

## 3.2 Air

Clean air is vital to human health and is a resource protected by federal, state, and local regulations. Pollutants in the air can negatively affect humans, plants, animals, and human-made structures. Ambient (outdoor) air is affected by climate, topography, meteorological conditions, and airborne pollutants produced by natural or artificial sources.

This section describes the existing air quality in the study area. It then describes impacts on air quality that could result under the no-action alternative or as a result of the construction and routine operation<sup>1</sup> of the proposed action. Finally, this section presents any measures identified to mitigate impacts of the proposed action and any remaining unavoidable and significant adverse impacts.

### 3.2.1 What is the study area for air quality?

The study area for air quality consists of air quality on and near the project site that could be affected by construction and routine operation at the project site. The study area also includes air quality that could be affected during routine rail transport along the Puget Sound & Pacific Railroad (PS&P)<sup>2</sup> rail line and vessel transport through Grays Harbor out to 3 nautical miles from the mouth of the harbor.

The study area for greenhouse gas (GHG) emissions information includes the project site and emissions related to rail and vessel emissions in Washington State.

### 3.2.2 What laws and regulations apply to air quality?

Laws and regulations for determining potential impacts on air quality are summarized in Table 3.2-1. More information about these laws and regulations is provided in Appendix B, *Laws and Regulations*.

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<sup>1</sup> Chapter 4, *Environmental Health and Safety*, addresses the potential impacts from increased risk of incidents (e.g., storage tank failure, train derailments, vessel collisions) and related consequences (e.g., release of crude oil or other proposed bulk liquids).

<sup>2</sup> The PS&P rail line refers to the rail line between Centralia and the project site.

**Table 3.2-1. Laws and Regulations for Air Quality**

<b>Laws and Regulations</b>	<b>Description</b>
<b>Federal</b>	
Clean Air Act of 1963 (42 U.S.C. 7401 et seq.)	Regulates the nation’s air emissions through the enforcement of the National Ambient Air Quality Standards for criteria air pollutants in the ambient (outside) air. In 2007, the U.S. Supreme Court ruled to regulate GHG emissions as air pollutants under the CAA.
<b>State</b>	
Clean Air Act (RCW 70.94)	Regulates stationary sources of emissions to protect air quality.
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.
Reporting of Emissions of Greenhouse Gases (WAC 173-441)	Establishes mandatory GHG reporting requirements for owners and operators of certain facilities that directly emit GHGs at a rate of 10,000 MTCO <sub>2e</sub> per year or greater.
Limiting Greenhouse Gas Emissions (RCW 70.235)	Establishes statutory reductions of overall GHG emissions and report emissions to the governor bi-annually. The first target statutory reduction is to achieve 1990 level GHG emissions by 2020 and 50% below 1990 levels by 2050 (or 70% below the State’s expected emissions that year).
<b>Local</b>	
No local laws or regulations apply to air quality.	
U.S.C. = United States Code; GHG = greenhouse gas; CAA = Clean Air Act; RCW = Revised Code of Washington; WAC = Washington Administrative Code; MTCO <sub>2e</sub> = metric tons of carbon dioxide equivalent.	

### 3.2.3 How were impacts on air quality evaluated?

This section describes the sources of information and methods used to evaluate impacts.

#### 3.2.3.1 Information Sources

The following sources provided information on air quality.

- | National Weather Service.
- | State and federal air quality regulations and emissions levels (Table 3.2-1).
- | NW AIRQUEST, a tool developed by Washington State University’s Northwest International Air Quality and Environmental Science and Technology Consortium.
- | The applicant’s Olympic Region Clean Air Agency air permit application materials, including air dispersion modeling files (2013).
- | The U.S. Environmental Protection Agency (EPA) EPA MOVES 2010 model.
- | California Air Resources Board vessel transit emissions study (2008).

The following sources provided information on GHG emissions.

- | World Resources Institute GHG emission information.

- | Washington State Department of Ecology (Ecology) state GHG emissions inventory (2014a).
- | Intergovernmental Panel on Climate Change Fifth Assessment Report (2013)World Resources Institute Climate Analysis Indicators Tool.
- | Council on Environmental Quality draft guidance on considering climate change in National Environmental Policy Act (NEPA) reviews.

### 3.2.3.2 Impact Analysis

The air analysis involved two distinct parts: a quantitative analysis of the contribution of the criteria air pollutants and GHG emissions, and a qualitative discussion of the potential impacts of criteria air pollutants and toxic air pollutants on air quality in the study area. The analysis considered emissions over the course of the 20-year analysis period (2017 to 2037) and noted differences in the results where applicable.

The quantitative analysis of the contribution of criteria air pollutants and GHG emissions included the emissions from construction and routine operation of the proposed action in the study area. Air pollutant emissions from the following sources were quantified.

- | Use of equipment to construct the proposed facilities (Chapter 2, Section 2.1.4, *Construction Schedule and Methods*).
- | Onsite operations, including emissions from stationary sources<sup>3</sup> (including the marine vapor combustion unit), vehicles, rail switching operations,<sup>4</sup> and vessels at dock.<sup>5</sup>
- | Rail transport<sup>6</sup> along the PS&P rail line. GHG emissions along the rail route in Washington State were also considered.
- | Vessel transport<sup>7</sup> to 3 nautical miles from the mouth of Grays Harbor.

Emission calculations from these sources were based on the estimated hours of operation, types of equipment, and types of fuel consumed. Emissions were considered in the context of Grays Harbor County emissions.

The qualitative discussion of the effect of emissions of toxic air pollutants on sensitive receptors was informed by determining the emissions from onsite operations including rail and vessel emissions during loading and unloading. The toxic air pollutants with the potential to exceed Washington State Small Quantity Emission Rates, as identified in Controls for New Sources of Toxic Air Pollutants (Washington Administrative Code [WAC] 173-460), were assessed through dispersion modeling to demonstrate the ambient level of each toxic pollutant with respect to its acceptable source impact level (ASIL).<sup>8</sup>

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<sup>3</sup> Based on the estimated hours of operation, types of equipment, and types of fuel consumed based on information provided in the air permit applications.

<sup>4</sup> From the locomotive engines while moving cars and while idling during switching and unloading.

<sup>5</sup> From auxiliary engines used to internally power the shipboard electricity, pumps, bilge, etc.

<sup>6</sup> Based on the travel speeds and fuel consumption while loaded and unloaded, and small railroad fleet turnover changes over the 20-year planning period.

<sup>7</sup> From engines of tank barge (barge auxiliary engine and tug engine), assist tugs, and escort tugs based on the typical travel speeds and fuel consumption while arriving (unloaded) and departing (loaded).

<sup>8</sup> Washington State Department of Ecology has established acceptable source impact levels (ASIL), which are screening concentrations of toxic air pollutants in the ambient air.

## 3.2.4 What is the air quality in the study area?

This section describes the climate and air quality in the study area. This section also describes sensitive air quality receptors.

### 3.2.4.1 Climate

The climate in Grays Harbor is characterized by mild temperatures, year-round rainfall with peaks in the winter, and strong coastal winds. Temperature and precipitation records from 1891 to 2013 for the Aberdeen National Weather Service Cooperative Station show that monthly temperatures are lowest in January when the average monthly lows are 34.6°F. August is typically the warmest month with an average monthly maximum temperature of 69.8°F. Aberdeen experiences an average of about 8.6 inches of annual snowfall. Most of the precipitation falls as rain with an annual average of 83.20 inches. Average monthly rainfall over the period of record ranges from 1.21 inches in July to 13.44 inches in December. The region experiences strong coastal winds, while inland wind speeds are typically weaker. Appendix D, *Air Data*, describes climate in the study area in more detail.

