nature. No significant long-term changes in the baseline conditions in the study area would be expected to persist.

Operations

Operations and maintenance of the Proposed Action have the potential to introduce contaminants in the study area that could affect water quality. The Applicant would be required to obtain an NPDES Industrial Stormwater Permit to prevent contaminants from being discharged into surface waters during operations. Coal dust and coal dust constituents would be associated with transport, stockpiling, transfer, loading, and unloading of coal. The Applicant would be required to follow dust control requirements in the Notice of Construction. Dust-control measures would be designed into facility operations such as water sprayers, enclosed conveyor belts, enclosed rail unloading building, enclosed loading spouts, and dust suppression system for coal stockpiles. The coal dust analysis estimated the amount of coal dust that could be deposited around the project area, rail lines in Washington State, and concentrations of particles that would occur. Coal dust is not anticipated to have a significant impact on water quality.

A spill or release of potential contaminants required for the operation and maintenance of heavy equipment and machinery (e.g., diesel fuel, oils) could affect water quality if they were either released directly into surface waters or transported and discharged to surface or groundwater. During operations and maintenance, relatively small quantities (less than 50 gallons) of this amount would be handled. Potential releases could be limited in their extent and duration with rapid and appropriate spill response and cleanup. Substances such as oil, grease, coal dust, and other chemicals could contaminate stormwater. Additionally, locomotives (with fuel capacity of approximately 5,000 gallons) and fuel trucks (with fuel capacity of up to approximately 4,000 gallons) could release fuel during operations. The Applicant would be required to manage stormwater in accordance with the requirements of an NPDES Industrial Stormwater Permit and to avoid and minimize impacts on water quality.

Implementation of the proposed mitigation (Table S-2) to locate spill response kits in the project area, develop and implement a coal spill containment and cleanup plan, and monitor and reduce coal dust emissions could reduce impacts on water quality.

Impacts on water quality from vessel and rail transport outside the project area could occur. Potential increases in turbidity from vessel propeller wash would be temporary and localized and would not be expected to be measurable beyond the study area. Discharges of ballast water from vessels would be regulated at the state and federal level, and discharge of ballast water by vessels calling at the coal export terminal would be required to implement a U.S. Coast Guard ballast water management method and meet ballast discharge standards. The potential for impacts on water quality from ballast water would not be significant.

Day-to-day rail operations could release contaminants to water resources immediately adjacent to the rail line, resulting in the potential for water quality impairment. Fuel or hazardous materials spills from a vessel incident or a collision or derailment of a train would have impacts on water quality. Oil spills from a vessel or train could have significant potential impacts on water quality. The magnitude of the potential impact would depend on the location of the spill, the volume of the spill, and weather and tidal conditions. If a release of fuel or hazardous materials were to occur, rail and vessel operators would be required to follow federal and state emergency response and cleanup actions.

Coal could enter water as either coal dust or as the result of a coal spill. The potential risk for exposure to toxic chemicals contained in coal would be relatively low as these chemicals tend to be bound in the matrix structure and not quickly or easily leached. Coal dust particles would likely be transported downriver by river flow and either carried out to sea or distributed over a sufficiently broad area that a measurable increase in concentrations of toxic chemicals in the Columbia River would be unlikely. Potential impacts related to coal dust deposition would be reduced by the use of surfactants and load profiling for Proposed Action-related trains. Coal spilled into the water could occur in Washington State along the rail routes. Cleanup efforts would be implemented quickly and it would be expected that the majority of the spilled coal would be recovered.

Vegetation

The study area for direct impacts on vegetation is the project area plus additional elements (e.g., access roads, docks, and rail line). The study area for indirect impacts related to coal dust deposition consists of the area within 1 mile of the project area. The study area related to vessel transport includes the lower Columbia River from the project area to the mouth of the Columbia River. The indirect impacts study area related to rail traffic includes the expected rail routes for Proposed Action-related trains in Washington State.

Construction

Clearing and grading during construction would permanently remove approximately 26 acres of upland forest (including a small area of riparian zone), scrub-shrub, and herbaceous vegetation; approximately 24 acres of wetland vegetation; and approximately 151 acres of previously developed industrial area. The previously developed areas are devoid of vegetation because of existing structures, or there are areas of disturbed vegetation around existing structures. These areas generally do not support native plant species or provide suitable habitat for animals. Although no special-status plant species have been recorded in the project area, special-status plant species have the potential to occur based on the presence of potentially suitable habitat. Proposed mitigation is to conduct a special-status plant survey prior to construction (Table S-2). Permanent removal of vegetation during construction could be mitigated through implementation of a County-

approved revegetation plan consistent with the Cowlitz County Critical Areas Ordinance 19.15.170 (Table S-2).

Construction and staging activities along the edges of the project area could temporarily disturb adjacent vegetation. To ensure disturbed native vegetation is restored after construction, mitigation is proposed to replant disturbed areas with suitable native vegetation (Table S-2).

Operations

Impacts on vegetation during operations would include the possible colonization by noxious weeds, spills of coal or other materials associated with vessel loading and transport activities, and altering vegetation as part of maintenance activities. Implementation of proposed mitigation measures (Table S-2) could avoid and minimize the invasion and colonization of noxious weeds. Best management practices, prevention, and control measures would also reduce potential vegetation impacts.

Operations in the project area and when transporting coal by rail could generate coal particles and fugitive coal dust, which could be deposited on vegetation, soils, and sediments. The impacts of coal dust on vegetation would vary depending on dust load, climatic conditions, and the physical characteristics of the vegetation. Fugitive emissions of coal dust in the project area would be reduced by using the equipment and system operations that are part of the Proposed Action. Examples include the use of enclosed conveyors, transfer points, and transfer chutes and systems including a washdown water collection and containment system, a dry fog system, and water spray systems to minimize impacts. Potential impacts related to coal dust deposition from Proposed Action-related trains would be reduced using surfactants and load profiling. Implementation of proposed coal dust mitigation (Table S-2) would further reduce impacts related to coal dust from the project area and during rail transport. Coal transported by vessel would be in enclosed cargo holds and coal dust would not likely result in significant deposition on vegetation along the vessel route in the Columbia River.

Impacts from operations could include vessel wake impacts on vegetation along the lower Columbia River. The magnitude of potential impacts would depend on vessel characteristics (i.e., vessel design, hull shape, vessel weight and speed, angle of travel relative to the shoreline, proximity to the shoreline), currents and waves, tidal stage, water depth, and shoreline characteristics (i.e., slope of the shoreline, shoreline vegetation, soil erodibility).

Fish

The direct impacts study area includes the main channel of the Columbia River 3.92 miles upriver and downriver of the project area. The study area for indirect impacts on fish related to vessel traffic extends downriver from the project area to the mouth of the Columbia River. The study area for indirect impacts related to rail traffic includes the rail routes along the Columbia River for Proposed Action-related trains.

Construction

Construction activities including installing and removing piles and the dredging and disposal of dredged materials could temporarily affect fish due to increased turbidity. While not anticipated to cause physical damage, increased turbidity could result in behavioral responses in fish.

Installing steel piles with vibratory and impact type pile drivers would generate underwater noise that could result in physical and behavioral impacts on fish. Noise attenuation and fish movement models predicted that underwater noise thresholds would be exceeded, resulting in potential injury or behavior impacts on fish. Proposed mitigation measures to reduce the noise level during in-water pile-driving activities such as the use of a confined bubble curtain or similar noise attenuation (Table S-2) would minimize impacts on fish.

Construction activities could result in temporary water quality impacts from the release of hazardous materials (e.g., fuels and lubricants) that could affect aquatic habitat or fish near the discharge point. It is assumed that a spill would be less than 50 gallons because limited quantities of potentially hazardous materials would be stored and used during construction. Implementation of proposed mitigation (Table S-2) would minimize impacts on fish.

Operations

Impacts on fish could increase during operations from the new overwater structures and increase in vessel transits. Overwater structures would increase shading to the aquatic environment, which could result in direct impacts on fish including changes to primary productivity, behavior, predation, and migration. Design features and best management practices would be implemented to minimize shading, which would reduce impacts on fish.

Proposed Action-related vessel transits could increase the risk of impacts on fish from vessel noise. Vessel noise would be sufficient to affect fish behavior but unlikely to injure fish.

Operations activities could result in temporary water quality impacts from a release of hazardous materials (fuels and lubricants) that could affect aquatic habitat or fish near the discharge point. Overall, it is assumed that a spill would be less than 50 gallons because limited quantities of potentially hazardous materials would be stored and used near water. Implementation of proposed mitigation (Table S-2) to place spill kits throughout the project area could minimize impacts on fish.

Increases in vessel traffic could increase the risk of fish stranding from vessel wakes. In 2028, the Proposed Action would represent an approximate 27% increase over projected baseline vessel traffic in the lower Columbia River. This level of increase could result in an increased risk of fish stranding.

Coal dust and fugitive coal particles could be generated during operations in the project area and rail transport that could affect fish through physical or toxicological means. Coal particles could affect fish in a manner comparable to any form of suspended particulates, such as tissue abrasion, smothering, obstruction or damage to feeding or respiratory organs, and other effects resulting from reduced quantity or quality of light. Another potential manner in which coal could affect aquatic fish is through coal leachates. Unburnt coal can be a source of acidity, salinity, trace metals, hydrocarbons, and potentially macronutrients if they leach from the coal matrix into aquatic habitats. However, the contaminants tend to be bound to the matrix of the coal and are not readily leached when exposed to water. The contaminants would be in a form not easily absorbed by aquatic organisms and the impacts are not likely to be significant. Fugitive coal dust and potential coal spills are not expected to affect fish significantly because the potential risk for exposure to toxic chemicals contained in coal would be relatively low. (Estimated coal dust deposition at and beyond the project area boundary would range from 1.99 grams per square meter per year at the northwest boundary of the project area to 0.01 gram per square meter pear year approximately 2.4 miles from the project area.) Potential impacts related to coal dust deposition would be reduced by project

design measures, best management practices, and permit requirements to control dust emissions, and by the use of surfactants and load profiling for Proposed Action-related trains. Implementation of proposed coal dust mitigation (Table S-2) would further reduce impacts related to coal dust from the project area and during rail transport.

Wildlife

The study area for direct impacts on terrestrial species and habitats includes the project area plus an area up to 0.5 mile beyond the project area. The study area for indirect impacts on terrestrial species related to rail transport consists of the expected rail routes for Proposed Action-related trains in Washington State. The direct impact study area for aquatic species and habitats includes the main channel of the Columbia River approximately 5.1 miles upriver and 2.1 miles downriver from the proposed docks and the various surface and stormwater ditches, ponds, and wetlands found throughout the project area. The study area for indirect impacts on aquatic species related to vessel transport consists of the Columbia River downstream from the project area to the mouth of the river.

