

Chapter 1 Summary

1.1 Introduction

Northwest Innovation Works, LLC – Kalama (NWIW) and the Port of Kalama (Port) are proposing to construct the Kalama Manufacturing and Marine Export Facility (KMMEF) (proposed project) on the Columbia River at the Port’s North Port site (the project site) located as shown on **Figure 2-1**. The proposed project is required to be reviewed for impacts to the built and natural environment under the State Environmental Policy Act (SEPA) for the state of Washington.

SEPA applies to decisions made by state and local agencies, including ports. The environmental review process helps state and local agencies to identify and consider possible environmental impacts that could result from government actions, including permit actions. A product of the environmental review process is the draft environmental impact statement (DEIS). This chapter provides an overview of the proposed project, the DEIS review, and conclusions.

1.1.1 Draft Environmental Impact Statement

SEPA requires an EIS if the project is likely to result in significant adverse impacts. The purpose of an EIS is to document the SEPA environmental review process. The process includes the following activities:

- Gather background information
- Develop alternatives
- Conduct analysis and review of the alternatives
- Identify potential environmental impacts from the alternatives
- Identify ways to reduce the effects of significant adverse impacts
- Conduct public involvement

The DEIS includes a description of the proposed project and the project purpose, project site information and history, reasonable alternatives for the proposed project that can meet the applicant’s objectives, environmental impacts that may happen as a result of the proposed project, and ways to avoid or reduce adverse environmental impacts. Required federal, state, and local jurisdiction permits are also identified for the proposed project during the development of the DEIS.

The Port and Cowlitz County are serving as co-lead agencies for the SEPA environmental review of the proposed project. The lead agencies are responsible for conducting the environmental review for the proposed project and documenting it in the EIS.

Detailed information on the SEPA EIS process is available on the Washington State Department of Ecology (Ecology) website at <http://www.ecy.wa.gov/programs/sea/sepa>.

An online copy of the DEIS for the proposed project can be found at www.KalamaMfgFacilitySEPA.com. Paper copies of the document are available for review at

locations noted in the Fact Sheet. Comments on the DEIS will be accepted during a 45-day comment period.

1.1.2 Proposed Project

The proposed project has two parts: a methanol manufacturing facility and a marine terminal. The proposed methanol manufacturing plant would convert natural gas to methanol. The methanol would be stored on site and transported by ships to destination ports, primarily in Asia. The methanol is expected to be used for the production of olefins, which are the primary components in the production of consumer products, such as medical devices, glasses, contact lenses, recreational equipment, clothing, cell phones, furniture, and many other products. Construction is anticipated to begin as soon as authorizations are received (expected late 2016) and would be completed as early as mid-2018 and as late as mid-2020. More information about the project and the methanol manufacturing process is included in Chapter 2.

The proposed marine terminal would be used primarily for loading the methanol onto ships for export. The terminal would be available for general use by the Port for other cargo operations when not being used for loading methanol, such as a lay berth where vessels could moor while waiting to use other Port berths, and topside ship maintenance.

There are two proposed projects that are related to, but not a part of the methanol manufacturing facility:

- Northwest Pipeline LLC (Northwest) is proposing to construct and operate the Kalama Lateral Project (the proposed pipeline), a 3.1-mile natural gas pipeline to the proposed project. This proposed pipeline is undergoing a separate review through the Federal Energy Regulatory Commission (FERC). FERC completed a National Environmental Policy Act (NEPA) environmental assessment (EA) in July 2015 for that project.
- Cowlitz County Public Utility District No. 1 (Cowlitz PUD) is proposing to upgrade to the existing transmission line from the existing Kalama Industrial Substation to the project site, construction of an on-site substation, and construction of an alternative electrical supply line to the Kalama Industrial Substation to provide redundancy for electrical service. Cowlitz PUD is managing environmental reviews/permitting related to the electrical improvements.

1.1.2.1 Project Proponents

NWIW and the Port are planning to design, construct, and operate the proposed project. NWIW was formed for the purpose of developing cleaner sources for methanol production to meet global demands. More information regarding NWIW is available at <http://nwinnovationworks.com>.

The Port owns the existing industrial upland site where the manufacturing facility will be located and manages the state-owned land where the marine terminal will be located. The Port is a public agency and oversees a variety of industrial uses on property along the Columbia River in the city of Kalama and unincorporated Cowlitz County. Existing Port facilities are located along the Columbia River between approximately River Mile (RM) 72 and RM 77. The Port receives revenue from leases of various Port properties, buildings, and marine terminals; services associated with the grain terminal and breakbulk docks; and the Kalama marina. More information on the Port is available in Chapter 2 and at <http://portofkalama.com>.