### 3.2.4.2 Existing Air Quality

Grays Harbor County is designated an attainment area for criteria air pollutants, which means that air quality meets the federal and state health-based ambient air quality standards.

Particulate matter is the primary air pollutant at the project site. However, the highest measured 24-hour concentration nearest to the project site was well below the air quality standard for particulate matter of 2.5 micrometers or less (PM<sub>2.5</sub>).<sup>9</sup> The primary sources emitting particulate matter in the vicinity are home heating, trucks, fishing vessels, and commercial cargo vessels.

Background concentrations of other criteria pollutants at the project site were estimated using NW AIRQUEST.<sup>10</sup> Table 3.2-2 shows the criteria pollutant concentrations estimated for the project site and their percentage of the current national or state (whichever is more stringent) ambient air quality standard.

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<sup>9</sup> As shown in Appendix D, *Air Quality Conditions*, the highest 24-hour average PM<sub>2.5</sub> concentration from January 1, 2010 to June 30, 2014, was 18 micrograms per cubic meter (µg/m<sup>3</sup>) (January 2014), well below the PM<sub>2.5</sub> air quality standard of 35 µg/m<sup>3</sup>.

<sup>10</sup> NW AIRQUEST was developed by Washington State University's Northwest International Air Quality and Environmental Science and Technology Consortium (2013) as sponsored by EPA Region 10, Washington State Department of Ecology, and others. The work developed background design value estimates for 2009 to 2011 based on model-monitor interpolated products that provide realistic background design value estimates where nearby ambient monitoring data are unavailable. More information about the NW AIRQUEST tool can be found at <http://www.lar.wsu.edu/nw-airquest/lookup.html>.

**Table 3.2-2. Modeled Concentrations of Criteria Air Pollutant at the Project Site and Percentage of Air Quality Standard**

<b>Pollutant Parameter</b>	<b>Modeled Concentration<sup>a</sup></b>	<b>Percentage of National or State Ambient Air Quality Standard<sup>b</sup></b>
PM2.5 24-hour	6.9 µg/m <sup>3</sup>	20 %
PM2.5 annual	3.5 µg/m <sup>3</sup>	29 %
O <sub>3</sub> daily 8- hour maximum	51 ppb	68%
NO <sub>2</sub> 1-hour	21 ppb	21%
NO <sub>2</sub> annual	1.9 ppb	3.6%
SO <sub>2</sub> 1-hour	5.1 ppb	6.8%
SO <sub>2</sub> 3-hour	3.3 ppb	0.7%
SO <sub>2</sub> 24-hour	1.1 ppb	0.8%
SO <sub>2</sub> annual	0.6 ppb	3.0%
CO 1-hour	532 ppb	1.5%
CO 8-hour	420 ppb	4.7%
PM10 24-hour	25 µg/m <sup>3</sup>	17%

<sup>a</sup> Northwest AIRQUEST 2009-2011 design value  
<sup>b</sup> Whichever is more stringent.  
 PM2.5 = particulate matter with a diameter of 2.5 micrometers or less; µg/m<sup>3</sup> = micrograms per cubic meter; ppb = parts per billion; O<sub>3</sub> = ozone; NO<sub>2</sub> = nitrogen dioxide; SO<sub>2</sub> = sulfur dioxide; CO = carbon monoxide; PM10 = particulate matter with a diameter of 10 micrometers or less; ppb = parts per billion

### 3.2.4.3 Sensitive Receptors

Sensitive air quality receptors were defined to determine potential air quality impacts at the receptors. Sensitive air quality receptors were defined as a facility or land use that houses or attracts members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors include schools, hospitals, day care centers, convalescent facilities, senior centers, and parks or recreational facilities. These types of facilities and land uses are located near the project site, along the PS&P rail line between Centralia and the project site, and along the shoreline of Grays Harbor. The following sections identify sensitive receptors at the project site, along the PS&P rail line, and along the shoreline of Grays Harbor.

#### Project Site

Because emissions of toxic air pollutants and criteria air pollutants would be the highest at and near the project site from rail, vessel, and project site operations, the greatest potential for impacts on sensitive receptors would be near the project site.

There are 22 sensitive receptors within 1 mile of the project site (Table 3.2-3). The closest sensitive receptors to the project site are the 28th Street Landing boat launch and 28th Street Viewing Tower (immediately west and adjacent to the project site along the Grays Harbor shoreline), and the West End Playfield (approximately 0.3 mile from the project site).

**Table 3.2-3. Sensitive Receptors within 1 Mile of the Project Site<sup>a</sup>**

<b>Name of Facility</b>	<b>Type of Facility</b>	<b>Approximate distance from Project Site (mile)</b>
28th Street Landing - Viewing Tower	Park	<0.1
28th Street Landing	Park	<0.1
West End Playfield	Park	0.3
Anna's Playhouse	Child care facility	0.4
Pacific Ave Play Park	Park	0.5
Pacific Care and Rehabilitation Center	Health care facility	0.6
Wunderland Childcare Inc. #4	Child care facility	0.6
Washington Elementary School	School	0.6
Grays Harbor Podiatry Clinic	Health care facility	0.6
YMCA of Grays Harbor	Facility	0.6
Olympic Stadium	Park	0.6
Grays Harbor County RSN	Health care facility	0.6
Batting Cages at Olympic Stadium	Park	0.7
A.J. West Elementary School	School	0.7
Hallak Medical Group	Health care facility	0.7
Grays Harbor Community Hospital	Health care facility	0.8
Sea Mar Aberdeen Medical	Health care facility	0.8
Harborean	Roller skating rink	0.8
Family Medicine Grays Harbor	Health care facility	0.9
Harbor Internal Medicine Clinic	Health care facility	0.9
Grays Harbor Farmer's Market	Farmer's market	1.0
Harbor High School	School	1.0

<sup>a</sup> The sensitive receptors were identified using internet data sources and were not field-verified.

## PS&P Rail Line

Sensitive receptors within 0.25 mile of the PS&P rail line are presented in Table 3.2-4.

Table 3.2-4. Sensitive Receptors within 0.25 Mile of the PS&P Rail Line<sup>a</sup>

<b>Name</b>	<b>City</b>
<b>Child/Day Preschool Care</b>	
Snug Harbor Child Care Center	Aberdeen
Creative Hands Child Care	Aberdeen
Central Park Co-Op Preschool	Aberdeen
Careland Playschool	Montesano
Montesano Co-Op Preschool	Montesano
Tee Time Playschool	Montesano
Raykowski Eileen Day Care	Montesano
Learning To Grow Child Care	Elma
Prairie Patch Preschool	Rochester
Precious Years	Rochester
Dell's Children's Center	Centralia
<b>Schools</b>	
Central Park Elementary School	Aberdeen
Beacon Avenue Elementary School	Montesano
Satsop Elementary School	Elma
Hunters Prairie School	Elma
Elma Elementary School	Elma
Elma High School	Elma
East Grays Harbor High School	Elma
Elma Middle School	Elma
Elma Head Start	Elma
Oakville High School	Oakville
Oakville Elementary School	Oakville
Rochester Head Start	Rochester
Rochester Middle School	Rochester
Rochester High School	Rochester
Rochester Primary School	Rochester
Rochester Elementary School	Centralia
Maple Lane High School	Centralia
<b>Hospital/Medical Facilities</b>	
Summit Pacific Medical Center	Elma
NW Indian Treatment Center	Elma
<b>Senior Centers/Skilled Nursing</b>	
Avalon Healthcare	Aberdeen
Silvia Center (long term/hospice care)	Montesano
Montesano Senior Center	Montesano

<b>Name</b>	<b>City</b>
<b>Parks</b>	
Gladys Smith Park	Elma
Lloyd Murrey Park	Elma
Oakville Baseball Field	Oakville
Oregon Trail Park	Centralia
<sup>a</sup> The sensitive receptors were identified using internet data sources and were not field-verified.	

