5.6 Air Quality

Air quality is essential to human and environmental health, and is protected by federal, state, and local regulations. Air pollution can harm humans, plants, animals, and structures. Ambient air quality can be affected by climate, topography, meteorological conditions, and pollutants emitted from natural or human sources.

This section describes air quality in the study area. It then describes impacts on air quality that could result from construction and operation of the Proposed Action and No-Action Alternative. This section also presents the measures identified to mitigate impacts resulting from the Proposed Action. Fugitive emissions from coal dust in the project area and along the rail routes in Washington State are addressed in Section 5.7, *Coal Dust*.

5.6.1 Regulatory Setting

Laws and regulations related to air quality are summarized in Table 5.6-1.

Table 5.6-1. Regulations, Statutes, and Guidelines for Air Quality

Regulation, Statute, Guideline	Description
Federal	
Clean Air Act and Amendments	Enacted in 1970, as amended in 1977 and 1990, requires EPA to develop and enforce regulations to protect the public from air pollutants and their health impacts.
National Ambient Air Quality Standards (U.S. Environmental Protection Agency)	Specifies the maximum acceptable ambient concentrations for seven criteria air pollutants: CO, O_3, NO_2, SO_2, lead, PM2.5, and PM10. Primary NAAQS set limits to protect public health, and secondary NAAQS set limits to protect public welfare. Geographic areas where concentrations of a given criteria pollutant exceed a NAAQS are classified as nonattainment areas for that pollutant.
State	
Washington State General Regulations For Air Pollution Sources (WAC 173-400) and Washington State Clean Air Act (RCW 70.94)	Establish the rules and procedures to control or prevent the emissions of air pollutants. Provides the regulatory authority to control emissions from stationary sources, reporting requirements, emissions standards, permitting programs, and the control of air toxic emissions.
Washington State Operating Permit Regulation (WAC 173-401)	Establishes the elements for the state air operating permit program.
Washington State Controls for New Sources of Toxic Air Pollutants (WAC 173-460)	Establishes the systematic control of new or modified sources emitting toxic air pollution to prevent air pollution, reduce emissions, and maintain air quality that will protect human health and safety.
Washington State Ambient Air Quality Standards (WAC 173-476)	Establishes maximum acceptable levels in the ambient air for particulate matter, lead, SO_2, NO_2, O_3, and CO.

Regulation, Statute, Guideline	Description
Local	
Southwest Clean Air Agency (SWCAA 400)	Regulates stationary sources of air pollution in Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties.

Notes:
EPA = U.S. Environmental Protection Agency; CO = carbon monoxide; O_3 = ozone; NO_2 = nitrogen oxides; SO_2 = sulfur dioxide; PM 2.5 = particulate matter up to 2.5 micrometers in size; PM10 = particulate matter up to 10 micrometers in size; NAAQS = National Ambient Air Quality Standards; WAC = Washington Administrative Code; RCW = Revised Code of Washington; SWCAA = Southwest Clean Air Agency

5.6.1.1 Federal and State Ambient Air Quality Standards

Federal and state regulations govern maximum concentrations for criteria air pollutants, which are the key indicators of air quality. Table 5.6-2 lists both the federal and state ambient air quality standards for five criteria air pollutants plus total suspended particulates. Annual standards are never to be exceeded, while short-term standards are not to be exceeded more than once per year, unless noted as explained in Table 5.6-2.

The National Ambient Air Quality Standards (NAAQS) consist of primary standards and secondary standards. Primary standards are designed to protect public health, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are designed to protect public welfare from effects such as visibility reduction, soiling, and nuisance (e.g., preventing air pollution damage to vegetation). The Washington State Department of Ecology (Ecology) has established additional state ambient standards for sulfur dioxide for other averaging periods.

The NAAQS were established by the U.S. Environmental Protection Agency (EPA) under authority of the Clean Air Act to protect the public from air pollution. Air pollutants for which there are NAAQS are called *criteria pollutants*. Under the federal Clean Air Act, states are authorized to administer monitoring programs in different areas to determine if those areas are meeting the NAAQS.

EPA regulates nonroad mobile sources under the Clean Air Act to control emissions from nonroad engines (such as construction equipment, locomotives, and vessels). Regulations that are relevant to the Proposed Action include locomotive emission standards for new and rebuilt locomotive engines and the North America Emission Control Area for marine vessels limiting the sulfur content in fuel oil.

Table 5.6-2. Federal and Washington State Ambient Air Quality Standards

Pollutant	Federal Primary	Federal Secondary	State
Carbon monoxide			
8-hour average[a]	9 ppm	No standard	9 ppm
1-hour average[a]	35 ppm	No standard	35 ppm
Ozone			
8-hour average[b,c]	0.070 ppm	0.070 ppm	0.075 ppm
Nitrogen dioxide			
1-hour average[d]	100 ppb	No standard	100 ppb
Annual average	53 ppb	53 ppb	53 ppb
Sulfur dioxide			
Annual average	No standard	No standard	0.02 ppm
24-hour average[e]	No standard	No standard	0.14 ppm
3-hour average[e]	No standard	0.50 ppm	0.50 ppm
1-hour average[f]	75 ppb	No standard	75 ppb
Lead			
Rolling 3-month average	0.15 µg/m^3	0.15 µg/m^3	0.15 µg/m^3
PM10			
24-hour average[g]	150 µg/m^3	150 µg/m^3	150 µg/m^3
PM2.5			
Annual average[h]	12 µg/m^3	15 µg/m^3	12 µg/m^3
24-hour average[i]	35 µg/m^3	35 µg/m^3	35 µg/m^3

Notes:

[a] Not to be exceeded on more than 1 day per calendar year as determined under the conditions indicated in 173 WAC 476.

[b] In December 2015, EPA lowered the federal standard for 8-hour ozone from 0.075 ppm to 0.070 ppm.

[c] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm.

[d] 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years.

[e] Not to be exceeded more than once per calendar year.

[f] 99th percentile of 1-hour daily maximum concentrations averaged over 3 years.

[g] Not to be exceeded more than once per year average over 3 years.

[h] Annual mean averaged over 3 years.

[i] 98th percentile averaged over 3 years.