Construction

Approximately 151.1 acres of the project area consist of previously developed and disturbed land that generally does not support wildlife. Clearing and grading to construct the export terminal would permanently remove approximately 26.2 acres of terrestrial forested habitat and 24.1 acres of wetland habitat. The removal of this suitable wildlife habitat would affect wildlife. Construction activities would also result in the permanent loss of approximately 5.1 acres of aquatic habitat in the project area (excluding the area affected by the docks and dredging in the Columbia River).

Temporary impacts on terrestrial wildlife habitat could occur through soil disturbance, stockpiling, and erosion, causing an increase in total suspended sediments in the Columbia River and freshwater ditches on and adjacent to the project area. These types of impacts could be avoided or greatly reduced with the implementation of construction-related best management practices, avoidance and minimization measures, and compliance with permit requirements, such as those associated with the required 401 Water Quality Certification and Hydraulic Project Approval.

Construction activities that could affect wildlife include installing steel piles and dredging activities. Installation of steel piles would generate underwater noise during pile driving that could exceed the harassment thresholds (behavioral response) on wildlife. Pile installation and the applicable work windows would be provisioned in the Section 404 permit and the Hydraulic Project Approval issued by the U.S. Army Corps of Engineers and Washington Department of Fish and Wildlife, respectively. Underwater noise impacts could be reduced with the proposed mitigation measure to implement a bubble curtain, or other similar measure to attenuate noise levels during impact pile driving. Dredging would permanently alter approximately 48 acres of deep-water habitat by removing 500,000 cubic yards of benthic sediment, which could affect wildlife and benthic organisms in the study area. Implementing proposed mitigation to monitor wildlife for distress during pile-driving and dredging activities (Table S-2), implementing construction best management practices, and complying with permit conditions would minimize dredging impacts.

Construction activities could result in temporary water quality impacts from the release of hazardous materials (e.g., fuels and lubricants) that could affect aquatic and terrestrial wildlife. The potential for impacts would be avoided or reduced through protective measures, including construction best management practices, avoidance and minimization measures, in-water work

restrictions, and compliance with regulatory and permit requirements. However, a spill may have impacts on wildlife based on the location, weather conditions, and type and amount of material.

Operations

Routine operations of the Proposed Action could result in spills or leaks of hazardous materials from vehicles, trains, or equipment. Contaminants could affect terrestrial habitat and water quality, thus, degrading aquatic habitat in the Columbia River and drainage ditches in the aquatic study area. Training, oil discharge prevention briefings, and regulatory compliance, among other measures could reduce these risks and the potential for impacts.

Operations of the Proposed Action could result in increased terrestrial noise that has the potential to affect wildlife by causing disturbance or avoidance behavior. However, noise generated by the Proposed Action would be similar to the existing, adjacent land uses and would not likely have a significant impact on wildlife species in the terrestrial study area. Increased rail traffic could result in an increased number of wildlife strikes by trains.

Maintenance dredging could result in impacts on benthic organisms and wildlife similar to the initial construction-related dredging activities. Impacts would be minimized through implementation of construction best management practices, compliance with permit requirements, and proposed mitigation to monitor wildlife during dredging activities (Table S-2).

Impacts on wildlife due to increased potential vessel strikes and underwater noise from additional vessel traffic for the Proposed Action would not be significant. Regarding vessel strikes, while the behavior of a pinniped (such as a seal) in the path of an approaching vessel in the study area is uncertain, it is likely that a pinniped would have the ability to avoid and swim away from the vessel. Additionally, pinniped vessel strikes are rare, pinnipeds in the Columbia River would likely be habituated to existing Columbia River vessel traffic, and vessel speed would be less than 14 knots. Therefore, the potential risk for a vessel collision with a pinniped in the study area would not be considered significant. Similarly, it is expected that Proposed Action-related vessel underwater noise impacts on pinnipeds would not be significant because peak hearing frequencies of pinnipeds in the study area are generally outside of the noise frequencies generated by vessels, and these species are habituated to existing Columbia River noise levels.

Coal dust and fugitive coal particles could be generated during operations of the Proposed Action and rail transport that could affect wildlife through physical or toxicological means. Coal particles could affect aquatic wildlife in a manner comparable to any form of suspended particulates, such as tissue abrasion, smothering, obstruction or damage to feeding or respiratory organs, and other effects resulting from reduced quantity or quality of light. Another potential manner in which coal could affect aquatic wildlife is through coal leachates. Unburnt coal can be a source of acidity, salinity, trace metals, hydrocarbons, and potentially macronutrients if they leach from the coal matrix into aquatic habitats. However, the contaminants tend to be bound to the matrix of the coal and are not readily leached when exposed to water. The contaminants would be in a form not easily absorbed by aquatic organisms and the impacts are not likely to be significant. Potential impacts related to coal dust deposition would be reduced by project design measures, best management practices, and permit requirements to control dust emissions, and by the use of surfactants and load profiling for Proposed Action-related trains. Implementation of proposed coal dust mitigation (Table S-2) would further reduce impacts related to coal dust from the project area and during rail transport.

Energy and Natural Resources

The study area for impacts on energy and natural resources is the area within 0.25 mile of the project area. When assessing the availability of energy and natural resources, the analysis considers those resources that are available regionally, beyond the 0.25-mile study area.

Construction

Construction activities of the Proposed Action would require the consumption of energy and natural resources. Energy consumption would include the use of electricity, diesel fuel, gasoline, oil, and natural gas to provide lighting, power tools and equipment, and transport employees and materials to and from the project area. Construction would also consume natural resources including water, gravel, fill dirt, steel, and wood. The demand for construction-related energy and natural resource consumption would be minor compared to current demand, and could be met by existing local and regional supply.

Operations

Electricity, gasoline, oil, propane, and diesel fuel would be the primary energy types used in the project area during operations, and fuel consumption would increase due to increased train, vessel, and vehicle transits to and from the project area. The demand for energy would not be significant compared to current demand and is anticipated to be met by the existing local and regional supply.

Operation of the Proposed Action would consume natural resources including water, gravel, fill dirt, and wood. Water demand during operations would be met by the on-site water management system, designed to collect and treat runoff for reuse, as well as from existing groundwater wells. All of the stormwater would be processed through the water treatment facility prior to reuse. Groundwater would be sourced from existing production wells with approved water rights, and there would be no need for new wells. The demand for gravel, dirt, and wood during operation of the Proposed Action is anticipated to be met by existing local and regional supply considering the availability of these resources.

S.6.2.3 Operations

This section summarizes the impacts on operations resources: rail transportation; rail safety; vehicle transportation; vessel transportation; noise and vibration; air quality; coal dust; and greenhouse gas emissions and climate change.

Rail Transportation

The study area for impacts on rail transportation includes the rail routes expected to be used by Proposed Action-related trains between the project area and the Powder River Basin in Montana and Wyoming and the Uinta Basin in Utah and Colorado. The assessment of potential rail transportation impacts focuses on the Reynolds Lead and BNSF Spur and the BNSF main line in Cowlitz County. A qualitative assessment along the BNSF main line in Washington State and to and from the Powder River Basin and the Uinta Basin is also presented.

Construction

The Applicant would transport construction materials to the project area via rail or truck. The transport of construction materials by rail would add an average of 1.3 train trips per day in the

peak construction year (2018) to the Reynolds Lead, BNSF Spur, and BNSF main line routes in Washington State. This increase in rail traffic would not exceed the capacity of the Reynolds Lead and BNSF Spur and would represent a low number of trains per day compared to projected rail traffic volumes on BNSF main line routes in Washington State.

Operations

At full operation, Proposed Action-related trains would add 8 loaded and 8 empty trains per day (16 total trains per day) on the Reynolds Lead, BNSF Spur, BNSF main line in Cowlitz County, BNSF main line routes in Washington State beyond Cowlitz County, and to BNSF and UP rail lines outside of Washington State as described below. Railroad companies are expected to make investments or operating changes to accommodate the growth in rail traffic, but it is unknown when those actions would be taken or permitted.

- **Reynolds Lead and BNSF Spur**. The Proposed Action would add 16 trains per day (8 loaded and 8 empty) on the Reynolds Lead and BNSF Spur. The Reynolds Lead and BNSF Spur would have the capacity to handle baseline rail traffic and Proposed Action-related trains.
- **Main line routes in Cowlitz County.** The Proposed Action would add 8 loaded and 8 empty trains per day on the BNSF main line in Cowlitz County. Proposed Action-related trains would contribute to this segment reaching capacity in 2028 if no capacity expansions or operating changes were made.
- **Main line routes beyond Cowlitz County.** Proposed Action-related trains would add 8 loaded and 8 empty trains per day to BNSF main line routes in Washington State beyond Cowlitz County. The projected 2028 volumes on the Idaho/Washington State Line–Spokane, Spokane–Pasco, and Pasco–Vancouver segments would exceed capacity without Proposed Action-related trains. Proposed Action-related trains would contribute to these segments reaching capacity in 2028 if no capacity expansions or operating changes were made.
- **Main line routes outside Washington State.** Proposed Action-related trains would add 8 loaded and 8 empty trains per day to existing rail traffic beyond Washington State. Proposed Action-related trains would contribute to some BNSF and UP segments exceeding capacity in 2028 if no capacity expansions or operating changes were made.

If improvements are not made, Proposed Action-related trains could result in an unavoidable and significant adverse impact on rail transportation as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Rail Safety

The study area for impacts on rail safety includes the expected rail routes of Proposed Action-related trains in Washington State. A train incident for this analysis is defined as involving one or more railroads that have sustained combined track, equipment, and/or structural damage in excess of the federal reporting threshold of $10,500.

Construction

The Proposed Action would require an average of 1.3 train trips per day during the peak year of construction (2018) if rail is used to transport construction materials, which would increase the predicted accident frequency on construction train routes.

Operations

Proposed Action-related trains during operations would increase the potential for train accidents by adding 8 loaded and 8 empty trains per day on rail routes in Cowlitz County and Washington State. The predicted accident frequency with Proposed Action-related trains would increase over baseline conditions in 2028 by approximately 22% in Cowlitz County and Washington State. Implementation of proposed mitigation (Table S-2) involving coordination with BNSF and UP about operations and capacity could reduce rail safety impacts. If rail safety improvements are not made, Proposed Action-related trains could result in an unavoidable and significant adverse impact on rail safety as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Vehicle Transportation

The study area for impacts on vehicle transportation consists of public and private at-grade crossings on the Reynolds Lead and BNSF Spur and all at-grade public crossings on the BNSF main line in Cowlitz County. A review of at-grade crossings of interest along the BNSF main line in Washington State beyond Cowlitz County is also considered.