## Grays Harbor

There are several communities along the shoreline of Grays Harbor. The vessels calling at the project site would traverse a more southerly route, avoiding the shoreline along most of the route. Table 3.2-5 shows 12 sensitive receptors within 0.5 mile of the shoreline along the southern portion of Grays Harbor.

Table 3.2-5. Sensitive Receptors within 0.5 Mile of the Grays Harbor Shoreline<sup>a</sup>

<b>Name</b>	<b>City</b>
<b>Child/Day Preschool Care</b>	
Rosie Day Care	Westport
<b>Schools</b>	
Ocosta Elementary	Westport
Ocosta Junior/Senior High	Westport
Grays Harbor College	Aberdeen
Grays Harbor College	Aberdeen
<b>Senior Centers/Skilled Nursing</b>	
Westport South Beach Senior Center	Westport
<b>Parks</b>	
Westhaven State Park	Westport
Westport City Park	Westport
Bottle Beach State Park	Aberdeen
Spinnaker Park	Ocean Shores
Ocean City Beach Access Area	Ocean City
Washington Parks: Ocean City Beach Access Area	Ocean City
<sup>a</sup> The sensitive receptors were identified using internet data sources and were not field-verified.	

### 3.2.4.4 Current Greenhouse Gas Emissions

GHG emissions trap heat in the atmosphere and increase surface temperatures on the Earth. Although some emissions occur through natural processes, emissions from human activities have increased substantially over the last 150 years. The impacts of climate change, such as sea level rise, changes in precipitation patterns, ocean acidification, and surface temperatures are experienced locally and result from global increase in GHG concentration in the atmosphere. Climate change is addressed further in Chapter 6, *Cumulative Impacts*. GHG emissions calculations are characterized in

terms of carbon dioxide equivalent (CO<sub>2</sub>e)<sup>11</sup> emissions based on the global warming potential factors consistent with the Intergovernmental Panel on Climate Change Fifth Assessment Report (2013) for carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxide.<sup>12</sup>

World Resources Institute maintains an online database of global GHG emissions that is based on a consistent method to estimate emissions for the key GHGs. It is based on inventory data provided by EPA, Department of Energy, Food, and Agriculture Organization of the United Nations, and the International Energy Agency. In 2011, global emissions were estimated to be 43,372.71 million metric tons of CO<sub>2</sub>e and U.S. emissions were 6,550.10 million metric tons of CO<sub>2</sub>e, (World Resources Institute 2014). In 2011, Ecology reported that Washington State was responsible for contributing 91.7 million metric tons of CO<sub>2</sub>e, a decrease from the peak of 101.6 million metric tons in 2007 (Washington State Department of Ecology 2014a).

## 3.2.5 What are the potential impacts on air quality?

This section describes impacts on air quality that could occur in the study area. Potential impacts of the no-action alternative are described first, followed by potential impacts of the proposed action, including impacts on sensitive receptors.

### 3.2.5.1 No-Action Alternative

Under the no-action alternative, the applicant would continue to operate its existing facility as described in Section 2.1.2.2, *Existing Operations*. Continued operation of the existing facility consistent with the terms of its current air quality permit and in compliance with Ecology's toxic air pollutant program is not anticipated to result in the exceedance of applicable air quality standards. Although the proposed action would not occur, it is assumed that growth in the region would continue under the no-action alternative, which could lead to development of another industrial use at the project site within the 20-year analysis period (2017 to 2037). Such development could result in impacts similar to those described for the proposed action.

### 3.2.5.2 Proposed Action

This section describes the impacts that could occur in the study area as a result of construction and routine operation of the proposed action. First, this section describes impacts from construction of the proposed action. It then describes impacts of routine operation at the project site and of routine rail and vessel transport to and from the project site.

#### Construction

As noted in Chapter 2, *Proposed Action and Alternatives*, construction would likely occur in two phases and would include the use of various types of construction equipment, such as heavy-duty

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<sup>11</sup> Carbon dioxide equivalent (CO<sub>2</sub>e) is a metric used to compare the emissions of the different greenhouse gases based on their global warming potential. It represents the amount of carbon dioxide emission that would cause the same integrated radiative forcing, over a given time horizon, as an emitted amount of a greenhouse gas or a mixture of greenhouse gases. The equivalent carbon dioxide emission is obtained by multiplying the emission of a greenhouse gas by its global warming potential for the given time horizon (Intergovernmental Panel on Climate Change 2013).

<sup>12</sup> The U.S. GHG Emissions Inventory covers six GHGs; however, since this proposed action does not include refrigeration hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride were not included in the estimate of GHG emissions.

trucks, welders, excavators, and backhoes. Use of this equipment would result in emissions of criteria air pollutants, toxic air pollutants, and GHGs as discussed below.

### Criteria Air Pollutants

The study area is in attainment for all criteria pollutants and therefore not subject to federal air quality regulations.<sup>13</sup> However, federal regulations provide emission *de minimis* levels<sup>14</sup> that can be used for evaluating emissions from the construction of the proposed action.

The estimated annual average construction-related emissions for Phase 1 and Phase 2 are well below the *de minimis* levels established by EPA, as provided in Appendix D, *Air Data*. Although emissions of criteria pollutants would occur, they would not be expected to cause a significant contamination of the air and are unlikely to affect sensitive receptors surrounding the project site.

### Toxic Air Pollutants

Construction of the proposed action could result in emissions of toxic air pollutants, primarily associated with diesel particulate matter (DPM).

DPM<sup>15</sup> is a known human carcinogen and is linked to numerous health effects including:

- | Lung inflammation
- | Inflammation and irritation of the respiratory tract
- | Eye, nose, and throat irritation along with coughing, labored breathing, chest tightness, and wheezing
- | Decreased lung function
- | Worsening of allergic reactions to inhaled allergens
- | Asthma attacks and worsening of asthma symptoms
- | Heart attack and stroke in people with existing heart disease
- | Lung cancer and other forms of cancer
- | Increased likelihood of respiratory infections
- | Male infertility
- | Birth defects
- | Impaired lung growth in children

The construction-related emissions would be short-term and intermittent, with total DPM of less than 0.17 ton per year, which would be less than 0.2% of total 2011 DPM emissions for Grays Harbor County (9.5 tons per year) (Washington State Department of Ecology 2014a). Acute exposure may irritate the eyes, nose, throat, and lungs. All DPM emissions are associated with mobile sources and because of their relatively low release height, construction personnel could be

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<sup>13</sup> General Conformity rules (40 CFR 93) only apply to areas considered in nonattainment or maintenance of federal and state ambient air quality standards.

<sup>14</sup> *De minimis* levels are emission levels below which no significant contamination of the air will occur.

<sup>15</sup> The PM10 emissions from any diesel-fueled equipment are considered. Here the vast majority of construction equipment was considered as diesel fueled.

subject to the highest exposures from construction of the proposed action. Off-site exposure at air quality sensitive receptors would likely be well below any level of concern as these emissions are 30% lower than 2017 DPM emissions from operations.