Source: 173 WAC 476; U.S. Environmental Protection Agency 2012.

ppm = parts per million; ppb= parts per billion; PM10 = particulate matter with a diameter of 10 micrometers or less; PM2.5 = particulate matter with a diameter of 2.5 micrometers or less; µg/m^3 = micrograms per cubic meter

5.6.1.2 Federal and State Air Toxics

Under the federal Clean Air Act, EPA controls air toxics, which are pollutants known or suspected to cause cancer or other serious health effects, such as birth defects or reproductive effects. Examples of air toxics include benzene, formaldehyde, and toluene. EPA has identified 188 air toxics, which it refers to as hazardous air pollutants (HAPS). No ambient air quality standards have been established for HAPS, and instead EPA has identified all major industrial stationary sources that emit these pollutants and developed national technology-based performance standards to reduce their emissions. The performance standards are designed to ensure that major sources of HAPS are controlled, regardless of geographic location.

Ecology generally requires new or modified stationary sources needing a notice of construction application to assess toxic air pollutant emissions through a review of the best available control technology for toxic air pollutants, quantification of emissions, and a demonstration of human health protection. The objective of this requirement is to reduce or eliminate toxic air pollutants from stationary sources prior to their generation whenever economically and technically practicable. The only new stationary source emission considered under the Proposed Action is fugitive coal dust. While coal dust is not a toxic air pollutant in and of itself, coal dust may contain material that meets the definition for toxic air pollutant emissions; therefore, toxic air pollutant requirements may apply to emissions from a Proposed Action stationary source. Southwest Clean Air Agency has a separate list of pollutants that may apply to emissions under the Proposed Action from this stationary source.

5.6.2 Study Area

The study area for direct impacts on air quality is defined as the project area and emissions from Proposed Action-related trains on the Reynolds Lead and BNSF Spur. For indirect impacts, the study area comprises Cowlitz County, including vessel activity on the Columbia River. Emissions are aggregated and regulated at a larger scale than a localized study area; therefore, direct and indirect emissions are combined. An assessment of air quality impacts from Proposed Action-related trains and vessels for the routes in Washington State is also addressed.

5.6.3 Methods

This section describes the sources of information and methods used to evaluate the potential impacts on air quality associated with the construction and operation of the Proposed Action and No-Action Alternative.

5.6.3.1 Information Sources

The following sources of information were used to identify the potential impacts of the Proposed Action and the No-Action Alternative on air quality in the study area.

- Data and information on coal export terminal construction and operation (URS Corporation 2015)
- Northwest International Air Quality Environmental Science and Technology Consortium for existing conditions data (2015)
- California's Air Resource Board vessel transit emissions study (California Air Resources Board 2011)
- National Climatic Data Center Longview, Washington climate data (National Climatic Data Center 2011)
- U.S. Environmental Protection Agency air pollutant emissions factors (U.S. Environmental Protection Agency 1995a, 1995b, 1995c, 1996)
- U.S. Environmental Protection Agency's air modeling guidance (U.S. Environmental Protection Agency 2004, 2014)

- U.S. Environmental Protection Agency's vessel fuel consumption data (U.S. Environmental Protection Agency 2000)
- U.S. Environmental Protection Agency's NONROAD Model (U.S. Environmental Protection Agency 2009)
- U.S. Environmental Protection Agency's vessel exhaust emission standards (U.S. Environmental Protection Agency 2012)
- Washington State Department of Ecology statewide emissions inventory levels (Washington State Department of Ecology 2014)

5.6.3.2 Impact Analysis

The following methods were used to evaluate the potential impacts of the Proposed Action and No-Action Alternative on air quality.

The analysis evaluated emissions from construction and operations of the Proposed Action. Air emissions were estimated for the criteria air pollutants carbon monoxide, nitrogen oxides, sulfur dioxide, particulate matter less than 2.5 micrometers in diameter (PM2.5), and particulate matter less than 10 micrometers in diameter (PM10). Also included were volatile organic compounds (VOCs), an important precursor to ozone. Some VOCs are also hazardous air pollutants (HAPs). The *SEPA Air Quality Technical Report* (ICF International 2016a) provides further information on the pollutants that are considered VOCs and HAPs. Total suspended particles and diesel particulate matter were also estimated. Because construction emissions are temporary and have a short period of activity, these emissions were only evaluated in comparison with emissions thresholds. Operations emissions, however, were evaluated with respect to their impacts on air quality.

Construction

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

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

The emissions for all three scenarios were analyzed to determine the scenario with the highest emissions. Emissions were estimated for the peak construction year in each scenario.

The following sources of emissions were evaluated.

- Construction equipment operations
- Fugitive dust from earthwork activity
- Vehicle delays at grade crossings
- Construction worker vehicles commuting to the project area
- Truck emissions associated with delivery of construction supplies and materials
- Locomotive emissions associated with delivery of construction supplies and materials (rail delivery scenario only)
- River barges

Emissions were estimated based on frequency and duration of use and fuel types using EPA emissions data or the EPA NONROAD2008a model for nonroad construction equipment activity. The *SEPA Air Quality Technical Report* provides detailed information on the methods used to calculate and model emissions for the peak year of construction.

Operations

The air quality model assessed emissions from operation of the Proposed Action and their impact on localized air quality. The air quality modeling method followed general EPA protocols used in air quality permitting. Representative background concentrations for the study area (Northwest International Air Quality Environmental Science and Technology Consortium 2015)[1] were used to determine background concentrations in air quality analyses since no representative monitoring data are available.

Emissions were estimated for operations that would emit particulate matter from the handling and transfer of coal, including unloading from rail cars, transferring coal on conveyors, piling coal onto storage piles, storing coal in storage piles, and loading coal onto ships. The on-site transfer and storage of coal would create fugitive emissions of coal dust due to product movement and wind erosion. In addition, the assessment considered locomotive exhaust emissions that would occur during the unloading and movement of Proposed Action-related trains, emissions emitted from docked vessels during loading, emissions from tugs used to maneuver vessels into the coal export terminal, emissions from operations and maintenance equipment, and vehicle delay at grade crossings along the Reynolds Lead and BNSF Spur. Emissions were evaluated using EPA's standard regulatory air dispersion model, AERMOD (Version 14134). AERMOD output results were compared to the federal and state ambient air quality standards presented in Table 5.6-2. To assess impacts associated with the Proposed Action, the model was used to predict the increase in criteria air pollutant concentrations. The model's maximum incremental increases for each pollutant and averaging time were added to applicable background concentrations. The resulting total pollutant concentrations were then compared with the appropriate NAAQS.