Proposed Action-related trains would block crossings more frequently and contribute to vehicles being delayed at crossings. To determine potential vehicle transportation impacts during construction and operations, increases in the average vehicle delay at crossings on the Reynolds Lead, BNSF Spur, and BNSF main line in Cowlitz County were evaluated during a 24-hour period (to represent an average delay) and during the afternoon peak traffic hour (to analyze the highest potential vehicle delay impact that could occur). Vehicle safety was also analyzed because Proposed Action-related trains would change vehicle safety conditions at at-grade crossings.

Construction

Construction materials would be transported to the project area by rail or truck. Construction vehicles would access the project area via an existing private driveway opposite 38th Avenue or a new driveway on Industrial Way. If construction materials were delivered by rail, the Proposed Action would add an average of 1.3 train trips per day during the peak construction year (2018), which would increase vehicle delay at the study crossings along the Reynolds Lead, BNSF Spur, and BNSF main line. If Proposed Action-related construction trains travel during the peak traffic hour, the Proposed Action would have a vehicle transportation impact at three crossings on the Reynolds Lead (project area access at 38th Avenue, California Way, and 3rd Avenue).

Increased vehicle delay could affect emergency services. In a 24-hour period, the Proposed Action would increase the probability of an emergency response vehicle being delayed at study crossings by 1%.

Operations

Proposed Action-related rail traffic would increase vehicle delay and change vehicle safety conditions at the rail crossings along the Reynolds Lead, BNSF Spur, and BNSF main line in Cowlitz County, as described below.

Vehicle delay would increase for the average driver. Delays would be the highest during the peak traffic hour. If no improvements are made to the Reynolds Lead, the Proposed Action could result in a vehicle transportation impact at six crossings (four public crossings and two private crossings) during the peak traffic hour (project area access opposite 38th Avenue, Weyerhaeuser access

opposite Washington Way, Industrial Way, Oregon Way, California Way, and 3rd Avenue). If improvements are made to the Reynolds Lead and BNSF Spur to increase train speed, the Proposed Action could result in a vehicle transportation impact at four crossings (two public crossings and two private crossings) during the peak traffic hour (project area access opposite 38th Avenue, Weyerhaeuser access opposite Washington Way, 3rd Avenue, and Dike Road). On the BNSF main line in Cowlitz County, the Proposed Action could result in a vehicle transportation impact at two crossings during the peak traffic hour (Mill Street and South River Road).

Proposed Action-related trains would also increase emergency vehicle delay at rail crossings. The total gate downtime would increase over 130 minutes a day at the at-grade crossings along the Reynolds Lead and BNSF Spur, and up to 20 minutes a day at the at-grade crossings along the BNSF main line in Cowlitz County. In a 24-hour period, trains for the Proposed Action would increase the probability of emergency response vehicles being delayed by 10% at crossings along the Reynolds Lead and BNSF Spur with current track infrastructure. For crossings along the BNSF main line in Cowlitz County the probability of delay would increase by 1%. The probability of delay would increase by 5% with planned track infrastructure on the Reynolds Lead and BNSF Spur. The potential impact from the increased delay would depend on the location of the incident, if emergency vehicles need to cross the rail line, and the availability of alternative routes.

An accident probability analysis was conducted for the rail crossings in Cowlitz County (Reynolds Lead, BNSF Spur, and BNSF main line) to determine the impact on vehicle safety with Proposed Action-related trains. The analysis concluded that while the predicted accident probability for all other study crossings would increase because the Proposed Action would increase rail traffic, the predicted accident probability at all study crossings would not result in a significant vehicle safety impact.

A review of at-grade rail crossings of interest identified by the Washington State Department of Transportation (WSDOT) on BNSF main line routes beyond Cowlitz County was also conducted. Vehicle delay at these crossings would increase because the Proposed Action would add 8 or 16 train trips daily to existing BNSF rail routes (depending on location). Because the frequency of train traffic on BNSF routes would increase with Proposed Action-related trains, the probability of an increase in emergency response time at all statewide study crossings would also increase because at-grade crossings would be blocked more frequently. While Proposed Action-related trains would increase the predicted accident probability at all statewide study crossings, the analysis found that none of these crossings would result in a significant vehicle safety impact.

Implementation of proposed mitigation (Table S-2) involving notifying local agencies about rail traffic operations on the Reynolds Lead and BNSF Spur could reduce impacts on vehicle transportation. If infrastructure improvements are not made, impacts on vehicle transportation would be unavoidable and significant as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Vessel Transportation

The study area for impacts related to vessel transportation includes the waters out to 3 nautical miles seaward of the mouth of the Columbia River, the Columbia River Bar, the Columbia River upriver to Vancouver, Washington, and the Willamette River upriver to the Port of Portland, Oregon.

Construction

In-water construction activities (dock construction, pile driving, dredging) would use barges near the proposed docks (Docks 2 and 3). If construction materials were delivered by barge, approximately 750 barge trips in the study area would be required during the peak construction year. While construction-related barge activity would increase vessel traffic in the Columbia River, impacts would be temporary and not significant as barges would operate mainly near the proposed docks and are not restricted to the navigation channel.

Operations

The terminal would load 840 vessels per year during operations, which equates to 1,680 vessel transits annually in the Columbia River. Increased vessel traffic could be managed within the existing infrastructure and systems for vessel management in the lower Columbia River and would not have a significant impact on the vessel transportation system.

An increase in vessels calling at the proposed docks could increase the risk of vessel-related emergencies, such as fire or vessel allision[5] at Docks 2 and 3. Vessels are required to have fire prevention and response features including fire equipment and automated fire suppression systems. Vessel design standards, fire equipment requirements, and crew training are required by federal law. A fire or allision while at the dock would not be likely to affect resources significantly other than the vessel itself.

Increased vessel traffic could increase the risk of vessel incidents such as allisions, collisions, groundings, and fire. Based on modeling conducted for the analysis, Proposed Action-related vessel traffic would increase the frequency of collisions, groundings, and fires by approximately 2.8 incidents per year. Not all incidents would be likely to result in notable damages.

The risk of an oil spill resulting from an incident such as a collision or grounding or during refueling at anchorages[6] in the study area would increase due to the increase in vessel traffic. Based on the incident modeling and the location of fuel tanks, the likelihood of oil spills from a vessel incident is relatively low. The risk of an oil spill during refueling would increase compared to the No-Action Alternative.

Implementation of the proposed mitigation measure (Table S-2) to attend at least one Lower Columbia River Harbor Safety Committee meeting per year could reduce impacts related to vessel transportation. If a vessel incident occurred, the impact could be significant as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Noise and Vibration

The study area for direct noise and vibration impacts is the area within 1 mile of the project area. The study area for indirect noise impacts includes the area within 1 mile of the Reynolds Lead and BNSF Spur, the rail routes in Washington State, and the lower Columbia River out 3 nautical miles from the mouth of the river.

[5] An allision occurs when a vessel strikes a fixed structure, such as a dock or a vessel at berth.

[6] The Applicant has committed to not refuel vessels at the proposed docks (Docks 2 and 3).

Construction

Construction of the Proposed Action would result in a temporary increase in noise and vibration. Construction noise would primarily occur during daylight hours and would be generated primarily from construction equipment, such as pile-driving equipment, backhoes, cement mixers, and excavators. The greatest noise levels would result from pile driving. Implementation of the proposed mitigation measure (Table S-2) to monitor and control increased noise at the residence closest to the project area and taking action if a noise impact is detected could reduce construction noise. While construction of the Proposed Action would emit vibration from pile-driving, no adverse vibration impacts during construction are expected at the closest noise-sensitive receptors.

If rail is used for construction materials, an average of 1.3 train trips per day during the peak construction year (2018) would emit noise from operations and horn sounding. Construction-related vehicles would increase vehicle-related noise. These construction-related activities would increase noise levels but would not result in a substantial change to existing noise levels.

Operations

Noise levels from operations of the coal export terminal are projected to exceed the applicable standard for nighttime noise levels at one residence. Implementation of the proposed mitigation measure (Table S-2) to monitor increased noise at this residence and take action if noise levels exceed applicable standards for nighttime noise levels could reduce noise during operations.

Operation of the Proposed Action would increase rail traffic-related noise along the Reynolds Lead and BNSF Spur by 16 trains per day at full coal export terminal operations. Train engineers are required to sound locomotive horns in advance of at-grade crossings at all crossings on the Reynolds Lead and BNSF Spur for public safety. Train-related noise levels would increase from train operations and locomotive horn sounding. Noise modeling concluded the greatest noise impacts would occur near four public at-grade crossings on the Reynolds Lead (3rd Avenue, California Way, Oregon Way, and Industrial Way). The increase in average daily noise levels would exceed applicable noise criteria at noise-sensitive receptors. Approximately 229 residences would be exposed to moderate noise impacts and approximately 60 residences would be exposed to severe noise impacts. These impacts would be reduced near the Industrial Way and Oregon Way crossings if a grade-separated intersection is constructed at the Industrial Way/Oregon Way intersection as currently proposed through a separate action. This project is currently in environmental review and is not permitted.

A mitigation measure is proposed (Table S-2) for the Applicant to assist with the development of a Quiet Zone in coordination with the City of Longview, Cowlitz County, LVSW, and the affected community. Implementation of the Quiet Zone would eliminate noise impacts related to train horns. If the Quiet Zone is not implemented, the impacts would remain, and the Applicant would explore the feasibility of reducing rail-related noise by funding a sound-reduction study (Table S-2). If noise-reduction measures are not implemented, the impacts would be unavoidable and significant as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Proposed Action-related trains on BNSF main line routes in Washington State would travel at the same speeds as existing trains, and locomotives would sound horns for public safety consistent with existing practices. Therefore, noise levels associated with any individual train trip would not change substantially compared to existing conditions. Although Proposed Action-related trains would increase average daily noise levels along the BNSF main line routes in Washington State, the change

would not typically be noticeable to the average person. Noise from Proposed Action-related vessel traffic at noise-sensitive receptors would be comparable to or less than existing noise levels, and would be unlikely to cause significant noise impacts at noise-sensitive receptors along the Columbia River.

There would be no significant impacts from vibration. The closest vibration-sensitive receptors would be too far way to be affected by vibration from operations of the coal export terminal, rail traffic on the Reynolds Lead and BNSF Spur, and vessel operations on the Columbia River.

Air Quality

The study area for direct impacts on air quality consists of the area in and near the project area that could be affected by construction and operation activities in the project area. The study area for indirect impacts on air quality comprises Cowlitz County. An assessment of air quality impacts in Washington State from Proposed Action-related trains and vessels is also included.