### Greenhouse Gas Emissions

Appendix D, *Air Data*, shows that GHGs emissions would occur under Phase 1 and Phase 2 of construction Phase 1 at 2,228 metric tons per year CO<sub>2</sub>e and Phase 2 at 727 metric tons per year CO<sub>2</sub>e).

## Operations

This section describes impacts that would occur as a result of routine operations at the project site, rail transport along the PS&P rail line, and vessel transport through Grays Harbor.

### Criteria Air Pollutants

#### *Onsite*

Onsite emissions include those from stationary sources (e.g., emissions from storage tank cleaning, combustion of vapors from vessel loading) and from mobile sources (e.g., emissions from rail locomotives and vessel engines that would occur onsite). Appendix D, *Air Data*, provides the estimated annual average emissions of criteria air pollutants from operations of the proposed action at maximum throughput. Table 3.2-6 provides a summary of estimated annual average emissions of criteria air pollutants emitted onsite; detailed emissions data are provided in Appendix D, *Air Data*.

Table 3.2-6. Estimated Onsite Emissions of Criteria Air Pollutants—Proposed Action (pounds per year)

<b>Pollutant</b>	<b>Stationary Sources</b>	<b>Stationary and Mobile Sources</b>
NOX	30,915	63,904
PM10	917	1,648
PM2.5	917	1,603
VOC	123,379	124,765
CO	168,033	171,141
SO2	8,472	9,220

Source: Appendix D, *Air Data*

NO<sub>x</sub> = nitrogen oxides; PM10 = particulate matter with a diameter of 10 micrometers or less; PM2.5 = particulate matter with a diameter of 2.5 micrometers or less; VOC = volatile organic compound; CO = carbon monoxide; SO<sub>2</sub> = sulfur dioxide

Based on air quality dispersion modeling performed for onsite stationary sources as part of the applicant's air permit application process (Trinity Consultants 2015), the most potentially problematic air pollutant is nitrogen oxides (NO<sub>x</sub>). Modeling determined that the 1-hour nitrogen dioxide concentration could reach 78% of the national ambient air quality standards (NAAQS) (with background included). This estimate was conservatively reached by adding the simultaneous occurrence of emissions associated with bringing rail cars on site and vessel operation during loading. Further, it was assumed that 80% of the NO<sub>x</sub> was emitted as nitrogen dioxide concentrations and that the highest NO<sub>x</sub> emissions from the rail and vessel operations would be received at the same location as the highest NO<sub>x</sub> emissions modeled for the stationary sources. Even

under these conservative assumptions, the 1-hour nitrogen dioxide concentrations on site would not exceed the NAAQS.

Average annual emissions of criteria air pollutants from onsite operations of stationary sources under the proposed action at maximum throughput were also compared to total 2011 emissions in Grays Harbor County (Appendix D, *Air Data*). The following are stationary sources.

- | Fugitive emissions (emissions from losses during filling and draining)
- | Storage tanks (leaks from valves and flanges)
- | Tank cleaning
- | Marine vapor combustion unit (vessel loading emissions)

For each of the criteria air pollutants, the onsite stationary emissions would range from less than 1 to 53% of the county total emissions for each pollutant. The maximum incremental increase is for volatile organic compound emissions.

### ***Rail***

Operation of the proposed action at maximum throughput would add approximately two unit train trips<sup>16</sup> per day on average (730 per year maximum) along the PS&P rail line. The average is three train trips per day (1,235 per year) under the no-action alternative (Section 3.15, *Rail Traffic*). This increase in rail traffic would result in increased emissions of all criteria air pollutants with the exception of particulate emissions. The most notable increase is predicted for NO<sub>x</sub>. Table 3.2-7 summarizes the annual operational emissions of criteria pollutants emitted within Grays Harbor County under the proposed action compared to Grays Harbor County emissions. Total additional annual NO<sub>x</sub> emissions from rail within Gray Harbor County are predicted to be 38.4 tons per year, followed by carbon monoxide emissions at 5.7 tons per year, with all other predicted emissions less than 2.5 tons per year.

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<sup>16</sup> A trip represents one-way travel; in other words, an inbound trip and an outbound trip are counted as two trips.

**Table 3.2-7. Annual Operational Emissions of Criteria Air Pollutants Emitted in Gray Harbor County —Proposed Action Compared to 2011 Gray Harbor County Emissions (tons/year)**

Criteria Air Pollutant	Sources	Source Categories <sup>a</sup>					Total Emissions
		Facility Operations <sup>b</sup>	Rail <sup>c, d</sup>	Vessel <sup>d</sup>	On-Road Mobile	Other Sources	
NO <sub>x</sub>	Proposed action	16	38.4	78.5	0.1	-	<b>132.5</b>
	Grays Harbor County	644	41	298	2,224	484	<b>3,692</b>
PM10	Proposed action	1.60	1.4	1.2	<0.01	-	<b>4.2</b>
	Grays Harbor County	410	1	10	83	1,681	<b>2,185</b>
PM2.5	Proposed action	1.60	0.9	1.1	0.00	-	<b>3.64</b>
	Grays Harbor County	375	1	9	66	723	<b>1,174</b>
VOC	Proposed action	75.3	2.5	3.5	0.01	-	<b>81.3</b>
	Grays Harbor County	141	2	8	1,139	19,451	<b>20,740</b>
CO	Proposed action	84	5.7	5.5	0.2	-	<b>95</b>
	Grays Harbor County	731	4.1	56	13,786	12,563	<b>27,140</b>
SO <sub>x</sub>	Proposed action	8.67	0.0	1.90	<0.01	-	<b>10.57</b>
	Grays Harbor County	227.70	0.29	14.65	7.07	21.46	<b>271.2</b>

Sources: Grays Harbor County emissions: Washington State Department of Ecology 2014a; proposed action facility operations emissions: Trinity Consultants 2015

<sup>a</sup> Source categories based on Washington State Department of Ecology 2014a.

<sup>b</sup> The proposed action onsite emissions include emissions from onsite rail and vessel operations. The county emissions represent those from all other industrial point sources.

<sup>c</sup> Based on estimate that 68% of the fuel consumption from rail transit along the PS&P occurs within Grays Harbor County.

<sup>d</sup> Rail and vessel emissions for the proposed action include emissions from on-site rail and vessel operations.

CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; SO<sub>x</sub> = sulfur oxides; VOC = volatile organic compound; PM10 = particulate matter with a diameter of 10 micrometers or less; PM2.5 = particulate matter with a diameter of 2.5 micrometers or less

In general, emissions of criteria pollutants related to increased rail traffic would approximately double the existing levels for the county's inventory associated with rail activity. However, rail emissions are mobile and would be spread out along the 59-mile PS&P rail line, making it unlikely that a localized concentration of emissions would occur that could exceed the 1-hour standard with the exception of NO<sub>x</sub>.

As noted previously, the predicted NO<sub>x</sub> rail emissions associated with the proposed action would represent the highest level of emissions and are substantially greater than the other criteria pollutants. The initial screening modeling shows that the 1-hour nitrogen dioxide standard could be exceeded. For these reasons, NO<sub>x</sub> emissions are considered the primary criteria air pollutant of concern. In other words, it is the criteria air pollutant most likely to exceed the NAAQS. However, because no violation of the nitrogen dioxide NAAQS is anticipated at the project site based on the air quality modeling, emissions from locomotives during transit are not expected to violate air quality standards. This is because rail emissions would be emitted across the entire 59-mile PS&P rail line, making it unlikely that a localized concentration of emissions would exceed the 1-hour standard. Additionally, total NO<sub>x</sub> emissions attributed to the proposed action, including increased vessel traffic emissions, would represent less than 4% of the county's total NO<sub>x</sub> inventory.