[1] The Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) developed background design value estimates for 2009 through 2011 based on model-monitor interpolated products that provide realistic background design value estimates where nearby ambient monitoring data are unavailable. The work is sponsored by EPA Regional 10, Ecology, and others.

Annual locomotive and vessel emissions for Proposed Action-related trains and vessels were estimated for Cowlitz County and Washington State. These emissions were compared to existing annual emissions to provide context of potential air quality impacts beyond the study area. The *SEPA Air Quality Technical Report* provides detailed information on the methods used to calculate and model emissions during operations, as summarized in this section.

Coal Storage and Handling

Most on-site coal movement would occur in enclosed areas, including the rotary coal car dump and conveyors. Some transfer activities at the coal storage piles would not be enclosed; however, the conveyors, transfer towers, and the coal storage piles themselves would have systems in place for dust control (watering or dry fogging). Watering of the coal storage piles would help to reduce wind erosion. In general, the combination of these control systems would be expected to provide a high level of dust control (up to 99%). However, because these control systems would not operate with negative pressure,[2] a more conservative effectiveness assumption of 95% was used in this analysis.

Locomotives

The impact analysis approach for rail operations used EPA-projected emissions factors for line-haul locomotives, which are based on projected changes in locomotive fleet over the next 30 years (U.S. Environmental Protection Agency 2009). These emissions were based on locomotive engine load and associated fuel consumption during transport to and from the coal export terminal, the unloading of coal from train cars, as well as the total annual coal throughput. It was assumed that all locomotives would use ultra-low-sulfur diesel (15 parts per million [ppm] sulfur).

Vessel

The impact analysis approach for vessel operations assumed that each vessel receiving coal would need three tugs to maneuver the ship, and would require 3 hours total time to assist with docking and departing operations. Further, it was estimated that an average of 13 hours would be needed to load each vessel with coal, and during this period of time, the vessel would be using auxiliary engines. To comply with International Maritime Organization 2016 Emission Control Areas for North America, all vessels were assumed to use the maximum allowed sulfur content marine distillate fuel of 0.1% (1,000 ppm). It was also assumed that all tugboats would use ultra-low-sulfur diesel (15 ppm sulfur).

5.6.4 Existing Conditions

This section describes the existing environmental conditions in the study area related to air quality that could be affected by the construction and operation of the Proposed Action and the No-Action Alternative.

5.6.4.1 Attainment Status

EPA and Ecology designate regions as being attainment or nonattainment areas for regulated air pollutants. Attainment status indicates that air quality in an area meets the federal, health-based ambient air quality standards. Nonattainment status indicates that air quality in an area does not

[2] Negative pressure is a ventilation system that allows air to flow within an enclosed space, with more air pressure outside than inside.

meet those standards. Cowlitz County is currently in attainment for all NAAQS. This designation means that EPA and Ecology expect the area to meet air quality standards.

5.6.4.2 Air Quality Conditions

This section describes climate, meteorological, and air quality conditions in the study area.

Climate and Meteorological Conditions

The project area is located along the Columbia River in southwestern Washington, approximately 50 miles east of the Pacific Ocean. The region is characterized as a mid-latitude, west coast marine-type climate. The Cascade Range to the east has a large influence on the climate in Cowlitz County. The Cascade Range forms a barrier from continental air masses originating over the Columbia River Basin. The Cascades also induce heavy amounts of rainfall; as moist air from the west rises, it is forced to rise up the mountain slopes, which produces heavier rainfall on the western slopes of the Cascades and moderate rainfall in the low-lying areas, such as Longview.

Summers in the region are mild and dry. Winters are cool, but typically wet and cloudy with a small range in daily temperature. The average annual precipitation in Longview is approximately 48 inches, with most precipitation falling from November through March (National Climate Data Center 2011). Average annual rain events, taken as days with more than 0.01 inch of rainfall, occur approximately 175 days per year, based on National Climatic Data Center summaries.

Temperatures are usually mild in the Lower Columbia River Basin. Days with maximum temperatures above 90 degrees Fahrenheit (°F) occur about seven times per year on average. Days with a minimum temperature below 32°F occur about 57 times per year on average, and temperatures below 0°F occur only very rarely (none recorded between 1931 and 2006). Mean high temperatures range from the high 70s in the summer to mid-40s (°F) in winter, while average lows are generally in the low 50s in summer and mid-30s in winter.

Meteorological data collected by the Weyerhaeuser meteorological tower at the nearby Mint Farm Industrial Park between 2001 and 2003 (URS Corporation2015) indicates that the prevailing winds near the project area are from the west-northwest and southeast, following along the alignment of the Columbia River. In the fall and winter (October through March), the winds are primarily from the southeast and east; the winds are typically from the west-northwest in the spring and summer (April through September).

Cowlitz County

Cowlitz County is in attainment or unclassified for all criteria air pollutants, indicating that air quality near the project area meets the federal and state ambient air quality standards.

The only available local air pollutant monitoring is for PM2.5, at a station approximately 1.5 miles east of the project area. The monitoring data show that PM2.5 levels are well within the PM2.5 air quality standards. Although no other monitoring data are available, concentrations of other criteria air pollutants in the study area also are expected to be well within air quality standards.

The Longview air toxics study showed measured levels of toxic air pollutants were below levels of concern for short-term and long-term exposures (Southwest Clean Air Agency 2007). The study found that, of the air toxics that could be directly monitored, the air toxics of most concern for potential health risk in Longview are acetaldehyde, arsenic, benzene, manganese, and formaldehyde, while diesel particulate matter was identified as the most likely contributor to cancer risk in Washington State. No further studies on air toxic monitoring in the Longview-Kelso area have been conducted since that time. The most recent national air toxic assessment showed Cowlitz County had an overall inhalation cancer risk of 30 cancers per million, which is lower than the state average of 40 cancers per million, as well as below the national average of 40 cancers per million (U.S. Environmental Protection Agency 2011).