Construction

Sources of air pollutant emissions during construction include emissions from construction equipment operations, vehicle delays at grade crossings, construction worker vehicles, delivery trucks, river barges, and dust from earthwork activity. Maximum annual construction emissions estimates for the peak construction year would not cause National Ambient Air Quality Standards established by the U.S. Environmental Protection Agency to be exceeded. Although emissions of criteria air pollutants would occur, they would not be expected to cause a substantial change in air quality and are unlikely to affect sensitive receptors surrounding the project area significantly.

Operations

Sources of air emissions during operation of the Proposed Action would include emissions from coal handling and storage; maintenance, operation, and emergency equipment; employee commute vehicles; and Proposed Action-related trains and vessels. Rail and vessel transport would be the largest sources of emissions.

A computer modeling analysis was performed to assess emissions from operation of the Proposed Action and the impact on localized air quality. The analysis determined the estimated maximum concentrations for each criteria air pollutant in combination with background concentrations would not cause National Ambient Air Quality Standards to be exceeded.

Based on an inhalation-only health risk assessment, coal export terminal operations and Proposed Action-related trains would increase the cancer risk associated with diesel particulate matter emissions.[7] Diesel particulate matter emissions primarily from Proposed Action-related train locomotives traveling along the Reynolds Lead, BNSF Spur, and BNSF main line in Cowlitz County would result in areas of increased cancer risk at or above 10 cancers per million. These impacts would be unavoidable and significant as described in Section S.7, *Unavoidable and Significant Adverse Environmental Impacts*.

Estimated countywide and statewide locomotive and vessel emissions estimates related to the Proposed Action were compared to 2011 countywide and statewide locomotive and commercial marine vessel emissions. In Cowlitz County, the largest increase in emissions for any one pollutant

[7] Diesel particulate matter is a toxic air pollutant as defined in WAC 173-460.

would be carbon monoxide and volatile organic compounds (VOCs) from vessel operations, which would increase approximately 69% and 63%, respectively. The increase would represent a less than 0.3% increase in the total Cowlitz County carbon monoxide and VOC emissions. Statewide, the largest increase in locomotive emissions for any one pollutant would be for carbon monoxide at 39%, followed by nitrogen oxides at 15%. For vessels, the largest increases would be for VOC at 12% and carbon monoxide at 11%.

Coal Dust

Coal dust is a form of particulate matter that can affect air quality. Particulate matter is composed of small particles that range in size that are suspended in the air. Coal loaded into train cars is made up of pieces and particles of differing size, including small particles or dust. During rail transit, wind and air moving over the train may blow coal dust off the rail cars and disperse it in the air before the dust settles onto the ground. Coal dust may also be generated and dispersed by wind during coal stockpiling and handling activities in the project area.

The study area for direct impacts related to coal dust consists of the area in and near the project area. The study area for indirect impacts differs for each co-lead agency. For Cowlitz County and Ecology, the indirect impacts study area includes the area along the Reynolds Lead and BNSF Spur. For Ecology, the indirect impacts study area also includes BNSF main line routes in Washington State expected to be used by Proposed Action-related trains.

The coal dust analysis estimated the amount of coal dust that could be deposited around the project area and rail lines in Washington State, and the concentrations of particulate matter that would occur. These concentrations were compared to the National Ambient Air Quality Standards for particulate matter.

There are no federal or state guidelines or standards that identify acceptable levels of dust deposition levels for nuisance-level particles. This EIS uses a New Zealand study as a nonregulatory benchmark for nuisance-level dust deposition. Coal dust nuisance impacts refer to coal dust that affects the aesthetics, look, or cleanliness of surfaces but not the health of humans and the environment.

Construction

Construction of the Proposed Action would not result in impacts related to coal dust because it would not include any coal-handling or transport activities.

Operations

Operation of the Proposed Action would emit coal dust from coal handling and transport activities in the project area. The Applicant would be required to follow dust-control requirements in the Notice of Construction permit. Unloading would involve equipment to rotate rail cars and discharge the coal from the rail cars into a large hopper. As the enclosed 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. 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. All transfer stations and approximately one-third of the conveyors would be enclosed. The stockpile area and vessel-loading conveyors would not be enclosed due to their operational requirements.

The coal stockpile area would have a dust-suppression system. Vessels would be loaded using shiploaders that would include enclosed boom and loading spout. The loading spout would also be telescopic and inserted below the deck of the vessel during vessel loading to avoid and minimize dust dispersion.

The estimated maximum coal dust deposition (0.40 gram per square meter per month) from coal export terminal operations would be at the project area boundary (near Mount Solo Road) and would be below the benchmark used for the analysis (2.0 grams per square meter per month). Within a few thousand feet of the project area, the annual deposition of coal dust is estimated to be less than 0.1 gram per square meter per month. Implementation of proposed mitigation (Table S-2) to reduce and monitor coal dust emissions in the project area and to establish a reporting process for coal dust compliance in Cowlitz County could reduce coal dust impacts.

Proposed Action-related trains would result in coal dust emissions along the rail lines as discussed below.

- **Reynolds Lead and BNSF Spur, Cowlitz County:**
  - Estimated maximum PM10 and PM2.5 concentrations from coal dust emissions plus background would be **below** federal and state air quality standards.
  - Estimated maximum and average monthly deposition of coal dust would be **below** the benchmark used for the analysis.
- **BNSF Main Line, Cowlitz County:**
  - Estimated maximum PM10 and PM2.5 concentrations from coal dust emissions plus background would be **below** federal and state air quality standards.
  - Estimated maximum monthly deposition (at 100 feet from the rail line) and average monthly deposition (at 50 feet from the rail line) of coal dust would be **slightly above** the benchmark used for the analysis.
- **BNSF Main Line, Columbia River Gorge:**
  - Estimated maximum PM10 and PM2.5 concentrations from coal dust emissions plus background would be **below** federal and state air quality standards.
  - Estimated maximum monthly deposition (at 50 feet from the rail line) and average monthly deposition (at 50 feet from the rail line) of coal dust would be **slightly above** the benchmark used for the analysis.
- **BNSF Main Line, Washington State (outside Cowlitz County and Columbia River Gorge):**
  - Estimated maximum PM10 and PM2.5 concentrations from coal dust emissions plus background would be **below** federal and state air quality standards.
  - Estimated maximum and average monthly deposition of coal dust would be **below** the benchmark used for the analysis.

Overall, the impacts of PM10 and PM2.5 emissions from Proposed Action-related trains would not be significant because emissions would be below applicable federal and state air quality standards. While the average and maximum monthly deposition of coal dust on the BNSF main line in Cowlitz County (50 and 100 feet, respectively) and Columbia River Gorge (50 feet) was estimated to be

above the benchmark used for the analysis, no state or federal standards apply, and this would be an unavoidable but not significant impact.

Implementation of proposed mitigation (Table S-2) to reduce coal dust emissions from rail cars and provide information to the Columbia River Gorge Commission could reduce coal dust impacts.

Greenhouse Gas Emissions and Climate Change

This section presents a discussion of greenhouse gas emissions resulting from construction and operations of the Proposed Action. Greenhouse gases are air pollutants that contribute to climate change. The greenhouse gas emissions discussion is followed by a summary of potential impacts on the Proposed Action from climate change.

Greenhouse Gas Emissions

The study area for impacts related to greenhouse gas emissions differs for each co-lead agency. For Cowlitz County, the county itself represents the greenhouse gas emissions study area. For Ecology, the study area evaluating greenhouse gas emissions outside Cowlitz County was based on the expected transportation routes and emissions from the combustion of coal. While the study areas for the co-lead agencies are different, the analysis used the same approach to calculate greenhouse gas emissions.

The analysis estimated greenhouse gas emissions for the Proposed Action under four coal market scenarios. Each coal market scenario represents a range of greenhouse gas emissions estimates based on economic and policy projections from 2020 through 2040. For each scenario, the greenhouse gas emissions from Asian coal combustion, U.S. coal combustion, and U.S. natural gas combustion are influenced by factors such as coal prices, transportation costs, and competing energy sources. Of the four scenarios, the 2015 U.S. and International Energy Policy scenario is the preferred scenario for the purposes of this EIS because it more accurately reflects current global conditions.

The EIS also describes potential future climate change impacts on precipitation, snowpack, temperature, and sea level in southwest Washington and the resulting impacts on the Proposed Action.

Construction

Construction of the Proposed Action would generate greenhouse gas emissions from operation of construction equipment, employees commuting to and from the project area, and construction materials delivered to and from the project area. Construction would also contribute to greenhouse gas emissions by clearing vegetation and removing surface soil from the project area, both of which store carbon. The analysis estimated construction activities related to the Proposed Action from 2018 to 2020 would result in greenhouse gas emissions in Cowlitz County of approximately 27,812 metric tons of carbon dioxide equivalent (CO_2e).

Operations

Greenhouse gas emissions were estimated for operational activities that would occur in Cowlitz County. Greenhouse gas emissions were also estimated for activities that would occur outside Cowlitz County, including rail transport from the mines and vessel transport to ports in Asia.

Changes in coal markets that could affect the use of coal in Asia and the United States were also considered.

Total emissions related to Proposed Action operations in Cowlitz County were estimated to be 568,778 metric tons of CO_2e, with annual emissions of 39,640 metric tons of CO_2e in 2028 when the coal export terminal would be fully operational. This would be the equivalent to adding approximately 8,300 passenger cars to the road each year.

Greenhouse gas emissions outside of Cowlitz County during operations attributable to the Proposed Action would be driven primarily by coal combustion in Asia and the United States. Across the four scenarios, emissions greatly vary. Under the preferred scenario, the average annual change in emissions, or the average net annual emissions related to the Proposed Action during the full operation from 2028 through 2038 would be an increase of 1.99 million metric tons of CO_2e.

The total net emissions for the preferred scenario from 2018 through 2038 (construction and operations) would be an increase of 22.36 million metric tons of CO_2e. The total net emissions are the sum of emissions for the Proposed Action, accounting for construction beginning in 2018 and operation through 2038, compared to a no-action scenario in which the Proposed Action would not be constructed. This would exceed various thresholds that are proposed in federal and state regulations and guidance. Since the net greenhouse gas emissions attributable to the Proposed Action in the preferred scenario would exceed these standards, the emissions are considered significant impacts. The climate change impacts resulting from this increase in greenhouse gas emissions would persist for a long period, beyond the analysis period, and would be considered permanent. The climate change impacts, while global in nature, would affect Washington State. Based on these considerations, emissions attributable to operations of the Proposed Action under the preferred scenario are considered adverse and significant.

Implementation of proposed mitigation measures (Table S-2) to develop a mitigation plan, reduce emissions, and improve efficiencies would reduce greenhouse gas emissions attributable to the Proposed Action. With implementation of proposed mitigation, there would be no unavoidable and significant adverse environmental impacts from greenhouse gas emissions.