### *Vessel*

Operation of the proposed action at maximum throughput would result in an average of approximately one tank vessel trip<sup>17</sup> per day (a maximum of 400<sup>18</sup> per year) along the navigation channel compared to the 436 large commercial vessel<sup>19</sup> trips under the no-action alternative (Section 3.17, *Vessel Traffic*).

NO<sub>x</sub> emissions from vessel operations would be 78.5 tons per year, followed by carbon monoxide emissions at 5.5 tons per year (Table 3.2-7). All other predicted emissions would be less than 3.5 tons per year (Table 3.2-7). In general, emissions of criteria air pollutants related to increased vessel traffic would increase the existing levels of the county's vessel-related emissions from 10 to 45%.

Because predicted vessel NO<sub>x</sub> emissions would be approximately 15 to 70 times greater than the other criteria air pollutants, and because initial air quality screening modeling shows a possible exceedance of the 1-hour nitrogen dioxide standard, NO<sub>x</sub> emissions are considered the primary criteria air pollutant of concern. In other words, it is the criteria air pollutant most likely to exceed the NAAQS. However, because no violation of the NAAQS is anticipated at the project site based on air quality modeling, even under the conservative conditions described above, it is not anticipated that emissions from vessels during transit would violate air quality standards. This is because vessel emissions would be emitted away from shore and would spread out over the navigation channel, such that a localized concentration of emissions would not likely exceed the 1-hour standard. Additionally, total NO<sub>x</sub> emissions attributed to the proposed action, including increased vessel traffic emissions, would represent less than 4% of the county's total NO<sub>x</sub> inventory.

### Toxic Air Pollutants

#### *Onsite*

Onsite operations of the proposed action would also result in emissions of toxic air pollutants (DPM, PM<sub>10</sub>, benzene, formaldehyde, and toluene) and air toxics (includes all hazardous air pollutants as well as hydrogen sulfide, sulfuric acid mist, n-hexane, cyclohexane, nitrogen dioxide, sulfur dioxide, and carbon monoxide). Potential impacts from onsite sources, with the exception of DPM, were assessed using the methods outlined in the WAC 173-460-020 (Controls for New Sources of Toxic Pollutants).

In Washington State, all new stationary sources emitting toxic air pollutants are required to show compliance with the Washington toxic air pollutant program pursuant to WAC 173-460. Ecology has established a small quantity emission rate small quantity emission rate and an acceptable source impact level for each listed toxic air pollutant. If the toxic air pollutant emissions rate from a source is above its respective small quantity emission rate, further determination of compliance with the ASIL is required.

All of the toxic air pollutants emitted from onsite operations would be either under their respective small quantity emission rates or in compliance with their respective ASILs. The highest toxic air pollutant emissions as a percentage of its respective ASIL (62%) would be for annual benzene concentration at 0.0214 µg/m<sup>3</sup>.

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<sup>17</sup> A trip represents one-way travel.

<sup>18</sup> Proposed vessel trips are total for the facility so are not in addition to trips attributable to the applicant under the no-action alternative (approximately 14 per year).

<sup>19</sup> The term *large commercial vessel* refers collectively to tank and cargo vessels.

The impacts of DPM emissions from rail car unloading at the project site are described below.

### ***Rail***

The dominant air toxic emissions (both a hazardous and toxic air pollutant) from rail transport are DPM emissions from the burning of diesel fuel. Air dispersion modeling of DPM was conducted using EPA's AERMOD<sup>20</sup> dispersion model for the proposed action's rail activities between Poynor Yard and the project site. This area would have the highest emissions along the PS&P rail line from rail switching and unloading activities, as described in Section 3.15, *Rail Traffic*. Rail switching and unloading activities were modeled using 5 years (2007 to 2011) of Hoquiam area meteorological data, and a 5-year average annual DPM cancer risk was determined. Total emissions of DPM were estimated at 0.13 ton per year.

Figures 3.2-1 and 3.2-2 show the average increased inhalation cancer risk from DPM for the proposed action in 2017 and 2037<sup>21</sup> by illustrating the 100 per million and 10 per million risk levels. The air quality sensitive receptors within these risk levels are also shown.

Under WAC 173-460 (Controls of New Sources of Toxic Air Pollutants), Ecology may recommend approval for a stationary source project that is likely to cause an exceedance of acceptable source impact levels for one or more toxic air pollutants if it is demonstrated that the increase in emissions of toxic air pollutants (such as DPM) would not likely result in an increased cancer risk of more than 10 in 1 million. However, this regulation only applies to stationary sources, not mobile sources such as rail locomotives. There are no local or state regulations for DPM emissions from mobile sources. For this reason, the 10-per-million risk level is not a threshold to determine significance of the impact. However, to provide context of the average increased inhalation cancer risk from DPM, the 10-per-million risk level is shown in Figures 3.2-1 and 3.2-2. EPA would typically urge action to mitigate the increased risk of exposure at the 100-per-million risk level if a sensitive receptor was within this risk level. The 100-per-million risk level is also shown in Figures 3.2-1 and 3.2-2.

The analysis indicates that the 100-per-million and above risk level from rail operations would be limited to the project site in 2017 and 2037. The 10-per-million risk level would extend approximately 0.2 mile from the project site in 2017 and approximately 0.15 mile from the project site in 2037. The 28th Street Landing and Viewing Tower, sensitive receptors, would be within the 10-per-million risk level in 2017 and 2037. No other sensitive receptors would be within the 10-per-million risk level. Implementation of the mitigation in Section 3.2.7.2, *Applicant Mitigation*, would reduce the risks of exposure of sensitive receptors.

DPM emissions from rail transport along the entire PS&P rail line in the initial year of full operation (2017) are estimated at 3,738 pounds per year. Based on the length of the PS&P rail line (59 miles between Centralia and project site), this represents approximately 78 grams of DPM per day per mile.

Washington State Department of Transportation prepares yearly summaries of annual average daily traffic volume and percentage of heavy-duty truck traffic on state and federal highways. According to the most recent summary of 2013 traffic data, traffic along US Highway 12 (US 12) (approximately 12.3 miles east of its junction with US Highway 101 [US 101]) had an average heavy-