Air Quality along Transportation Routes

Rail Traffic

The broader study area includes the rail transportation routes for Proposed Action-related trains in Washington State. Figure 5.1-1 in Section 5.1, *Rail Transportation*, illustrates the routes expected to be used by Proposed Action-related trains. Loaded and empty BNSF Railway Company (BNSF) trains would be expected to travel the same route between the Washington–Idaho State line and Pasco. West of Pasco, westbound loaded trains would be expected to travel to the project area along the Columbia River Gorge route, through Vancouver to Longview Junction on the BNSF main line, and then along the BNSF Spur and Reynolds Lead to the project area. Empty trains would be expected to travel from the project area along the Reynolds Lead and BNSF Spur to Longview Junction, on the BNSF main line to Auburn, over Stampede Pass, then through Yakima and back to Pasco. Union Pacific Railroad (UP) trains would travel in Washington State between Vancouver and the project area.

Air quality on the rail route from the Idaho border to Pasco is generally good. Spokane is a maintenance area[3] for carbon monoxide, but has not had an exceedance of the standard in more than 10 years. High winds in this region between spring and fall can combine with dry weather conditions to create dust storms, which can lead to extremely high levels of PM10. Air quality through the Columbia Gorge is generally good, with the primary concern focused on visibility impairment and regional haze issues; standards established to protect visibility are much lower than for health effects. The air quality from Vancouver to Longview is generally good. The few days with higher levels of particulates mostly occur during the home heating season.

The return rail route passes through Tacoma to Auburn, over the Cascades via Stampede Pass, then back to Pasco via Yakima and onward to Spokane. The area east of Auburn experiences some of the highest ozone levels in western Washington, although these levels are still below the NAAQS. The ozone monitoring site near Enumclaw has shown exceedances of the 8-hour ozone standard during the past 3 years (Washington State Department of Ecology 2015). Air quality from Stampede Pass through Yakima and back to Pasco is generally good. Recent monitoring data in the Yakima area has shown higher than usual levels of PM2.5 containing nitrate. In Yakima, much of the PM2.5 comes from wood burning, with the highest levels in winter as a result of increased wood burning along with stagnant air conditions (Washington State Department of Ecology 2015). Nitrate accounts for up to 25% of the wintertime PM2.5 in the Yakima area. High levels of daily PM2.5 are found in Ellensburg for 2 to 3 weeks each year.

With respect to hazardous air pollutants, the 2005 EPA National-Scale Air Toxics Assessment was used by Ecology to estimate cancer risk (Washington State Department of Ecology 2011). Inhalation cancer risks were highest in the major population centers along the rail route (Vancouver and

[3] A maintenance area is one that has been in nonattainment but currently meets air quality standards.

Spokane), with a cancer risk of up to 500 cancers per million. For the smaller communities (Kelso-Longview, Spokane, Yakima, and Pasco), cancer risks were up to 300 cancers per million, although locations along the rail line have cancer risks of less than 75 cancers per million.[4]

Vessel Traffic

Vessel traffic would traverse the Columbia River between the project area and the mouth of the river. Wahkiakum and Pacific Counties in Washington State on the Columbia River are designated as attainment areas for criteria air pollutants.

5.6.5 Impacts

This section describes the potential impacts on air quality that would result from construction and operation of the Proposed Action and No-Action Alternative.

5.6.5.1 Proposed Action

This section describes the potential impacts that could occur in the study area as a result of construction and operation of the Proposed Action. As noted in Section 5.6.2, *Study Area*, air emissions are aggregated and regulated at a larger scale than a localized study area. Therefore, the direct and indirect impacts of the Proposed Action are combined.

Construction

Construction-related activities associated with the Proposed Action could result in direct and indirect impacts as described below. As described in Chapter 2, *Project Objectives, Proposed Action, and Alternatives,* construction-related activities include demolishing existing structures and preparing the site, constructing the rail loop and dock, and constructing supporting infrastructure (i.e., conveyors and transfer towers).

The construction material delivery scenario with the highest emissions would be the barge scenario, which would deliver construction materials via barge and truck. Haul truck emissions are included for the truck trips needed to make deliveries of construction material to the project area. Maximum annual construction emission estimates for the peak construction year are shown in Table 5.6-3. Table 5.6-4 illustrates the maximum daily construction emission estimates.[5]

The maximum annual construction-related emissions would be well below the *de minimis* levels[6] established by EPA, as shown in Table 5.6-3. This means that although emissions of criteria air pollutants would occur, they would not be expected to cause a significant change in air quality and are unlikely to adversely affect sensitive receptors near the project area.[7]

[4] EPA released in December 2015 the results from the 2011 National-Scale Air Toxics Assessment. The 2011 Ecology study uses the 2005 National-Scale Air Toxics Assessment.

[5] The estimated emissions shown assume that best management practices would be followed, including measures to reduce idling and dust generated by soil disturbance, and the application of water along access roads to minimize the track-out of soil.

[6] The *de minimis* levels are the lowest thresholds that meet the General Conformity Rule for a federal action. This rule ensures that the action will conform to air quality standards.

[7] While the study area is in attainment for all criteria air pollutants and therefore not subject to federal General Conformity rules (40 CFR 93, subpart B), the emission *de minimis* levels were used to provide a threshold against which to evaluate potential impact from construction.