1.1.2.2 Project Location

The proposed project would be located at the Port's North Port site at 222 West Kalama River Road in unincorporated Cowlitz County, Washington (**Figure 2-2**). The North Port site is located at approximately RM 72 along the east bank of the Columbia River. The project site is bounded by the Columbia River to the west; by Tradewinds Road, the Air Liquide industrial facility, and the Port's industrial wastewater treatment plant to the east; by Port property primarily used for open space, recreation, and wetland mitigation to the north; and by the existing Steelscape manufacturing facility to the south. The Port has leased approximately 90 acres of the 100-acre site to NWIW for construction and operation of the proposed facility.

1.1.2.3 History

The Port has owned the project site since 1979, and it has been used primarily as part of the U.S. Army Corps of Engineers (USACE) network of dredged material placement sites. The site was filled to its current elevation beginning in 1980 using material dredged from the Columbia River to maintain the federal navigation channel. The site was removed from the USACE dredged material placement sites network in 2015¹.

An existing 38,000-square-foot building is located on the southwest portion of the project site. The building is used as a warehouse, office space, and parking for Steelscape. This building and adjacent areas would be reused as part of the proposed project. The site has very little vegetation and is generally flat. It is primarily covered with sandy dredged material.

The Port has been actively pursuing development of the project site and has established and maintained wells and water rights. Four projects were previously proposed for the site but were cancelled because of economic considerations. In addition, the Port received federal, state, and local authorization to construct a cargo dock on the site.

1.1.3 Objectives

NWIW and the Port are pursuing the proposed project with the stated goal of reducing greenhouse gas (GHG) emissions globally by producing methanol from natural gas rather than coal. Global demand for methanol for use in production of olefin is high. Economic forecasts predict an increase in worldwide demand for methanol from 60 million tonnes in 2013 to 109 million tonnes in 2023 (IHS 2014). Increased demand for methanol in Asia is being met primarily by the construction of facilities in China that manufacture methanol from coal, which emits very high levels of GHG and generates toxic byproducts and wastes (Yang 2012). Producing methanol from natural gas produces substantially lower levels of GHG and fewer chemical byproducts. This DEIS evaluates two technology options for producing methanol from natural gas (discussed below), one of which is a new technology that produces even lower GHG and other emissions than conventional technologies for producing methanol from natural gas. NWIW has expressed its desire to use the new lower emitting technology consistent with its goal of global reduction of GHG emissions.

The project would provide economic benefits to the region by creating jobs and tax revenues during construction and operation and improving access to recreational resources at the Port.

¹ The Port of Kalama officially withdrew the Northport Dredge Disposal site on October 6, 2014 from the Columbia River Channel Improvements project. A confirmation letter from the USACE was received on November 24, 2015.

The project meets the Port's mission to "induce capital investment in an environmentally responsible manner to create jobs and to enhance public recreational opportunities."

1.1.4 Proposed Alternatives

The proposed project includes both the construction and operation of a methanol manufacturing facility and marine terminal. The alternatives evaluated in the DEIS include action alternatives and a no-action alternative. The action alternatives include two methanol production technology alternatives (Technology Alternatives), and two marine terminal design alternatives (Marine Terminal Alternatives). With the No-Action Alternative, the proposed project would not be constructed. An Off-Site Alternative for the methanol manufacturing facility was evaluated during the initial alternatives analysis but is not carried forward for the detailed EIS analysis because that alternative did not satisfy SEPA requirements for a reasonable alternative.

1.1.4.1 Technology Alternatives

The primary differences between the two Technology Alternatives are the energy efficiency and energy sources for the natural gas reforming step during the methanol production process. The other primary steps in the production process remain the same in both Technology Alternatives. The two technology alternatives are:

- Combined Reformer (CR) Alternative – This technology uses a combination of a steam-methane reformer and an autothermal reformer (as a secondary step) to produce methanol.
- Ultra-Low Emissions (ULE) Alternative – This technology uses a gas-heated reformer and an autothermal reformer (as a secondary step) to produce methanol.

Figures 2-3 and 2-4 illustrate the general methanol production process and the differences between the CR and ULE alternatives within the overall methanol production process.

Figures 2-5 and 2-6 show the site plans for each alternative.

The CR technology is widely used in the methanol industry to perform the primary reforming of natural gas with steam. With this technology, the energy used in the reforming reaction is generated mainly by burning natural gas. Natural gas as fuel combusts through firing burners and provides heat to allow natural gas steam reforming in the tubes of the steam-methane reformer, and the flue gas is emitted to the atmosphere. Waste heat is used to generate steam that drives rotating process equipment. CR technology results in substantially lower CO₂ and GHG emissions than coal-based methanol production.