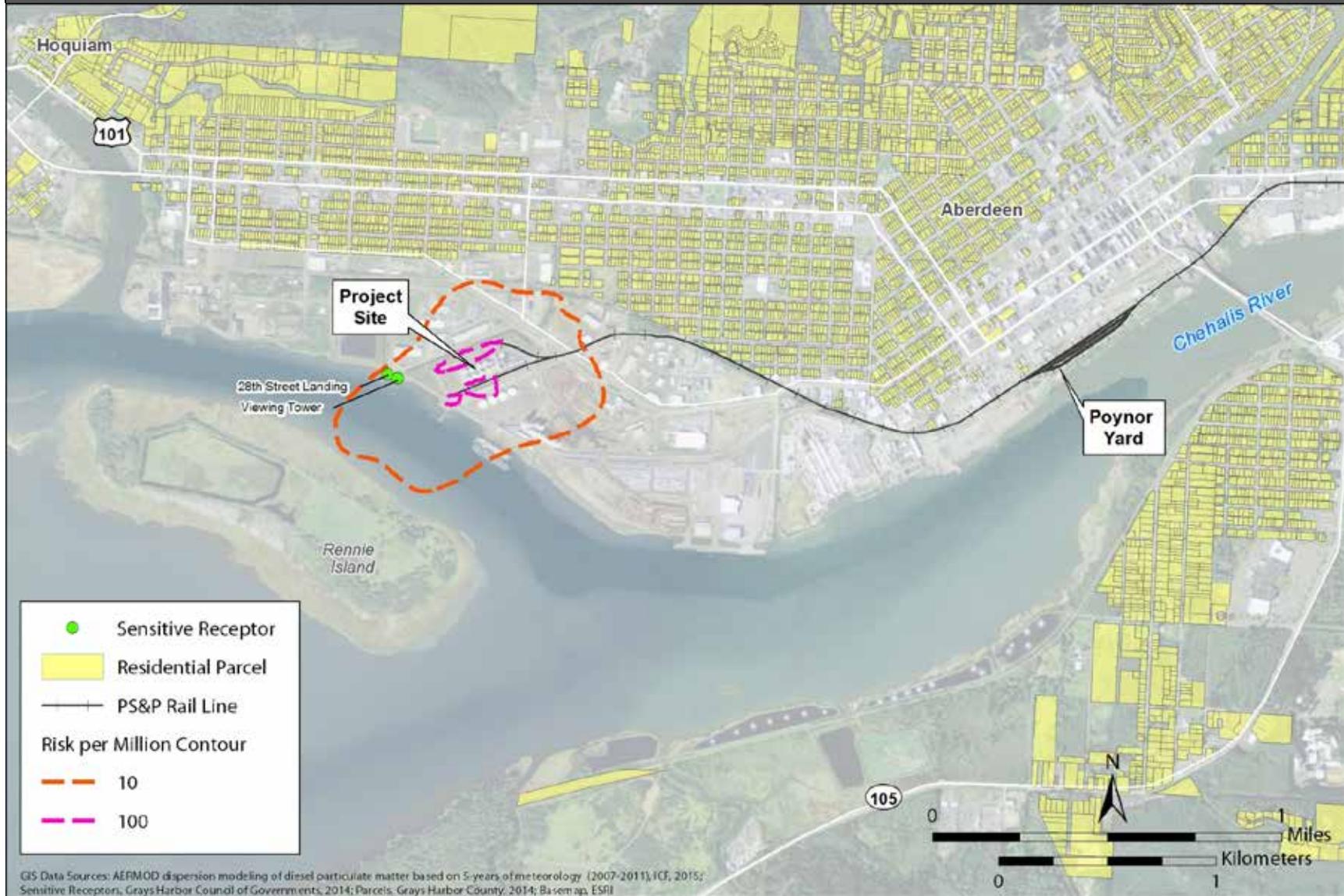
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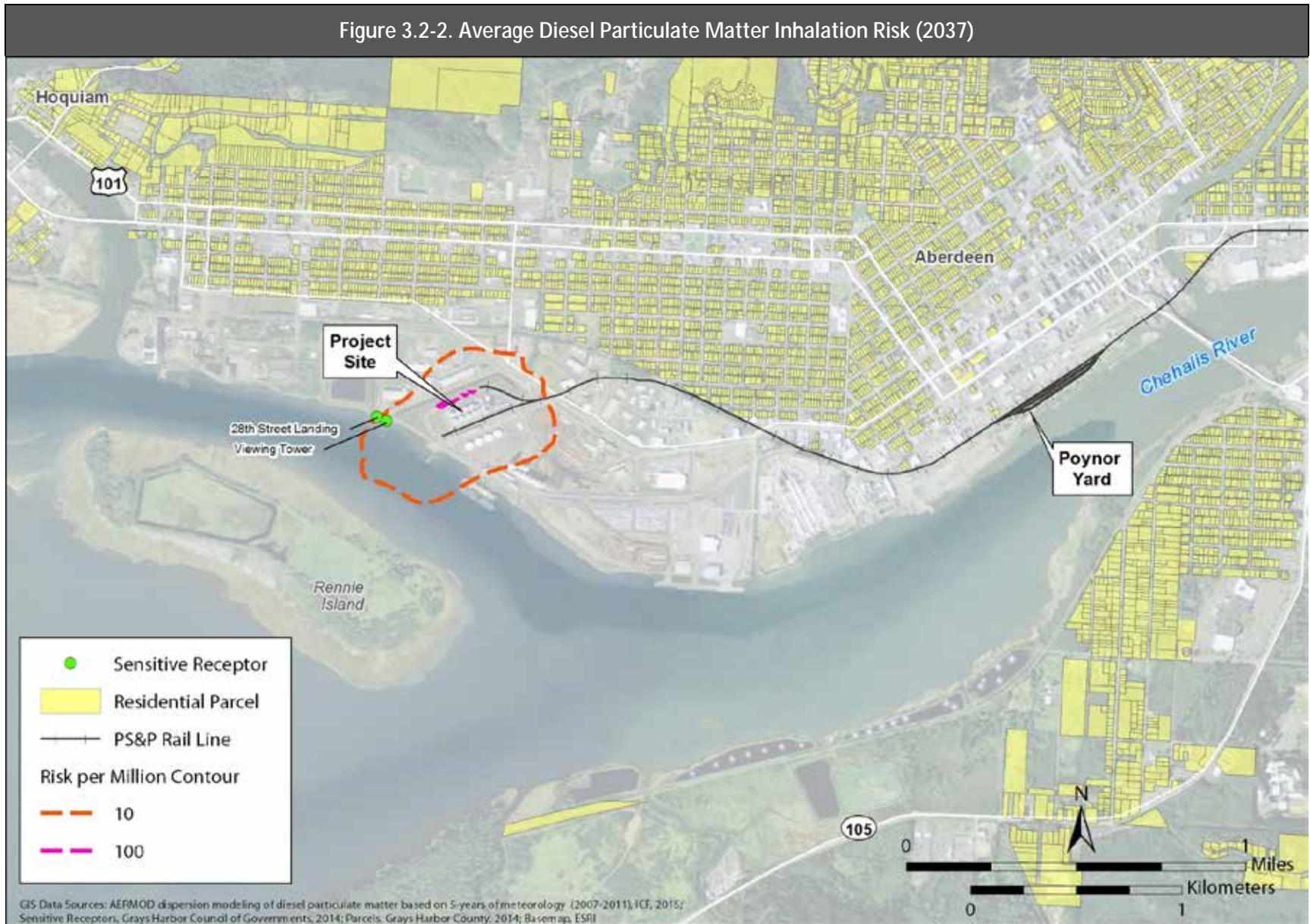
<sup>20</sup> AERMOD is a dispersion model recommended by EPA for estimating the impact of industrial sources of emissions on ambient air quality.

<sup>21</sup> Years 2017 and 2037 were modeled to assess the risk from DPM emissions over time because locomotives that emit less DPM than in 2017 will be in operation by 2037.

duty daily truck activity level of 1,900 vehicles (Washington State Department of Transportation 2013). These types of trucks are almost entirely diesel fueled. Assuming these are all diesel fueled and using the fleet average DPM emission factor from the EPA MOVES 2010 model for heavy-duty trucks results in an average daily DPM emission rate of 760 grams per mile. Based on a comparison of the predicted fuel usage of trains related to the proposed action, the increase in DPM associated with rail transport along the PS&P rail line under the proposed action would be the equivalent of a 5.6% increase in heavy-duty truck traffic or about the equivalent of 107 heavy-duty trucks per day. This increase in emissions from rail transport between Aberdeen and Centralia is not expected to result in a significant increase in DPM exposure for any sensitive receptors along the PS&P rail line or to the public.