Table 5.6-3. Estimated Maximum Annual Construction Emissions

	Construction Emissions (tons per year) [maximum per year]								
Source	**CO**	**NO_X**	**SO_2**	**PM2.5**	**PM10**	**VOCs**	**TSP**	**HAPS**	**DPM**
Combustion Sources									
Equipment (in project area)	9.04	24.60	0.95	1.93	1.93	2.23	2.34	0.05	2.34
Haul trucks (in project area)	0.88	4.06	0.01	0.13	0.19	0.18	0.23	0.004	0.23
Haul trucks (in study area)[a]	2.04	9.37	0.03	0.31	0.44	0.41	0.54	0.010	0.54
Barges (in study area)[b]	15.68	59.0	0.028	1.06	1.06	1.51	1.29	0.03	1.29
Passenger commute vehicles/crossing-delay (in study area)[a]	7.5	0.05	0.010	0.04	0.22	0.13	0.22	0.001	<0.001
Total Combustion Sources (in project area)	**9.92**	**28.66**	**0.96**	**2.06**	**2.12**	**2.41**	**2.57**	**0.05**	**2.57**
Total Combustion Sources (all study area)[c]	**19.5**	**38.1**	**1.0**	**2.4**	**2.8**	**2.95**	**3.3**	**0.07**	**3.1**
Fugitive Sources									
Controlled fugitive earthwork (project area)	—	—	—	1.22	5.87	—	12.00	—	—
Total Fugitive Sources	—	—	—	**1.22**	**5.87**	—	**12.00**	—	—
Total									
Construction emissions sources (project area)	**9.9**	**28.7**	**0.96**	**3.28**	**7.99**	**2.41**	**14.6**	**0.05**	**2.6**
All construction emissions sources[c]	**19.5**	**38.1**	**1.0**	**3.6**	**8.7**	**2.95**	**15.3**	**0.07**	**3.1**
General Conformity *de minimis* levels for ozone maintenance areas (CFR 93.153)	100	100	100	100	100	100	—	—	—

Notes:

[a] Not in the project area but in Cowlitz County.

[b] Not in project area. Based on barge maneuvering time for docking of 0.5 hour in and 0.5 hour out; does not include transit on the Columbia River.

[c] Rounded. Does not include barge emissions, but does include haul truck emissions to the project area.

CO = carbon monoxide; NO_X = nitrogen oxide; SO_2 = sulfur dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter; VOCs = volatile organic compounds; TSP = total suspended particles; HAPS = hazardous air pollutants; DPM = diesel particulate matter

Table 5.6-4. Estimated Maximum Daily Construction Emissions

	Construction Emissions (pounds per day) [maximum daily]								
Source	**CO**	**NO_x**	**SO_2**	**PM2.5**	**PM10**	**VOCs**	**TSP**	**HAPS**	**DPM**
Combustion Sources									
Equipment (in project area)	82.89	229.60	8.67	17.66	17.66	20.40	21.49	0.42	21.50
Haul trucks (in project area)	14.40	54.70	0.20	2.60	5.00	3.10	6.10	0.10	6.12
Haul trucks (in study area)[a]	24.00	110.48	0.33	3.66	5.21	4.81	6.34	0.12	6.34
Barges (in study area)[b]	120.80	454.70	0.21	8.14	8.14	11.6	9.90	0.61	9.90
Passenger commute and crossing delay (in study area)[a]	20.00	1.43	0.03	0.11	0.58	0.35	0.58	0.01	<0.001
Total Combustion Sources (in project area)	**97.29**	**284.3**	**8.87**	**20.26**	**22.66**	**23.50**	**27.59**	**0.52**	**27.62**
Total Combustion Sources (all study area)[c]	**141.29**	**396.2**	**9.23**	**24.0**	**28.5**	**28.7**	**34.5**	**0.65**	**34.0**
Fugitive Sources									
Controlled fugitive earthwork (in project area)	—	—	—	6.80	32.6	—	66.7	—	—
Total Fugitive Sources	—	—	—	**6.80**	**32.6**	—	**66.7**	—	—
Total									
Construction emissions sources (project area)	**97.29**	**284.3**	**8.87**	**27.1**	**55.3**	**23.5**	**94.3**	**0.52**	**27.6**
All construction emissions sources[c]	**141.29**	**396.2**	**9.23**	**30.8**	**61.1**	**28.7**	**101.21**	**0.65**	**34.0**

Notes:

[a] Not in the project area but in Cowlitz County.

[b] Not in project area. Based on barge maneuvering time for docking of 0.5 hour in and 0.5 hour out; does not include transit on the Columbia River.

[c] Rounded. Does not include barge emissions, but does include haul truck emissions to the project area.

CO = carbon monoxide; NO_X= nitrogen oxide; SO_2 = sulfur dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter; VOCs = volatile organic compounds; TSP = total suspended particles; HAPS = hazardous air pollutants; DPM = diesel particulate matter

Operations

Sources of emissions during operations would include fugitive emissions from coal handling and mobile source emissions from maintenance and operation, and emissions from Proposed Action-related trains and vessels.

Emissions

As shown in Table 5.6-5, rail and vessel transport would be the largest sources of emissions during operations. The Proposed Action would produce small quantities of air pollutants from maintenance and operations activities.

Table 5.6-5. Maximum Annual Average Emissions from Operations

	Maximum Annual Average Emissions (tons per year)								
Source	**CO**	**NO_x**	**SO_2**	**PM2.5**	**PM10**	**TSP**	**VOCs**	**HAPS**	**DPM**
Fugitive Sources									
Coal transfer (except coal storage piles)									
Material handling	—	—	—	0.28	1.84	5.25	—	—	—
Coal storage piles									
Wind erosion	—	—	—	0.14	0.92	1.08	—	—	—
Material handling	—	—	—	0.14	0.92	2.62	—	—	—
Mobile Sources									
Maintenance/operations equipment									
Combustion	1.42	4.36	0.19	0.31	0.31	0.38	0.36	0.01	0.38
Employee commute and crossing delay	2.05	0.13	0.003	0.02	0.08	0.008	0.04	0.01	<0.01
Locomotive									
Combustion (study area)[a]	7.63	17.5	0.027	0.36	0.37	0.45	0.60	0.08	0.45
Fugitive dust (study area)[a]	—	—	—	0.12	0.80	0.94	—	—	—
Combustion (project area)	4.00	11.6	0.01	0.24	0.25	0.30	0.48	0.04	0.21
Fugitive dust (project area)	—	—	—	0.27	1.79	2.10	—	—	—
Vessels									
Combustion (study area)[a]	37.9	24.8	3.04	1.64	1.78	2.17	14.1	0.03	0.00
Combustion (project area)	65.9	23.3	4.52	1.02	1.05	1.27	15.3	0.08	0.56
Total: All Mobile Sources, Project Area, Study Area	118.9	81.7	7.8	4.0	6.4	7.6	30.9	0.3	1.6
Total Project Area Sources	71.3	39.3	4.72	2.40	7.08	13.00	16.14	0.13	1.15
Fugitive Dust Only, Project Area	—	—	—	0.83	5.47	11.05	—	—	—
Mobile Combustion Sources, Project Area	71.32	39.26	4.72	1.57	1.61	1.95	16.4	0.13	1.15