Climate Change Impacts on the Proposed Action

This section summarizes potential impacts from climate change effects on the project area, access roads, and rail leading to the project area.

Construction and Operations

Potential climate change impacts relate to low water levels, flooding, and wildfires could result in service disruptions or damage affecting the Proposed Action.

Low water levels could impede the passage of large ships to and from the docks at the project area and could increase demand for electricity or otherwise force difficult choices on competing water usage. If reduced precipitation from snow and rain cause Columbia River water levels to decline, shipping could be restricted or dredging could be required more frequently.

Potential precipitation increases and intense downpours could cause flooding in basins that derive their water from both rainfall and snowfall, such as the Cowlitz River or Columbia River. Rising sea levels could also lead to flooding of public and private property, roads, and railways. Under current conditions, flooding is expected to be minimal in the project area. In the future, increases in fall and

winter precipitation could increase flood risk. The BNSF Spur and Reynolds Lead that would carry Proposed Action-related trains to the project area could be subject to flooding. Because historical and recent crests have been reported on the Cowlitz River, flood risk from sedimentation is increasing, and future precipitation could increase, flooding of the Reynolds Lead is possible.

S.6.2.4 Cumulative Impacts

Cumulative impacts are impacts that would result from the incremental addition of the Proposed Action to impacts from past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant, actions that occur over time.

This EIS includes an assessment of cumulative impacts in 2038[8] that could result from construction and operation of the Proposed Action in combination with 19 other reasonably foreseeable future actions.

The following types of actions were accounted for in the cumulative impact analysis.

- Potential bulk product export (other than coal) projects that would introduce rail and vessel traffic.
- Potential coal export projects that would introduce rail and vessel traffic.
- Potential crude oil by rail projects that would introduce rail and vessel traffic.
- Potential actions that would result in local construction and operation activities in Cowlitz County, the City of Longview, and the City of Kelso.
- Potential actions that would modify existing railroad infrastructure (the Reynolds Lead, BNSF Spur, and BNSF main line in Washington State).

The cumulative impacts resulting from the Proposed Action and the reasonably foreseeable future actions vary depending on the environmental resource area and the geographic study area identified for the cumulative analysis. This analysis accounts for impacts related to activities in the project area, rail transport, and vessel transport. If the Proposed Action would not result in potential adverse impacts on a particular environmental resource area, it would not have the potential to contribute to cumulative impacts for that environmental resource area.

The potential impacts of the Proposed Action in combination with the reasonably foreseeable future actions could result in cumulative impacts on the following 21 environmental resource areas: land and shoreline use; social and community resources; aesthetics, light, and glare; cultural resources; tribal resources; geology and soils; surface water and floodplains; wetlands; water quality; vegetation; fish; wildlife; energy and natural resources; rail transportation; rail safety; vehicle transportation; vessel transportation; noise and vibration; air quality; coal dust; and greenhouse gas emissions. Chapter 6, *Cumulative Impacts*, of this EIS presents the findings of the cumulative impacts analysis.

[8] The cumulative impacts analysis year is 2038. This was selected as the analysis year because it is 20 years after beginning construction of the Proposed Action and the Proposed Action would be fully operational (throughput of up to 44 million metric tons of coal per year). In addition, this analysis year conservatively accounts for future actions that may only be in the planning stages now but that can reasonably be expected to be operational in the future.

S.7 Unavoidable and Significant Adverse Environmental Impacts

Proposed mitigation measures are outlined in Table S-2. If the proposed mitigation measures were implemented, they would reduce but not completely eliminate significant adverse environmental impacts resulting from construction and operation of the Proposed Action. Unavoidable and significant adverse environmental impacts could remain for nine environmental resource areas: social and community resources; cultural resources; tribal resources; rail transportation; rail safety; vehicle transportation; vessel transportation; noise and vibration; and air quality.

S.7.1 Social and Community Resources

The Proposed Action would add 16 train trips per day on the Reynolds Lead and BNSF Spur and increase average daily noise levels, which would exceed applicable criteria for noise impacts at noise-sensitive receptors. Noise impacts would occur near at-grade crossings on the Reynolds Lead (Industrial Way, Oregon Way, California Way, and 3rd Avenue) from train horn noise intended for public safety. These noise impacts would occur in areas with minority and low-income populations; therefore, the Proposed Action would have a disproportionately high and adverse effect on minority and low-income populations. If a Quiet Zone is implemented, it would eliminate the need for Proposed Action-related trains to sound horns as they approach the at-grade crossings, and it would eliminate the potential disproportionately high and adverse effect on minority and low-income populations. However, without approval and implementation of a Quiet Zone, the Proposed Action's disproportionately high and adverse effect on minority and low-income populations would be unavoidable and significant.

With the current track infrastructure on the Reynolds Lead, a Proposed Action-related train traveling during the peak traffic hour would result in a vehicle-delay impact at four public at-grade crossings (Industrial Way, Oregon Way, California Way, and 3rd Avenue) in minority and low-income areas in 2028. This would constitute a disproportionately high and adverse effect on minority and low-income populations. The disproportionate impacts related to vehicle delay would not occur with planned improvements to the Reynolds Lead. Without the planned improvements to the Reynolds Lead, the Proposed Action's disproportionately high and adverse vehicle delay effects on minority and low-income populations would be unavoidable and significant.

Use of Tier 4[9] locomotives by BNSF and UP would reduce but not eliminate the disproportionately high and adverse effects in the Highlands neighborhood related to increased risk of greater than 10 cancers per million from diesel particulate matter inhalation. This impact would be unavoidable and significant.

S.7.2 Cultural Resources

Demolition of the Reynolds Metals Reduction Plant Historic District is an unavoidable and significant adverse environmental impact. The Memorandum of Agreement is currently being negotiated among the Corps, Cowlitz County, DAHP, City of Longview, BPA, National Park Service, potentially affected Native American tribes, and the Applicant. The Memorandum of Agreement may resolve this impact in compliance with Section 106 of the National Historic Preservation Act of 1966.

[9] Locomotives that are compliant with EPA locomotive emissions standards that went into effect in 2015.

S.7.3 Tribal Resources

Construction and operation of the Proposed Action could result in indirect impacts on tribal resources through Proposed Action-related activities causing physical or behavioral responses in fish and affecting aquatic habitat. These impacts could reduce the number of fish surviving to adulthood and returning to areas east of Bonneville Dam (Zone 6), which could affect the number of fish available for harvest by Native American tribes. Proposed Action-related trains would travel through areas adjacent to and within the usual and accustomed fishing areas of Native American tribes and could restrict access to tribal fishing areas in the Columbia River. Because other factors besides rail operations affect fishing opportunities, such as the number of fishers, fish distribution, timing, and duration of fish migration periods and seasons, the extent to which Proposed Action-related trains would affect tribal fishing is difficult to quantify. Making a determination of significance related to treaty-reserved rights is not determined in this EIS.

S.7.4 Rail Transportation

Three segments on the BNSF main line routes in Washington State (Idaho/Washington State Line–Spokane, Spokane–Pasco, and Pasco–Vancouver) are projected to exceed capacity with projected baseline rail traffic in 2028. Proposed Action-related trains would contribute to these three segments exceeding capacity in 2028, based on the analysis in this EIS and assuming existing infrastructure. It is expected that BNSF would make the necessary investments or operating changes to accommodate the rail traffic growth, but it is unknown when these actions would be taken or permitted. If improvements to increase capacity were not made, Proposed Action-related trains would contribute to these capacity exceedances and could result in an unavoidable and significant adverse impact on rail transportation.

S.7.5 Rail Safety

Proposed Action-related trains would add rail traffic along rail routes in Cowlitz County and Washington State, which would increase the potential for train accidents. LVSW, BNSF, and UP could improve rail safety through investments or operational changes, but it is unknown when those actions would be taken or permitted. Therefore, the Proposed Action could result in an unavoidable and significant adverse impact on rail safety.

S.7.6 Vehicle Transportation

With current track infrastructure on the Reynolds Lead and BNSF Spur, four public at-grade crossings would operate below the benchmark used for the analysis if one Proposed Action-related train travels during the peak traffic hour in 2028. With planned track improvements to the Reynolds Lead and BNSF Spur, two public at-grade crossings would operate below the benchmark used for the analysis if two Proposed Action-related trains travel during the peak traffic hour in 2028.

While improvements for rail and road infrastructure have been proposed, it is unknown when these actions would be permitted and implemented. Therefore, the Proposed Action at full operations in 2028 could result in an unavoidable and significant adverse impact on vehicle transportation at certain at-grade crossings in Cowlitz County.

S.7.7 Vessel Transportation

If a Proposed Action-related vessel incident such as a collision or allision occurred, the impacts could be significant, depending on the nature and location of the incident, the weather conditions at the time, and the discharge of oil. Although the likelihood of a serious Proposed Action-related vessel incident is very low, there are no mitigation measures that could completely eliminate the possibility of an incident or the resulting impacts.

S.7.8 Noise and Vibration

The Proposed Action would add 16 trains per day on the Reynolds Lead and BNSF Spur and increase average daily noise levels. Noise levels would exceed applicable criteria for noise impacts at noise-sensitive locations. The noise impacts would occur near at-grade crossings on the Reynolds Lead from train-horn noise intended for public safety. Railroad noise is exempt from Washington State and local noise standards; however, it is possible for communities to work with the Federal Railroad Administration to apply for and implement a Quiet Zone to limit train horn sounding. The Applicant will work with the City of Longview, Cowlitz County, LVSW, the affected community, and other applicable parties to apply for and support the implementation of a Quiet Zone. However, if a Quiet Zone is not implemented and Proposed Action-related train horns are sounded for public safety, then the noise impacts would remain and would be an unavoidable and significant adverse impact.

S.7.9 Air Quality

Project design measures, best management practices, and compliance with environmental permits, plans, and authorizations that are assumed as part of the Proposed Action would reduce air quality impacts related to construction and operation of the coal export terminal. Based on the inhalation-only health risk assessment, diesel particulate matter emissions from Proposed Action-related train locomotives traveling along the Reynolds Lead, BNSF Spur, and BNSF main line in Cowlitz County would result in areas of increased cancer risk at or above 10 cancers per million which would represent an unavoidable and significant adverse impact.

S.8 Required Permits, Plans, and Approvals

The following permits, plans, and approvals would be required for the Proposed Action.