Figure 3.2-1. Average Diesel Particulate Matter Inhalation Risk (2017)





### *Vessel*

Under the proposed action, tank vessels calling at Terminal 1 would include tank barges and tankers. These tank vessels typically burn marine distillate fuel oil, which is a slightly heavier fuel oil than diesel but shares most of the same chemical properties and composition. Assuming the same cancer risk for marine distillate fuel oil as diesel fuel oil to approximate the air toxic health risk from vessel transport in the study area, the dominant air toxic emission (both a hazardous and toxic air pollutant) would be DPM.

In a recent study examining the impact of these emissions during vessel transit, nearshore cancer risks of about 100 in 1 million were determined within a distance of 1.1 miles of the shipping corridor (California Air Resources Board 2008: Figure D-25). This result was based on 1,916 vessels calling per year, with most ships weighing between 40,000 and 80,000 dead weight tons and traveling at a speed of 13.5 knots. Under the proposed action, up to 200 vessels per year, mostly the smaller tank barges (20,000 dead weight tons) assisted by pilot boats and a tug, would call at Terminal 1. The emissions from the pilot boat and assist tug are about 30% of the emissions of the tank barges. Conservatively, assuming that the emissions from the tank barges are roughly equivalent to the larger vessels in the California Air Resources Board study, the estimated projected transit activity would be equivalent to 260 tank barges. Thus, the estimated increase in nearshore risk across the inlet to Grays Harbor would be less than 13 in a million, likely less given the wider inlet and smaller vessels and engines. This increase in risk is just at the Ecology acceptable threshold increase in cancer risk. However, given the wider inlet and engine on the tank barges this should not affect any sensitive receptors along the shoreline.

### **Greenhouse Gas Emissions**

Operation of the proposed action at maximum throughput would result in the emission approximately 43,759 metric tons of CO<sub>2</sub>e each year (Table 3.2-8). The largest contribution of operational GHG emissions under the proposed action would result from rail transport within Washington State and would represent an approximately 3.6% increase in the statewide rail emissions of GHGs. However, over the 20-year analysis period, improvements in the efficiency of locomotives may decrease the total GHG emissions resulting from the proposed action.

Onsite emissions—those from operation of the marine vapor combustion unit, on-site rail switching operations, and vessels at the dock during loading—would account for approximately 9,322 metric tons of CO<sub>2</sub>e each year (Table 3.2-8).

Appendix D, *Air Data*, provides a more detailed comparison of average annual statewide GHG emissions and emission from proposed operations.

**Table 3.2-8. Annual Average GHG Emissions from Operations—Proposed Action (metric tons of CO<sub>2</sub>e per year)**

<b>Source Type</b>	<b>Proposed Action</b>
Rail transit	33,282 <sup>a</sup>
Rail switching (on-site)	2,426
Vessel transit	1,155
Vessels at dock during loading (on-site)	262
Industrial sources (project site)	6,634 <sup>b</sup>
<b>Total</b>	<b>43,759</b>

<sup>a</sup> Includes emissions from rail transport throughout the state.  
<sup>b</sup> Trinity Consultants 2015

Total estimated annual GHG emissions related to operation of the proposed action at maximum throughput represent an increase of approximately 0.047% in statewide annual GHG emissions. RCW 70.235.020 sets the following GHG statutory reduction levels for GHG emissions.

- | By 2020, reductions to 1990 emission levels.
- | By 2035, reductions to 25% below 1990 levels.
- | By 2050, reductions to 50% below 1990 levels or 70% below Washington State’s expected emissions that year.

In order to meet these reductions, Washington State must reduce emissions to 88.4 million metric tons of CO<sub>2</sub>e per year by 2020, 66.3 million metric tons of CO<sub>2</sub>e by 2035, and approximately 44.2 million metric tons of CO<sub>2</sub>e by 2050.<sup>22</sup> The GHG emissions from the proposed action would be approximately 0.10% of Washington State’s statutory reductions of 44.2 million metric tons of CO<sub>2</sub>e per year (half of the 1990 level) by 2050.

In November 2014, the United States entered into a nonbinding agreement with China to reduce emissions to 26 to 28% below 2005 levels (White House 2014). This national goal translates to annual emissions between 4,628 and 4,756 million metric tons of CO<sub>2</sub>e by 2025. The GHG emissions from the proposed action would represent approximately 0.00093% of these national targets.

According to the International Panel on Climate Change (IPCC), cumulative GHG emissions should be limited to 1 trillion metric tons (total) by 2050 or the planet will exceed the 2°C warming threshold. Currently, the amount of GHGs that have been emitted worldwide since the Industrial Age is estimated to be 592 billion metric tons (Oxford E-Research Center 2015). Cumulative world emissions should be limited to 408 billion metric tons to meet the 2050 target. Of the 408 billion metric tons remaining, the emissions from the proposed action would constitute 0.000011% of the total.

In addition to GHG emissions caused by onsite operations and offsite rail and vessel transport, the combustion of the proposed bulk liquids would also result in GHG emissions. While it is possible to estimate the total emissions from end use the proposed bulk liquids, it is much more complex and complicated to determine whether those GHG emissions would be additive or if they would otherwise replace existing GHG emissions.

<sup>22</sup> Total emissions needed to reach the Washington State statutory reductions were calculated based on the required reduction from the most recently available statewide inventory of 91.7 million metric tons of CO<sub>2</sub>e in 2011 (Washington State Department of Ecology 2014a).

Using EPA’s average heat content of crude oil of 5.80 million British thermal units (mmBtu) per barrel (U.S. Environmental Protection Agency 2014) and the more conservative emissions factor for diluted bitumen listed in Table 3.2-9, the maximum amount of CO<sub>2</sub> emissions from end use of products shipped through the proposed facility in a given year is 13,067,400 metric tons of CO<sub>2</sub> per year.

**Table 3.2-9. Estimated CO<sub>2</sub> Emissions Factors for Oil Combustion**

<b>State or Condition</b>	<b>Products</b>	<b>CO<sub>2</sub> Emissions Factors (kg CO<sub>2</sub> per mmBtu)</b>
<b>Petroleum Fuels</b>		
Refined	Gasoline	70.22
	Kerosene	75.20
	Naptha	68.02
	Jet fuels	72.22
	No. 2 fuel oil (diesel oil)	73.96
	No.6 fuel oil (bunker c oil)	75.10
	Vacuum gas oil	73.00 (Estimate)
Unrefined	Bakken crude oil	73.96
	Diluted bitumen	75.10
<b>Non-Petroleum Fuels</b>		
Pure (unblended)	Ethanol	68.44
Can be composed of 20–80% of plant-based fuel	Renewable jet fuel	72.22 (Estimate)
Can be composed of 20–80% of plant-based fuel	Renewable diesel	73.84
Variable composition	Used cooking oil/animal fat	71.06
Source: U.S. Environmental Protection Agency 2014 kg CO <sub>2</sub> per mmBtu = kilograms of carbon dioxide per million British thermal unit		

Determination of the incremental increases in GHG emissions relative to the no-action alternative is complex and depends on numerous relatively unpredictable factors. The relative contribution of the proposed action to the net change in CO<sub>2</sub> emissions would depend on whether the proposed action results in increased demand for crude oil or displaces other crude oil consumed by end users (which depends, in part, on the source and final destination for the oil), what type of crude oil is being transported (i.e., which emissions factors are used), and what the end use is (e.g., combustion versus development of other products).