Notes:
[a] Study area does not include the project area.
CO = carbon monoxide; NO_X = nitrogen oxide; SO_2 = sulfur dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter; TSP = total suspended particles; VOCs = volatile organic compounds; HAPS = hazardous air pollutants; DPM = diesel particulate matter

Impact Assessment

An analysis was performed with the AERMOD dispersion model. The results from the modeling compared with the NAAQS. Two sets of emissions were developed for use in the impact assessment. The first set was used to model annual average concentrations, reflecting emissions over an entire year with train and vessel arrivals spread across the year to simulate the average anticipated activity at the coal export terminal. The second set of emissions was used to determine concentrations at up to 24 hours, reflecting peak emissions that could occur during a single hour. Peak activity included a coal train unloading at the coal export terminal, a vessel loading with coal, and a second vessel docking at the coal export terminal. Tables 5.6-6 and 5.6-7 illustrate the modeling results.

Coal export terminal-only estimated emissions, in combination with the background concentrations, are not anticipated to cause a violation of any NAAQS. Table 5.6-6 summarizes the maximum predicted criteria air pollutant concentrations due to maintenance and operations of the coal export terminal only. This includes the material handling and moving of the coal, the coal storage piles, as well as exhaust emissions from mobile source equipment. The highest incremental impact due to coal export terminal-only operation is the 24-hour PM10 impact, which is 38% of the respective NAAQS.

Table 5.6-6. Maximum Modeled Concentrations from the Operation of the Coal Export Terminal[a]

Pollutant	Averaging Period	Modeled Impact ($\mu g/m^3$)	Background[b,c] ($\mu g/m^3$)	Total Predicted Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
CO	1 hour[d]	10.7	827	838	40,000
	8 hour[d]	4	600	604	10,000
NO_2	1 hour[e,f]	15	56.6	72	188
	Annual[f,g]	0.4	5.3	6	100
SO_2	1 hour[h]	6.8	14.7	21.5	196
	3 hour[i]	4.5	11.5	16.0	1,300
PM2.5	24 hour[j]	4.8	17.8	22.6	35
	Annual[k]	0.2	6.1	6.3	12
PM10	24 hour[l]	57	23	80	150

Notes:

[a] Project sources include emissions from handling coal, the coal storage piles, mobile source exhaust emissions from operation and maintenance of the terminal.

[b] Background design value estimates for 2009 through 2011, based on model-monitor interpolated products (except PM2.5) sponsored by EPA Regional 10, Ecology, and others. From NW AIRQUEST tool Washington State University (http://www.lar.wsu.edu/nw-airquest/lookup.html.)

[c] PM2.5 background based on Ecology's Kelso Monitor (2012 through 2014).

[d] Modeled impact is the highest second high for each calendar year over the 3 modeled years.

[e] The NO_2 1-hour modeled impact is the 3-year average of the 98th percentile of 1-hour daily maximum concentrations.

[f] Modeled NO_2 impacts applied the Tier III Ozone Limiting Method (OLM), using an ozone background of 42ppb, as per the NW-AIRQUEST tool. For additional information regarding the modeling methodology, see the *SEPA Air Quality Technical Report*.

[g] The NO_2 annual modeled impact is the maximum annual mean over the 3 modeled years.

[h] The SO_2 1-hour modeled impact is the 3-year average of the 99th percentile of the 1-hour daily maximum concentrations.

[i] The SO_2 3-hour modeled impact is not to be exceeded more than once per year.

[j] The PM2.5 24-hour modeled impact is the 3-year average of the 98th percentile of 1-hour daily maximum concentrations.

[k] The PM2.5 annual modeled impact is the 3-year average of the annual mean.

[l] The PM10 24-hour modeled impact is 3-year average of the highest 2nd high concentration.

$\mu g/m^3$ = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; CO = carbon monoxide; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter

Table 5.6-7 shows the modeling results for sources in the project area (coal export terminal emissions sources [Table 5.6-6]), plus cargo vessel and train operations while in the project area. Cargo vessel operations are the main source of sulfur dioxide emissions, which has an incremental increase in the 1-hour sulfur dioxide concentration that is 61% of the respective standard. The incremental increase in the 24-hour PM10 is about half the respective standard. The maximum impacts for each pollutant plus the maximum background show total concentrations below the NAAQS for all criteria air pollutants.

Table 5.6-7. Project Area Concentration from Operations (All Sources)[a]

Pollutant	Averaging Period	Modeled Impact (µg/m³)	Background[b,c] (µg/m³)	Total Predicted Concentration (µg/m³)	NAAQS (µg/m³)
CO	1 hour[d]	220	827	1,047	40,000
	8 hour[d]	71	600	671	10,000
NO_2	1 hour[d,e]	100	56.6	157	188
	Annual[f,g]	10.8	5.3	12	100
SO_2	1 hour[h]	119	14.7	134	196
	3 hour[i]	84	11.5	96	1,300
PM2.5	24 hour[j]	12	17.8	29.8	35
	Annual[k]	1.1	6.1	7.2	12
PM10	24 hour[l]	85	23	108	150

Notes:

[a] Project sources include emissions from handling coal, the coal storage piles, mobile source exhaust emissions from the operation and maintenance of the facility.

[b] Background design value estimates for 2009 through 2011, based on model-monitor interpolated products (except PM2.5) sponsored by EPA Regional 10, Ecology, and others. From NW AIRQUEST tool Washington State University (http://www.lar.wsu.edu/nw-airquest/lookup.html.)

[c] PM2.5 background based on Ecology's Kelso Monitor (2012 through 2014).

[d] Modeled impact is the highest second high for each calendar year over the 3 modeled years.

[e] The NO_2 1-hour modeled impact is the 3-year average of the 98th percentile of 1-hour daily maximum concentrations.

[f] Modeled NO_2 impacts applied the Tier III Ozone Limiting Method (OLM), using an ozone background of 42ppb, as per the NW-AIRQUEST tool. For additional information regarding the modeling methodology, see the *SEPA Air Quality Technical Report*.

[g] The NO_2 annual modeled impact is the maximum annual mean over the 3 modeled years.

[h] The SO_2 1-hour modeled impact is the 3-year average of the 99th percentile of the 1-hour daily maximum concentrations.