S.8.1 Local

- Cowlitz County Department of Building and Planning—Shoreline Substantial Development Permit
- Cowlitz County Department of Building and Planning—Shoreline Conditional Use Permit
- Cowlitz County Department of Building and Planning—Critical Areas Permit
- Cowlitz County Department of Building and Planning—Floodplain Permit
- Cowlitz County Department of Building and Planning—Building and Site Development Permits
- Three Rivers Regional Wastewater Authority—Wastewater Discharge Permit
- City of Longview—Utility Service Permit

- Southwest Clean Air Agency—Notice of Construction

S.8.2 State

- Washington State Department of Ecology—Clean Water Act Section 401 Water Quality Certification
- Washington State Department of Ecology—National Pollutant Discharge Elimination System Construction Stormwater Permit
- Washington State Department of Ecology—National Pollutant Discharge Elimination System Industrial Stormwater Permit
- Washington State Department of Ecology—Water Rights Permit
- Washington State Department of Ecology—Shoreline Conditional Use Permit
- Washington Department of Fish and Wildlife—Hydraulic Project Approval
- Washington State Department of Natural Resources—Site Use Authorization or Flow Lane Disposal Authorization
- Washington State Department of Natural Resources—Aquatic Lands Lease[10]

S.8.3 Federal

- U.S. Army Corps of Engineers—Clean Water Act Section 404 Permit
- U.S. Army Corps of Engineers—Rivers and Harbors Act Section 10 Permit
- U.S. Army Corps of Engineers—Rivers and Harbors Act Section 14 (Section 408)
- U.S. Army Corps of Engineers—Section 106 of the National Historic Preservation Act compliance
- U.S. Fish and Wildlife Service and National Marine Fisheries Service—Endangered Species Act Consultation
- National Marine Fisheries Service—Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, Section 305 Consultation
- National Marine Fisheries Service—Marine Mammal Protection Act

S.9 Next Steps

The Final EIS provides information for public, local, and state agencies to support decision-making regarding permits for the Proposed Action. These agencies include Cowlitz County, City of Longview, Southwest Clean Air Agency, Three Rivers Regional Wastewater Authority, Washington Department of Fish and Wildlife, Washington State Department of Natural Resources, and Ecology for. Local, regional, and state agencies will conduct their respective reviews, defined in adopted local, regional,

[10] The project area landowner (Northwest Alloys) holds a 30-year aquatic lands lease (20-B09222) with the Washington State Department of Natural Resources (WDNR). According to WDNR, under the terms of the lease, Northwest Alloys must obtain WDNR's written consent prior to construction of improvements. Northwest Alloys has not yet requested and WDNR has not provided its consent to the improvements proposed by the Applicant (Palazzi pers. comm.).

and state rules. All primary local, regional, state, and federal permits must be issued before the Proposed Action may begin. The Final NEPA EIS, expected to be published in 2017, will also inform local, state, and federal decisions.

Table S-2. Summary of Impacts and Proposed Applicant Mitigation Measures

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
General Mitigation			
General Mitigation	Refer to the potential impacts identified in this table.	The Applicant will provide to Cowlitz County and the Washington State Department of Ecology an annual report of compliance with mitigation requirements of an issued permit. Mitigation compliance reports will be part of the public record.	No.
Chapter 3: Built Environment: Existing Conditions, Project Impacts, and Proposed Mitigation Measures			
Section 3.1: Land and Shoreline Use	None.	Not applicable.	No.
Section 3.2: Social and Community Resources	Noise from Proposed Action-related trains on the Reynolds Lead during operations would increase average daily noise levels in a minority and low-income area. This would be a disproportionately high and adverse effect on minority and low-income populations.	**MM NV-2**. **Support Implementation of a Quiet Zone along the Reynolds Lead**. See discussion in Section 5.5, *Noise and Vibration,* in this table. **MM NV-3**. **Explore Feasibility of Reducing Sound Levels**. See discussion in Section 5.5, *Noise and Vibration,* in this table.	Yes, absent the implementation of a Quiet Zone or other measures to reduce train-related noise. Refer to Section S.7.1.
Section 3.2: Social and Community Resources	Operation of the Proposed Action would increase vehicle delay at four public at-grade crossings in a minority and low-income area if a Proposed Action-related train travels during the peak traffic hour and with current infrastructure on the Reynolds Lead. This would be a disproportionately high and adverse effect on minority and low-income populations.	**MM VT-1**. **Notify Local Agencies about Operations on the Reynolds Lead and BNSF Spur**. See discussion in Section 5.3, *Vehicle Transportation*, in this table.	Yes, absent improvements to reduce vehicle delay. Refer to Section S.7.1.
Section 3.2: Social and	Operation of the Proposed Action would increase the cancer risk from diesel	None.	Yes. Refer to Section S.7.1.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
Community Resources	particulate matter emissions in a minority and low-income area, primarily from Proposed Action-related train locomotive emissions. This would be a disproportionately high and adverse effect on minority and low-income populations.		
Section 3.3: Aesthetics, Light, and Glare	The Proposed Action would alter views and introduce sources of light and glare for on-water viewers and recreational users at Dibblee Point Beach.	**MM ALG-1**. **Modify Lighting and Appearance of Facility Surfaces to Minimize Visual Impacts**. To minimize the aesthetic, light, and glare impacts, the Applicant will: • Use directional lighting with full box cut-off fixtures, or equivalent, and use motion- or user-controlled light systems, where practicable and feasible. • Use neutral colors to blend with or complement surrounding environment for non-safety-related structures and equipment, and use nonreflecting materials and finishes, where practicable and feasible.	No.
Section 3.4: Cultural Resources	Construction of the Proposed Action could displace or damage undocumented archaeological resources within native soil below existing fill.	**MM CR-1**. **Monitor Ground-Disturbing Activities**. To protect archaeological resources that may occur in subsurface deposits, the Applicant will have a qualified professional archaeologist monitor ground-disturbing activities. If archaeological resources are discovered, construction could be halted in the area until the Corps, in consultation with the Department of Archaeology and Historic Preservation and the tribes, determine the appropriate course of action.	Yes, due to the demolition of the Reynolds Metals Reduction Plant Historic District. A Memorandum of Agreement is currently being negotiated among the Corps, Cowlitz County, DAHP, City of Longview, BPA, National Park Service, potentially affected Native American tribes, and the Applicant. The Memorandum of Agreement could resolve this impact in compliance with Section 106 of the National Historic