ULE technology is designed to use process heat directly to provide energy for the reforming reaction. The ULE rotating process equipment is driven by electricity, rather than with steam as in the CR technology. ULE is a proven technology commonly used for reforming other chemicals from natural gas. It has been used at a smaller scale for the production of methanol. If the ULE Alternative is selected, the proposed project would be the first large-scale application of ULE technology for methanol production in the United States.

Both the CR and ULE technology alternatives would require electricity and natural gas for energy. The CR Alternative requires more energy input and relies more heavily on natural gas. The ULE Alternative uses natural gas to power boilers, but the reforming process is powered by process heat from the autothermal reformer. The ULE Alternative requires more electricity to power compressors and pumps but less natural gas than the CR Alternative.

Cowlitz County PUD does not have adequate transmission capacity to supply all the electricity needs of the ULE Alternative and an on-site, natural gas-fired power generator would provide a portion of the power needed for operation. The ULE Alternative would produce lower GHG emissions than the CR Alternative.

1.1.4.2 Marine Terminal Alternatives

Two marine terminal alternatives evaluated for the DEIS are shown on **Figures 2-11 through 2-15**. The alternatives include:

- Marine Terminal Alternative 1 – The marine terminal would be a separate structure located approximately 380 feet north of the existing North Port dock.
- Marine Terminal Alternative 2 – The marine terminal would be a 1,000-foot northern extension to the existing dock.

Both Marine Terminal Alternatives would be located on the western portion of the project site at approximately RM 72. They both would consist of a dock and a single berth to accommodate the ships that would transport methanol to destination ports. Both Marine Terminal Alternatives would include a dock, a berth, loading equipment, utilities, and a stormwater system. The terminals are designed to support the necessary methanol transfer equipment and safely moor the ships. For both alternatives, the berth would be designed to accommodate other types of ships when not in use for loading methanol.

The primary differences between the two Marine Terminal Alternatives would be the location of the dock relative to the existing North Port dock, design of the dock and trestles, and the resulting number of piles and area of overwater coverage. Marine Terminal Alternative 1 requires the least number of piles and the least overwater coverage.

1.1.5 Related Actions

The two “related actions” (the pipeline and the electrical supply improvements) are evaluated in the DEIS but are not being undertaken or permitted by the project proponents. They are evaluated in the DEIS because they are being constructed primarily for natural gas and electricity supply to the proposed project. These two projects are responsible for their own separate environmental review and permitting processes, but the impacts, if any, are considered in the DEIS. These related action projects are described below.

1.1.5.1 Kalama Lateral Project

The proposed project would use natural gas as the feedstock for methanol production. Northwest is proposing to construct and operate the Kalama Lateral Project (proposed pipeline). The proposed pipeline is a 3.1-mile, 24-inch-diameter natural gas pipeline and related facilities that will provide natural gas service to the proposed project.

An application to approve the construction and operation of the proposed pipeline pursuant to Section 7(c) of the Natural Gas Act and required FERC regulations was submitted by Northwest to FERC on October 27, 2014 (Docket No. CP15-8-000). The proposed pipeline would be constructed in accordance with U.S. Department of Transportation and FERC regulations.

1.1.5.2 Electrical Service

Cowlitz PUD would upgrade an existing transmission line from its existing Kalama Industrial Substation (located east of the project site at the northwest corner of N. Hendrickson Drive and Wilson Drive) to the project site by installing new lines on existing towers within the existing transmission line corridor to provide electrical service to the proposed project for either of the Technology Alternatives. This line originates at the substation and continues north along N. Hendrickson Drive before crossing the Kalama River and continuing north to the project site. New equipment (e.g., 115-kilovolt [kV] breakers and switches) would be installed at the Kalama Industrial Substation within the existing footprint of that facility.

Cowlitz PUD will also construct a short transmission line (approximately 750 feet) between the Kalama Industrial Substation located on the west side of Interstate 5 (I-5) and an existing 115-kV transmission line on the east side of I-5 to provide redundant supply to the substation. This short line would cross I-5, the railroad, and N. Hendrickson Drive and would require installation of new poles. **Figure 2-20** illustrates the location of these improvements.

1.1.6 Dismissed Alternatives

An Off-Site Alternative for the methanol manufacturing facility was evaluated during the initial alternatives analysis. This alternative would construct the methanol manufacturing facility on the Port's East Port site located east of the project site and I-5 and convey the finished product via pipeline to a marine terminal on the North Port site. The alternative was eliminated from further analysis because it did not satisfy SEPA requirements for a reasonable alternative as described in WAC 197-11-440(5). This alternative had the potential to result in greater environmental impacts than locating either of the Technology Alternatives on the project site. This conclusion is based primarily on:

- potential impacts to existing wetlands and/or other habitat;
- visual, noise, and safety issues due to proximity to residences;
- distance from the marine terminal; and
- inconsistency with existing comprehensive plan and zoning designation.