[i] The SO_2 3-hour modeled impact is not to be exceeded more than once per year.

[j] The PM2.5 24-hour modeled impact is the 3-year average of the 98th percentile of 1-hour daily maximum concentrations.

[k] The PM2.5 annual modeled impact is the 3-year average of the annual mean.

[l] The PM10 24-hour modeled impact is 3-year average of the highest 2nd high concentration.

µg/m³ = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; CO = carbon monoxide; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter

Table 5.6-8 shows the modeling results for all project area sources and study area sources (vessels arriving and departing from the coal export terminal, assist tugs, plus trains arriving and departing from the terminal, to approximately 5 miles out). These results are similar to the project area sources. The largest increase as a percentage of the NAAQS is the sulfur dioxide concentration, which is due to the operation of the tugs and cargo vessel. In all cases, the maximum impacts for each pollutant plus the maximum background show total concentrations below the NAAQS for all criteria air pollutants.

Table 5.6-8. Study Area Concentrations from Operations (All Sources)

Pollutant	Averaging Period	Modeled Impact ($\mu g/m^3$)	Background[a,b] ($\mu g/m^3$)	Total Predicted Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
CO	1 hour[c]	346	827	1,173	40,000
	8 hour[c]	97	600	697	10,000
NO_2	1 hour[c,d]	100	56.6	157	188
	Annual[e, f]	16	5.3	21	100
SO_2	1 hour[g]	130	14.7	145	196
	3 hour[h]	127	11.5	138	1,300
PM2.5	24 hour[i]	12	17.8	29.8	35
	Annual[j]	1.2	6.1	7.3	12
PM10	24 hour[k]	85	23	108	150

Notes:

[a] Background design value estimates for 2009 through 2011, based on model-monitor interpolated products (except PM2.5) sponsored by EPA Regional 10, Ecology, and others. Source: NW AIRQUEST tool Washington State University (http://www.lar.wsu.edu/nw-airquest/lookup.html.)

[b] PM2.5 background based on Ecology's Kelso Monitor (2012 through 2014).

[c] Modeled impact is the highest 2nd high for each calendar year over the 3 modeled years.

[d] The NO_2 1-hour modeled impact is the 3-year average of the 98th percentile of 1-hour daily maximum concentrations.

[e] Modeled NO2 impacts applied the Tier III Ozone Limiting Method, using an ozone background of 42ppb, as per the NW-AIRQUEST tool. For additional information regarding the modeling methodology, see Section 2.1.2.2, *Operations Impact Analysis Approach*.

[f] The NO_2 annual modeled impact is the maximum annual mean over the 3 modeled years.

[g] The SO_2 1-hour modeled impact is the 3-year average of the 99th percentile of the 1-hour daily maximum concentrations.

[h] The SO_2 3-hour modeled impact is not to be exceeded more than once per year.

[i] The PM2.5 24-hour modeled impact is the 3-year average of the 98th percentile of 1-hour daily maximum concentrations.

[j] The PM2.5 annual modeled impact is the 3-year average of the annual mean.

[k] The PM10 24-hour modeled impact is 3-year average of the highest second high concentration.

$\mu g/m^3$ = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; CO = carbon monoxide; SO_2 = sulfur dioxide; NO_2 = nitrogen dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter;

Locomotive and Vessel Emissions in Context

This section compares annual emissions from Proposed Action-related trains and vessels in Cowlitz County and Washington State to total annual emissions from locomotives and vessels.

Cowlitz County

Annual Cowlitz County emissions from Proposed Action-related trains and vessels are shown in Table 5.6-9. This table also provides the 2011 Washington statewide emissions for locomotives and commercial marine vessels. Locomotive emissions would occur in the project area, on the Reynolds Lead and BNSF Spur, and on the BNSF main line in Cowlitz County. Vessel emissions would occur in the project area and on the Columbia River in Cowlitz County.

Table 5.6-9. Estimated Maximum Annual Emissions in Cowlitz County for Locomotive and Commercial Marine Vessels for the Proposed Action Compared with the 2011 Cowlitz County Emissions Inventory

	Maximum Annual Average Emissions (tons per year)						
	CO	NO_x	SO_2	PM2.5	PM10	VOCs	DPM
Locomotive							
Proposed Action-related Locomotive emissions	16	41	0.06	1.2	3.5	1.6	0.88
Cowlitz County emissions	137	789	6	23	23	43	23
Commercial Marine Vessels							
Proposed Action-related Vessel emissions	104	48	7.6	2.7	2.8	29	0.6
Cowlitz County emissions	150	1,109	199	34	37	46	34

Notes:
Source: Washington State Department of Ecology 2014.
CO = carbon monoxide; NO_X= nitrogen oxide; SO_2 = sulfur dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter; VOCs = volatile organic compounds; DPM = diesel particulate matter

Locomotive emissions in Cowlitz County are estimated to increase by about 6% overall with the Proposed Action. The largest emissions increase for a single pollutant would be for PM10, which would increase by approximately 15%. Vessel emissions in Cowlitz County with the Proposed Action are estimated to increase by about 12%. The largest emissions increase for a single pollutant would be carbon monoxide and VOCs, which would increase approximately 69% and 63%, respectively. The increase in carbon monoxide emissions is primarily due to use of the auxiliary engines while ships are docked. While this emission increase represents a substantial increase relative to the commercial marine vessel category, overall it represents a small increase (0.28% and 0.17%) in the total Cowlitz County carbon monoxide and VOC emissions.

Washington State

Annual statewide emissions from Proposed Action-related trains and vessels are shown Table 5.6-10. This table also provides the 2011 Washington statewide emissions inventory totals for locomotives and commercial marine vessels.

Locomotive emissions in Washington State would occur along the rail routes described in Section 5.1, *Rail Transportation*. Vessel emissions in the study area would occur along the Columbia River between the project area and out to 3 nautical miles beyond the mouth of the Columbia River. The largest increase in locomotive emissions for any one pollutant would be for carbon monoxide at 38%, followed by nitrogen oxides with a 15% increase.[8] For commercial marine vessels, the relative increase is smaller with a maximum increase of 12% for VOC and just under 11% for carbon monoxide.