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
			Preservation Act of 1966. Refer to Section S.7.2.
Section 3.5: Tribal Resources	Activities related to the Proposed Action could cause physical or behavioral responses in fish or affect aquatic habitat in the Columbia River. These impacts could reduce the number of fish surviving to adulthood and returning to areas east of Bonneville Dam, thereby affecting the number of fish available for harvest by the tribes.	**MM WQ-2**. **Develop and Implement a Coal Spill Containment and Cleanup Plan**. See discussion in Section 4.5, *Water Quality*, in this table. **MM FISH-1**. **Implement a Best Available Noise Attenuation Methods for Pile-Driving**. See discussion in Section 4.7, *Fish*, in this table. **MM FISH-2**. **Implement a "Soft-Start" Method during Pile-Driving**. See discussion in Section 4.7, *Fish*, in this table. **MM FISH-3**. **Monitor Pile-Driving and Dredging Activities for Distress to Fish and Wildlife**. See discussion in Section 4.7, *Fish*, in this table. **MM FISH-4**. **Conduct Eulachon Surveys**. See discussion in Section 4.7, *Fish*, in this table. **MM FISH-5. Conduct Fish Monitoring during Hydraulic Dredging Operations.** See discussion in Section 4.7, *Fish*, in this table.	Activities related to the Proposed Action could reduce the number of fish surviving to adulthood, which could affect the number of fish available for harvest by the tribes. The significance of impacts related to treaty rights is not determined in this EIS. Refer to Section S.7.3.
Section 3.5: Tribal Resources	Operation of the Proposed Action would affect access to tribal fishing areas in the Columbia River.	None.	Proposed Action-related trains would travel through usual and accustomed fishing areas and could restrict access to tribal fishing areas in the Columbia River. The significance of impacts related to treaty rights is not determined in this EIS. Refer to Section S.7.3.
Section 3.6: Hazardous Materials	Operation of the Proposed Action could result in spills of	**MM WQ-1**. **Locate Spill Response Kits Near Main Construction and Operations Areas**. See discussion in Section 4.5, *Water Quality,* in this table.	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
	hazardous materials in the project area.		
Chapter 4: Natural Environment: Existing Conditions, Project Impacts, and Proposed Mitigation Measures			
Section 4.1: Geology and Soils	None.	Not applicable.	No.
Section 4.2: Surface Waters and Floodplains	None.	Not applicable.	No.
Section 4.3: Wetlands	Construction of the Proposed Action would place fill material in 24.10 acres of wetlands, resulting in the permanent loss of wetland functions.	**MM WTL-1**. **Prepare a Comprehensive Mitigation Plan**. To address impacts on wetlands affected by placement of fill, the Applicant will prepare a comprehensive mitigation plan in coordination with the Corps, Ecology, and Cowlitz County. The mitigation plan will address the general requirements for mitigation planning consistent with all current local, state, and federal guidance and regulations.	No.
Section 4.4: Groundwater	Construction and operation of the Proposed Action could degrade groundwater quality due to spills of hazardous materials.	**MM WQ-1**. **Locate Spill Response Kits Near Main Construction and Operations Areas**. See discussion in Section 4.5, *Water Quality*, in this table.	No.
Section 4.5: Water Quality	Construction and operation of the Proposed Action could affect water quality due spills of hazardous materials.	**MM WQ-1. Locate Spill Response Kits Near Main Construction and Operations Areas**. The Applicant will locate spill response kits throughout the project area during construction and operations. The spill response kits will contain response equipment and personal protective equipment appropriate for hazardous materials that will be stored and used during construction and operations. Site personnel will be trained in the storage, inventory, and deployment of items in the spill response kits. Spill response kits will be checked a minimum of four times per year to ensure proper-functioning condition, and will otherwise be maintained and replaced per manufacturer recommendations. Should a spill response kit be deployed, the Applicant will notify Cowlitz County and Ecology immediately.	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
		The Applicant will submit a map indicating the types and locations of spill response kits to Cowlitz County and Ecology for approval prior to beginning construction and operations.	
Section 4.5: Water Quality	Operation of the Proposed Action could affect water quality from coal spills.	**MM WQ-2**. **Develop and Implement a Coal Spill Containment and Cleanup Plan**. To limit the exposure of spilled coal to the terrestrial, aquatic, and built environments during coal handling, the Applicant will develop a containment and cleanup plan. The plan will be reviewed by Cowlitz County and Ecology and implemented prior to beginning export terminal operations. In the event of a coal spill in the aquatic environment by the Applicant during export terminal operations, action will be taken based on the specific coal spill, and the Applicant will develop a cleanup and monitoring plan consistent with the approved containment and cleanup plan. This plan will include water quality and sediment monitoring to determine the potential impact of the coal spill on the aquatic habitat and aquatic species. The Applicant will develop the cleanup and monitoring plan in coordination with Cowlitz County, Ecology, and the Corps. The cleanup and monitoring will be similar in scope to the monitoring completed for the Aquatic Impact Assessment (Borealis 2015) associated with a coal spill in British Columbia, Canada, in 2014.	No.
Section 4.5: Water Quality	Operation of the Proposed Action would affect water quality by introducing contaminants from coal dust.	**MM CDUST-1**. **Monitor and Reduce Coal Dust Emissions in the Project Area**. See discussion in Section 5.7, *Coal Dust*, in this table. **MM CDUST-3**. **Reduce of Coal Dust Emissions from Rail Cars**. See discussion in Section 5.7, *Coal Dust*, in this table.	No.
Section 4.6: Vegetation	Construction of the Proposed Action would permanently remove vegetation from the project area. Operation of the Proposed Action would alter vegetation during maintenance activities. No special-status plant species have been recorded in the project area, but	**MM VEG-1**. **Conduct Rare Plant Surveys Prior to Construction**. To ensure that threatened, endangered, or rare plants are not affected, the Applicant will conduct rare plant surveys of the project area, including the ditches and stormwater conveyance features. Surveys for rare plants will be performed for those rare plants that may occur in Cowlitz County, according to the Washington Natural Heritage Program. Surveys will be performed prior to any Proposed Action-related ground disturbance and during the appropriate survey windows for each species. If such	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
	potentially suitable habitat is present.	plant species are found, the Applicant will notify and consult with the Washington State Department of Natural Resources, and the U.S. Fish and Wildlife Service (if federally protected species are found). The Applicant and the agencies will work together to determine the appropriate conservation and mitigation measures should potential impacts on any rare plants be possible as a result of ground disturbing activities.	
Section 4.6: Vegetation	Operation of the Proposed Action could affect vegetation along the rail tracks entering the project area, along the shoreline of the Columbia River, and in the shallow waters of the Columbia River near the project area.	**MM VEG-2**. **Conduct Aquatic Vegetation Surveys Prior to Construction**. To ensure that aquatic plants along the shoreline of the Columbia River are not affected, the Applicant will conduct an aquatic plant survey along the shoreline of the project area prior to commencing in-water work associated with construction of Docks 2 and 3 and construction-related dredging, including all areas within the shallow water zone adjacent to the proposed docks. If areas of aquatic vegetation are found, the Applicant will notify the Washington State Department of Natural Resources, Cowlitz County, and the U.S. Fish and Wildlife Service, and work with these agencies to develop appropriate conservation or mitigation measures before beginning any in-water work.	No.
Section 4.6: Vegetation	Construction of the Proposed Action along the edges of the project area could temporarily disturb adjacent vegetation and compact soil.	**MM VEG-3**. **Replant Areas Temporarily Disturbed during Construction**. To ensure that disturbed native vegetation is restored, after construction the Applicant will replant vegetated areas temporarily disturbed during construction with native vegetation suitable for site conditions post-construction. The Applicant will monitor replanted vegetation annually for 5 years and will ensure the survival of 80% of all replanted vegetation. The Applicant will submit annual monitoring reports to Cowlitz County.	No.
Section 4.6: Vegetation	Construction of the Proposed Action would permanently remove vegetation from the project area.	**MM VEG-4. Develop and Implement a Revegetation Plan**. To mitigate permanent removal of vegetation from project construction, the Applicant will develop and implement a revegetation plan for the project area. This plan will be approved by Cowlitz County prior to implementation and will be consistent with the Cowlitz County Critical Areas Ordinance (CCC 19.15).	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
Section 4.6: Vegetation	Operation of the Proposed Action would result in conditions in the project area that would favor colonization by noxious weeds.	**MM VEG-5**. **Control Noxious Weeds**. To limit further invasion and colonization of noxious weeds on disturbed land, the Applicant will monitor for noxious weeds during construction and operations and remove noxious weeds that invade new areas of the site. The Applicant will coordinate with the Cowlitz County Noxious Weed Control Board if Class A and B noxious weeds are detected.	No.
Section 4.6: Vegetation	Operation of the Proposed Action would generate and disperse coal dust on vegetation, soils, and sediments.	**MM CDUST-3**. **Reduce Coal Dust Emissions from Rail Cars.** See discussion in Section 5.7, *Coal Dust*, in this table.	No.
Section 4.6: Vegetation	Operation of the Proposed Action could affect vegetation from coal spills.	**MM WQ-2**. **Develop and Implement a Coal Spill Containment and Cleanup Plan**. See discussion in Section 4.5, *Water Quality*, in this table.	No.
Section 4.7: Fish	Installation of structural steel piles during construction of the Proposed Action would generate underwater noise during pile driving, which could affect fish in several ways, ranging from alteration of behavior to physical injury or mortality.	**MM FISH-1**. **Implement Best Available Noise Attenuation Methods for Pile Driving**. To minimize underwater noise impacts on fish during pile driving, the Applicant will employ the best available noise attenuation methods during pile driving. These methods may include, but are not limited to, confined bubble curtain, temporary noise attenuation pile, double-walled noise attenuation pile, or other similar technology. The Applicant is currently proposing use of a confined bubble curtain, but other methods may be found to be better at attenuating noise impacts during the Endangered Species Act Section 7 consultation or by the time construction begins. Should other methods in the future prove to attenuate underwater noise better than a confined bubble curtain, those methods will be employed. **MM FISH-2**. **Implement a "Soft-Start" Method during Pile-Driving**. To minimize underwater noise impacts on fish during pile driving, the Applicant will commence impact pile-driving using a "soft-start," or other similar method. The "soft-start" method is a method of slowly building energy of the pile driver over the course of several pile strikes until full energy is reached. This "soft-start" method cues fish and wildlife to pile-driving	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
		commencing and allows them to move away from the pile-driving activity.	
Section 4.7: Fish	Pile installation, dredging, and dredge material disposal during construction of the Proposed Action would increase turbidity and underwater noise, which could result in adverse physical or behavioral responses in fish.	**MM FISH-3**. **Monitor Pile-Driving and Dredging Activities for Distress to Fish and Wildlife**. To minimize the potential harm to marine mammals, diving birds, or fish, a professional biologist will observe the waters near pile-driving and dredging activities for signs of distress from fish and wildlife during these activities. If any fish or wildlife species were to show signs of distress during pile driving, the biologist will issue a stop work order until the species are recovered, moved, or relocated from the area. The Applicant will immediately report any distressed fish or wildlife observed to the appropriate agencies (i.e., Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service) and determine the appropriate course of action. **MM FISH-4**. **Conduct Eulachon Surveys**. Should in-water work occur between December and May, the Applicant will conduct advance underwater surveys at least 1 year before in-water work would occur for eulachon (adult, eggs and larvae) within those areas where in-water work would occur (i.e., Docks 2 and 3 and the dredge prism). Surveys would be conducted starting in December when water temperatures are near 40 degrees Fahrenheit (°F) in the lower Columbia River, which appears to trigger river entry for adults, and continue through May, when larval eulachon have generally hatched and drifted out of the system. Survey design and results would be provided to Washington Department of Fish and Wildlife and National Marine Fisheries Service. If adult or larval eulachon or eulachon eggs are observed and in-water work is proposed, the Applicant would coordinate with the fish and wildlife agencies on the appropriate measures to avoid and minimize impacts on eulachon and implement those measures. **MM FISH-5. Conduct Fish Monitoring during Hydraulic Dredging Operations.** The Applicant will develop and implement fish community monitoring in coordination with the Washington	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
		Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. Fish community monitoring will include surveys conducted prior to dredging to identify fish species and life-stages present in the area to be dredged. As part of the coordination with the Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service measures to reduce the entrainment of fish anticipated to be present during dredging will also be developed, which may include timing restrictions for hydraulic dredging. The Applicant will also develop and implement dredge entrainment monitoring for hydraulic dredging, in coordination with the Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service. Dredge entrainment monitoring will involve screening the dredge output at the point of discharge (i.e., barge) to determine the number, life-stage, and species of fish entrained by hydraulic dredging. The information gathered during dredge monitoring will be provided to the Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service.	
Section 4.7: Fish	Operation of the Proposed Action would generate and disperse coal dust in the aquatic environment.	**MM CDUST-1**. **Monitor and Reduce Coal Dust Emissions in the Project Area**. See discussion in Section 5.7, *Coal Dust*, in this table. **MM CDUST-3**. **Reduce Coal Dust Emissions from Rail Cars.** See discussion in Section 5.7, *Coal Dust*, in this table.	No.
Section 4.7: Fish	Operation of the Proposed Action could affect fish from coal spills.	**MM WQ-2**. **Develop and Implement a Coal Spill Containment and Cleanup Plan**. See discussion in Section 4.5, *Water Quality*, in this table.	No.
Section 4.8: Wildlife	Installation of structural steel piles during construction of the Proposed Action would generate underwater noise during pile driving, which could affect marine mammals and	**MM FISH-2**. **Implement a "Soft-Start" Method during Pile-Driving**. See discussion in Section 4.7, *Fish*, in this table.	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
	diving birds and cause physical or behavioral responses.		
Section 4.8: Wildlife	Pile installation, dredging, and dredge material disposal during construction of the Proposed Action would increase turbidity and underwater noise, which could result in adverse physical or behavioral responses in marine mammals, diving birds, and terrestrial animals.	**MM FISH-3**. **Monitor Pile-Driving and Dredging Activities for Distress to Fish and Wildlife**. See discussion in Section 4.7, *Fish*, in this table.	No.
Section 4.8: Wildlife	Operation of the Proposed Action would generate and disperse coal dust in the aquatic and terrestrial environment. Coal dust could affect wildlife through physical or toxicological means.	**MM CDUST-1**. **Monitor and Reduce Coal Dust Emissions in the Project Area**. See discussion in Section 5.7, *Coal Dust*, in this table. **MM CDUST-3. Reduce Coal Dust Emissions from Rail Cars**. See discussion in Section 5.7, *Coal Dust*, in this table.	No.
Section 4.8: Wildlife	Operation of the Proposed Action could affect wildlife from coal spills.	**MM WQ-2**. **Develop and Implement a Coal Spill Containment and Cleanup Plan**. See discussion in Section 4.5, *Water Quality*, in this table.	No.
Section 4.9: Energy and Natural Resources	None.	Not applicable.	No.
Chapter 5: Operations: Existing Conditions, Project Impacts, and Proposed Mitigation Measures			
Section 5.1: Rail Transportation	Proposed Action-related trains and baseline rail traffic during full operations would exceed capacity on certain main line route segments with current infrastructure.	**MM RT-1**. **Notify BNSF and UP about Operations on Main Line Routes**. To allow for adequate planning to address Proposed Action-related trains contributing to segments exceeding capacity on main line routes in Washington State, the Applicant will notify BNSF and UP before each identified operational stage (Stage 1a, Stage 1b, and Stage 2) begins that will change average daily rail traffic on main line routes in Washington State. The Applicant will prepare a report to document the notification of BNSF and UP and	Without improvements to rail infrastructure to expand capacity, the Proposed Action could result in an unavoidable and significant adverse impact on rail