The results presented above are conservative because of three assumptions in the analysis.

- | The entire amount of crude oil to be handled at the project site would be additive; it would not replace other sources of crude oil.
- | The oil would be diluted bitumen.
- | The end use would be combustion.

However, as noted in Chapter 2, *Proposed Action and Alternatives*, it anticipated that the crude oil to be handled and stored at the proposed facility would come from domestic sources (e.g., Bakken crude oil) and would likely be transported to the Puget Sound. Bakken oil has a lower emissions factor than diluted bitumen and based on current market conditions, Bakken oil would most likely

replace existing sources of crude oil. This means that GHG emissions from end use combustion represent the maximum incremental increase in GHG emissions and that, depending on the specific market conditions and properties of the oil, emissions could be incrementally lower.

In addition, there is reason to believe that much of the crude oil being transported to the new facility would replace crude oil that was previously transported by tank ship. The Washington 2014 Marine & Rail Oil Transportation Study stated the following (Washington State Department of Ecology 2014b).

...historically, 90% of crude oil bound for Washington's refineries was delivered here by tank ship from Alaska or from other international sources of oil. Today pipeline and rail delivery of crude oil make up more than 30% of our imports, while vessel delivery is reduced to less than 70%. Crude oil transportation is rapidly shifting to delivery by rail and pipeline.

The majority of the crude oil handled at the facility is expected to be Bakken crude oil, which, because it can only be transported to U.S. refineries, would replace oil currently used in U.S. refineries. Because U.S. refinery capacities are limited by law, existing refineries would not increase their capacity and emissions to accommodate new shipments and thus would not increase CO<sub>2</sub> emissions.

Also, crude oil may be refined into multiple other products that may or may not have substantial GHG emissions (e.g., asphalt is not combusted and is a crude oil product) and the end use would vary based on the product and market. If diluted bitumen is handled, for example, it could go to either U.S. refineries or non-U.S. refineries. Because this crude oil can be broken down into a variety of products and their end use varies, the end-use combustion calculation, which assumes that all of the oil will be combusted, is conservative and likely overstates total GHG emissions. Even if the proposed facility is not built, additional GHG emissions from end use may still occur over the course of the analysis period. This is because the product could be transported to another facility for use or exported depending on the source of the oil, the type of oil, and the final point of delivery.

Regardless of the end-use emissions scenario, the proposed action would represent a very small segment of the crude oil market in the United States. The U.S. Energy Information Administration provides data for U.S. petroleum flows (U.S. Energy Administration 2013, 2015). In 2013, 7.45 million barrels of crude oil were produced in the United States, and 7.72 million barrels of crude oil were imported every day. Together, this equals 15.17 million barrels of crude oil supplied to the United States every day. Based on maximum throughput, operation of the proposed action would transport approximately 82,192 barrels per day on average or 0.0054% of the U.S. daily crude oil supply.

For more information on GHG emissions and climate change, see Chapter 6, *Cumulative Impacts*.

### 3.2.6 What required permits and plans apply to air quality?

The proposed action is subject to compliance with an air permit issued by the Olympic Region Clean Air Agency, which would include enforceable requirements specifying emission limits, reporting, and record-keeping requirements for onsite stationary sources. Air emissions would be controlled using best available control technology as required by the agency as part of the proposed action's Notice of Construction Air Permit. The following permit conditions are expected to reduce impacts on air quality.

- l To reduce the potential for fugitive emissions associated with rail transport during site operations, the applicant will ensure via contract that rail cars are equipped with vacuum breakers designed to prevent escape of vapors from headspace of rail cars during unloading operations.
- l To reduce the potential for tank emissions, the applicant will design tanks to reduce tank emissions using the following method.
- l To reduce the potential for tank emissions, the applicant will design tanks to reduce tank emissions using the following equipment.
  - i Storage tanks with floating roof in combination with cable suspended full contact internal floating deck with near-zero vapor space.
  - i Internal floating roof mechanical shoe primary seal and a rim-mounted secondary seal.
- l To reduce the potential for site operations emissions, the applicant will undertake the following actions.
  - i For bulk liquids with vapor pressures equal to or greater than 0.5 pounds per square inch absolute under actual storage conditions, control displaced vapors during loading of marine vessels and barges with a marine vapor combustion unit having a minimum of 98% destruction efficiency.
  - i Use submerged loading of marine vessel and barge storage tanks.
  - i Collect marine vessel and barge vent vapor fugitive emissions via vapor-tight pipelines.
  - i Implement leak detection and repair plan for transfer equipment in liquid and vapor service.
  - i Operate and maintain all equipment including marine vapor combustion unit according to operations and maintenance plan.

### 3.2.7 What mitigation measures would reduce impacts on air quality?

This section describes the applicant mitigation measures that would reduce impacts on air quality from construction and routine operation of the proposed action.

#### 3.2.7.1 Applicant Mitigation

The applicant will implement the following mitigation.

- l The applicant will ensure that all engine-powered equipment and vehicles used in construction, operation, and maintenance at the facility are subject to a regular inspection and maintenance schedule in order to minimize air pollutant emissions, GHG emissions, and fuel consumption. Preventive maintenance activities will include but not be limited to the following actions.
  - i Replacing oil and oil filters as recommended by manufacturer instructions.
  - i Maintaining proper tire pressure in on-road vehicles.
  - i Replacing of worn or end-of-life parts.
  - i Scheduling routine equipment service checks.

- l The applicant will develop and implement an anti-idling policy for both construction and operation and ensure that equipment operators receive training on best practices for reducing fuel consumption in order to reduce project-related GHG emissions. The anti-idling policy will include required warmup periods for equipment and prohibit idling beyond these periods. The policy will define any exemptions where idling is permitted for safety or operational reasons, such as when ambient temperatures are below levels required for reliable operation. In addition, the use of technologies such as idle management systems or automatic shutdown features will be considered part of the policy.
- l To monitor diesel particulate matter (DPM) emissions associated with rail operations at and near the project site, the applicant will install a DPM monitoring station prior to beginning operations. The applicant will submit the DPM emission report to the City of Hoquiam annually. The City of Hoquiam will coordinate with the City of Aberdeen, Ecology, and ORCAA as applicable, to review the emission report. If DPM emissions are observed to approach levels of concern for sensitive receptors, then the City of Hoquiam will require the applicant to modify operations to reduce DPM emissions. These actions could include:
  - i Modifying or reducing switching operations between Poynor Yard and the project site to reduce DPM emissions during switching operations.
  - i Installing a commercial idle control retrofit device on switching locomotives to reduce DPM emissions from idling.
  - i Using Tier 3 or Tier 4 compliant<sup>23</sup> switching engines at Poynor Yard.
- l To reduce GHG emissions, DPM, and other air pollutants from the locomotives, idling will be minimized to the maximum extent practicable. Shutting down locomotive engines as soon as practicable when not in use and delaying restart until necessary for car switching or departure from the facility would reduce these pollutants.
- l To minimize idling from trains and vessels and resulting emissions, the Applicant will coordinate with the Port of Grays Harbor and PS&P to manage waiting times for rail and vessel arrivals or departures.

### 3.2.8 Would the proposed action have unavoidable and significant adverse impacts on air quality?

Compliance with the applicable regulations along with implementation of the mitigation measures described above would reduce impacts on air quality. There would be no unavoidable and significant adverse impacts.

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<sup>23</sup> These refer to standards for implementing the EPA's program to improve locomotive efficiency to reduce emission of particulate matter and nitrous oxides.