[8] The larger increase in carbon monoxide emissions reflects that no regulatory standards have been promulgated to reduce carbon monoxide emissions from locomotive engines since 1999, while extensive multi-tier federal regulatory standards have been implemented to substantially reduce nitrogen oxide locomotive emissions by 2028.

Table 5.6-10. Estimated Maximum Annual Emissions in Washington State for Locomotive and Commercial Marine Vessels for the Proposed Action in Comparison with the 2011 Statewide Emissions Inventory

	Maximum Annual Average Emissions (tons per year)						
	CO	NO_x	SO_2	PM2.5	PM10	VOCs	DPM
Locomotive							
Proposed Action-related Locomotive emissions	963	2,209	3	46	47	76	47
Statewide emissions	2,536	15,026	95	430	N/A	810	428
Commercial Marine Vessels							
Proposed Action-related vessel emissions	276	161	21	11	13	93	10
Statewide emissions	2,521	20,486	11,529	1,213	N/A	782	1,021

Notes:
Source: Washington State Department of Ecology 2014.
CO = carbon monoxide; NO_X= nitrogen oxide; SO_2 = sulfur dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter; VOCs = volatile organic compounds; DPM = diesel particulate matter

Sulfur Dioxide and Mercury Emissions

Combustion of coal in Asia could result in impacts on Washington State related to sulfur dioxide emissions. An analysis was conducted to determine the amount of sulfur dioxide and mercury emissions that would be found over Washington State, specifically attributable to the sulfur and mercury emitted from coal combustion in Asia from coal that passed through the coal export terminal. Appendix I, *Sulfur Dioxide and Mercury Emissions*, summarizes the methods, analyses, and findings. A full description of methods, analyses, and findings of the sulfur dioxide and mercury emissions analysis is provided in the *SEPA Coal Technical Report* (ICF International 2016b).

Using data from models based on different market scenarios, the maximum Proposed Action coal source contribution of just the Asian sulfate concentration in Washington State in 2040 would be less than 0.3%. This assumes that overall growth in coal combustion in Asia is balanced with reductions in sulfur dioxide emissions due to application of additional control technology.

Combustion of coal in Asia could result in impacts on Washington State related to mercury emissions. Appendix I, *Sulfur Dioxide and Mercury Emissions,* shows the annual mercury deposition amounts associated with coal exported from the coal export terminal over Washington State, starting in 2025. In the first 5 years, the deposition amounts are approximately the same across all scenarios. All scenarios show an increase in mercury deposition by 2040, with a maximum deposition amount of 9.2 milligrams per year per square kilometer. This deposition amount represents less than 0.4% of the total Asian-sourced mercury deposition over Washington State as estimated by Strode et al. (2008) at 2,900 milligrams per year per square kilometer. For more information, see Appendix I, *Sulfur Dioxide and Mercury Emissions*.

5.6.5.2 No-Action Alternative

Under the No Action Alternative, the Applicant would not construct the Proposed Action and impacts on air quality related to construction and operation of the Proposed Action would not occur. The Applicant would continue with current and future increased operations in the project area. The project area could be developed for other industrial uses, including an expanded bulk product terminal or other industrial uses. The Applicant has indicated that, over the long term, it would expand the existing bulk product terminal and develop new facilities to handle more products such as calcine petroleum coke, coal tar pitch, and cement.

Expanded bulk terminal operations and maintenance would result in emissions of air pollutants. Emissions were estimated for planned future rail and vessel operations for the No-Action Alternative. In addition, emissions associated with truck transport to the nearby Weyerhaeuser facility were included. Table 5.6-11 illustrates estimated No-Action Alternative emissions.

The largest emissions for any single air pollutant would be nitrogen oxides at 4.4 tons per year. These emissions are lower than the Proposed Action, which were shown to be less than *de minimis*. Therefore, no adverse air quality impacts would be anticipated under the No-Action Alternative.

Table 5.6-11. No-Action Alternative Annual Average Emissions from Rail, Vessel, and Haul Trucks

	Maximum Annual Average Emissions (tons per year)								
Source	**CO**	**NO_X**	**SO_2**	**PM2.5**	**PM10**	**VOCs**	**TSP**	**HAPS**	**DPM**
Locomotive combustion	1.4	3.1	0.01	0.06	0.07	0.11	0.08	0.01	0.06
Vessel combustion	2.6	1.1	0.19	0.06	0.06	0.63	0.08	0.003	0.02
Haul trucks	0.1	0.2	0.002	0.01	0.04	0.02	0.04	0.001	0.04
Total	**4.1**	**4.4**	**0.20**	**0.13**	**0.17**	**0.76**	**0.20**	**0.014**	**0.12**

Notes:
CO = carbon monoxide; NO_X= nitrogen oxide; SO_2 = sulfur dioxide; PM2.5 = particulate matter less than 2.5 micrometers in diameter; PM10 = particulate matter less than 10 micrometers in diameter; VOCs = volatile organic compounds; TSP = total suspended particles; HAPS = hazardous air pollutants; DPM = diesel particulate matter

5.6.6 Required Permits

The following permits would be required for the Proposed Action.

- **Notice of Construction—Southwest Clean Air Agency.** Businesses and industries that cause, or have the potential to cause, air pollution are required to receive approval from the local air agency prior to beginning construction. These are requirements of Washington's Clean Air Act and apply statewide (Chapter 70.94 Revised Code of Washington [RCW]). Businesses located in Cowlitz County are regulated by the Southwest Clean Air Agency. The agency rules generally require an air permit for stationary sources emitting more than 0.75 ton per year of PM10 or 0.5 ton per year for PM2.5.[9] It is anticipated that these levels would be exceeded and the Applicant would need to file a permit application and receive an approved Notice of Construction air permit prior to constructing, installing, establishing, or modifying any equipment or operations that may emit air pollution.

5.6.7 Potential Mitigation Measures

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

[9] Other criteria air pollutants have higher emission thresholds.

impacts. No significant adverse air quality impacts would occur as a result of construction or operation of the Proposed Action. Therefore, no mitigation is required. Mitigation for coal dust emissions is described in Section 5.7, *Coal Dust*.

5.6.8 Unavoidable and Significant Adverse Environmental Impacts

There would be no unavoidable and significant adverse environmental impacts on air quality.