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		changes to average daily rail traffic. The report will be submitted to BNSF, UP, Washington State Department of Transportation, Utilities Transportation Commission, and Cowlitz County at least 6 months before the change in average daily rail traffic.	transportation. Refer to Section S.7.4.
Section: 5.2 Rail Safety	The Proposed Action would increase the potential for train accidents by adding loaded and empty Proposed Action-related rail traffic on rail routes in Washington State.	**MM RT-1**. **Notify BNSF and UP about Operations on Main Line Routes**. See discussion in Chapter 5, Section 5.1, *Rail Transportation*.	Without improvements to rail infrastructure to improve rail safety, the Proposed Action could result in an unavoidable and significant adverse impact on rail safety. Refer to Section S.7.5.
Section 5.3: Vehicle Transportation	Operation of the Proposed Action would increase rail traffic at grade crossings, which would result in vehicle delay impacts during the peak vehicle traffic hour at certain crossings along the Reynolds Lead, BNSF Spur, and BNSF main line.	**MM VT-1**. **Notify Local Agencies about Operations on the Reynolds Lead and BNSF Spur**. To address vehicle delay impacts at grade crossings on the Reynolds Lead and BNSF Spur, the Applicant will notify Cowlitz County, City of Longview, Cowlitz Fire District, City of Rainier (Oregon), Port of Longview, and Cowlitz-Wahkiakum Council of Governments before each identified operational stage (Stage 1a, Stage 1b, and Stage 2) that will change average daily rail traffic on the Reynolds Lead and BNSF Spur. The Applicant will prepare a memorandum to document the changes to average daily rail traffic. The memorandum will be submitted to these agencies at least 6 months before the change in average daily rail traffic.	Without improvements to rail and road infrastructure, and if at least one Proposed Action-related train travels during the peak vehicle traffic hour, the Proposed Action could result in an unavoidable and significant adverse impact on vehicle transportation. Refer to Section S.7.6.
Section 5.4: Vessel Transportation	Operation of the Proposed Action would increase vessel traffic that would increase the likelihood of a vessel incident.	**MM VS-1**. **Attend Lower Columbia River Harbor Safety Committee Meeting**. The Applicant will attend at least one Lower Columbia River Harbor Safety Committee meeting per year before beginning operations and every year during operations. The Applicant will provide notification of attendance to Cowlitz County. **MM VS-2. Notify if Bunkering at Docks Occurs.** The risk of an oil spill at Docks 2 and 3 would primarily be during bunkering (refueling) operations. The Applicant has committed to no bunkering at Docks 2 and 3. If this changes and bunkering is proposed at Docks 2 and 3, the Applicant will notify Cowlitz	If an incident such as a collision or allision occurred, the impacts could be significant, depending on the nature and location of the incident, the weather conditions at the time, and, the discharge of fuel. Refer to Section S.7.7.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
		County and Ecology who will determine if additional environmental review is required before bunkering operations are conducted.	
Section 5.5: Noise and Vibration	Construction and operation of the Proposed Action is projected to result in noise levels that would exceed applicable noise standards at one noise-sensitive receptor.	**MM NV-1**. **Monitor and Control Increased Noise from Coal Export Terminal Construction and Operations at Closest Residences**. If agreed to by the property owner(s), the Applicant will monitor noise levels at the two residences nearest the project area to detect possible noise impacts from the Proposed Action during construction and operations. Noise will be monitored during construction and until at least 6 months after initiation of operations. The Applicant will submit monthly noise reports to Cowlitz County Building and Planning. If the monitoring identifies a noise impact due to coal export terminal operations, the Applicant will reduce the noise exposure with modifications to terminal operations or installation of building sound insulation at the noise receptor.	No.
Section 5.5: Noise and Vibration	Operation of the Proposed Action would result in moderate and severe noise impacts at noise-sensitive receptors along the Reynolds Lead from rail traffic noise related to sounding train horns for public safety.	**MM NV-2**. **Support Implementation of a Quiet Zone along the Reynolds Lead**. To address moderate and severe noise impacts along the Reynolds Lead due to rail traffic, before beginning full operations, the Applicant will coordinate with the City of Longview, Cowlitz County, Longview Switching Company, and the affected community to inform interested parties on the Federal Railroad Administration process to implement a Quiet Zone that will include the 3rd Avenue and California Avenue crossings. Public outreach on the Quiet Zone process will include low-income and minority populations. The Applicant will assist interested parties in the preparation and submission of the Quiet Zone application to the Federal Railroad Administration. If the Quiet Zone is approved, the Applicant will fund the Quiet Zone improvements, which could include electronics, barricades, and crossing gates. **MM NV-3**. **Explore Feasibility of Reducing Sound Levels**. If the Quiet Zone for the Reynolds Lead is not implemented, the Applicant will fund a sound reduction study to identify ways to mitigate the moderate and severe impacts from train noise from	Yes, absent the implementation of a Quiet Zone or other measures to reduce train-related noise. Refer to Section S.7.8.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
		Proposed Action-related trains along the Reynolds Lead. The study methods will be discussed with Cowlitz County, Ecology, and Washington State Department of Health for approval.	
Section 5.6: Air Quality	Operation of the Proposed Action would increase the cancer risk from diesel particulate matter emissions, primarily from Proposed Action-related train locomotive emissions.	None.	Yes. Refer to Section S.7.9.
Section 5.7: Coal Dust	Operation of the Proposed Action would emit and deposit coal dust in the project area due to coal handling and transport activities.	**MM CDUST-1**. **Monitor and Reduce Coal Dust Emissions in the Project Area**. To address coal dust emissions, the Applicant will monitor coal dust during operation of the Proposed Action at locations approved by the Southwest Clean Air Agency. A method for measuring coal dust concentration and deposition will be defined by the Southwest Clean Air Agency. If coal dust levels exceed nuisance levels, as determined by the Southwest Clean Air Agency, the Applicant will take further action to reduce coal dust emissions. Potential locations to monitor coal dust concentration and deposition will be along the facility fence line in close proximity to the coal piles, where the rail line enters the facility and operation of the rotary dumper occurs, and at a location near the closest residences to the project area, if agreed to by the property owner(s). The Applicant will conduct monthly reviews of the concentration and deposition data and maintain a record of data for at least 5 years after full operations, unless otherwise determined by the Southwest Clean Air Agency. If measured concentrations exceed PM air quality standards, the Applicant will report this information to the Southwest Clean Air Agency, Cowlitz County and Ecology. The Applicant will gather 1 year of fence line data on PM2.5 and PM10 prior to beginning operations and maintain the data as reference. This data will be reported to the Southwest Clean Air Agency, Cowlitz County, and Ecology. **MM CDUST-2**. **Establish Reporting Process for Coal Dust Complaints in Cowlitz County**. To address coal dust emissions,	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
		the Applicant will meet with the Southwest Clean Air Agency prior to the start of operations to design and implement a coal dust awareness and investigation system for community members in Cowlitz County. The system will be available in both English and Spanish to receive complaints or concerns, investigate, respond, resolve, and report findings to the complainant and Southwest Clean Air Agency. The system will be available during operation of the Proposed Action. The Applicant will operate the system or provide funding for Southwest Clean Air Agency to operate the system. A report will be submitted annually to Cowlitz County and the City of Longview and posted on Southwest Clean Air Agency website.	
Section 5.7: Coal Dust	Proposed Action-related trains during operations would emit coal dust while traveling on rail lines in Washington State.	**MM CDUST-3**. **Reduce Coal Dust Emissions from Rail Cars**. To address coal dust emissions, the Applicant will not receive coal trains unless surfactant has been applied at the BNSF surfactant facility in Pasco, Washington for BNSF trains traveling through Pasco. While other measures to control emissions are allowed by BNSF, those measures were not analyzed in this EIS and would require additional environmental review. For trains that will not have surfactant applied at the BNSF surfactant facility in Pasco, before beginning operations, the Applicant will work with rail companies to implement advanced technology for application of surfactants along the rail routes for Proposed Action-related trains. **MM CDUST-4**. **Provide Information to the Columbia River Gorge Commission**. To address statewide and regional public interests and concern of coal dust emissions, the Applicant will attend at least one Columbia River Gorge Commission public meeting per year and be available to present information on coal dust emissions and rail traffic related to the Proposed Action and discuss concerns.	No.
Section 5.8: Greenhouse Gas Emissions and Climate Change	Construction and operation of the Proposed Action would result in greenhouse gas emissions.	**MM GHG-1**. **Provide Fuel Efficiency Training to Equipment Operators**. To reduce greenhouse gas emissions from construction equipment, the Applicant will provide a fuel	No.

Environmental Resource Area	Potential Impacts Requiring Mitigation	Proposed Applicant Mitigation Measure(s)	Unavoidable and Significant Adverse Environmental Impact?
		efficiency training program to locomotive, vessel, and construction equipment operators. **MM GHG-2**. **Implement an Anti-Idling Policy**. To reduce emissions from vessel and locomotive idling in the project area, the Applicant will implement an anti-idling policy. **MM GHG-3**. **Reduce Emissions from Cars**. The Applicant will evaluate the use of electric cars for company cars, incentivize the use of electric vehicles by providing charging stations, and develop an incentive program for carpooling. **MM GHG-4**. **Mitigate for Impacts on Washington State from Net Greenhouse Gas Emissions Attributable to the Proposed Action**. To address the potential impacts of greenhouse gas emissions attributable to the Proposed Action, the Applicant will prepare a greenhouse gas mitigation plan that mitigates for 100% of the greenhouse gas emissions identified in the 2015 U.S. and International Energy Policy scenario. For operations at maximum capacity this is 1.99 million metric tons CO_2e per year from 2028 through 2038. The plan must be approved by Ecology. For mitigation that occurs in Cowlitz County, the plan will be approved by Cowlitz County and Ecology. The plan must be ready to implement prior to the start of full operations. The measures described in the plan may include a range of mitigation options. The measures must achieve emission reductions that are real, permanent, enforceable, verifiable, and additional. The emission reductions may occur in Washington State or outside of Washington State but must be demonstrated to meet all five criteria (e.g., using internationally recognized protocols). For example, carbon credits could be purchased through existing carbon markets, or through on-site reductions achieved through efficiency measures or changes in technology.	