See section 2.6.3 for more information on the Off-Site Alternative.

1.1.7 No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed. However, the Port would pursue future industrial or marine terminal development at this site, consistent with the Port's *Comprehensive Scheme for Harbor Improvements*. Until such improvements take place, the proposed project site would remain in its current state.

1.2 Impact Assessment

This section summarizes how construction and operation of the proposed project, including off-site vessel operations, would likely impact each element of the built and natural environments. The resource areas addressed are listed below.

- Earth (Section 1.2.1)
- Air Quality and Greenhouse Gas Emissions (Section 1.2.2)

- Water Resources (Section 1.2.3)
- Plants and Animals (Section 1.2.4)
- Energy and Natural Resources (Section 1.2.5)
- Environmental Health and Safety (Section 1.2.6)
- Land and Shoreline Use, Housing and Employment (Section 1.2.7)
- Aesthetics and Visual Resources (Section 1.2.8)
- Historic and Cultural Resources (Section 1.2.9)
- Transportation (Section 1.2.10)
- Public Services and Utilities (Section 1.2.11)
- Noise (Section 1.2.12)

The proposed project for all Technology Alternatives and Marine Terminal Alternatives would be designed to meet local, state, and federal regulations and buildings codes. The impact assessment considered compliance with these standards, as well as design and other commitments by the applicant to avoid, reduce, and mitigate potential impacts.

1.2.1 Earth

All Technology Alternatives and Marine Terminal Alternatives would be constructed and operated on the same project site with the same existing resources, and would have the same potential impacts related to earth and geology. Therefore, potential impacts to earth resources are the same for all alternatives.

1.2.1.1 Construction Impacts

Soil Erosion

Construction activities, including clearing, excavation, filling and grading, ponds, utility placement, and ground improvement, could cause short-term effects from erosion as soil is exposed to wind and stormwater. Erosion can potentially damage natural or man-made features, but is not likely to impact human health. The erosion hazard for soil types on the surface of the site is low and potential impacts as a result of soil erosion would be minimized by best management practices (BMPs) and standard erosion control construction practices. Potential BMPs may include sediment basins for receiving stormwater, gravel construction entrance and exits, check dams and sediment traps, gravel filter berms, filtration bags or socks, fiber mats, and/or silt fences.

Dredging

The Marine Terminal Alternatives would require dredging about 126,000 cubic yards of material from deep-water areas of the Columbia River. Dredging may cause erosion, sediment loss, and turbidity. Dredging and in-water construction activities would be conducted in compliance with Surface Water Quality Standards for Washington (173-201A WAC) and other required permits and regulations. BMPs would be used to reduce impacts during dredging and dredged material placement at approved in-water or upland placement sites.

Topography Modification

The proposed project design is not expected to require extensive grading, deep excavation that disturbs native soils, or the use of imported fill materials (other than on-site stockpiled dredged material or dredged material from project dredging). Grading and excavation for utilities, ponds, and site preparation would also be necessary. Site grading and slope setbacks would be designed to meet Cowlitz County criteria. Site grading would not be expected to result in significant adverse impacts related to topography.

Slope Stability

Steep slope areas identified on the project site are along the banks of the Columbia River and along the northern boundary of the project site. The majority of construction activities would be located on flat upland areas and are not likely to increase potential risk of slope failures along the Columbia River. Construction of the marine terminal would require dredging. Dredging activities could potentially create oversteepened bank slopes and reduce slope stability. The project design would include dredge slope and construction sequencing that would avoid oversteepening of slopes and would reduce the potential for instability during dredging activities.

Related Actions

Construction of the pipeline will require earthwork, including grading, trenching, and horizontal drilling. These activities could potentially cause erosion. Soil erosion and associated potential impacts would be minimized by BMPs and standard erosion control construction practices.

The proposed electrical service improvements would not result in significant fill or grading activities, excavation, or substantial new impervious surfaces and, therefore, would not have the potential to result in impacts to earth and geology.

1.2.1.2 Operational Impacts

Earthquakes

Earthquakes could cause liquefaction-induced settlement, lateral spreading deformations, and strong ground-shaking motions and result in injury or death of on-site workers and damage to site structures. Structures at the site would be designed and constructed to minimize potential liquefaction, settlement, and lateral spreading impacts and will meet current seismic building codes. There is a low risk of earthquake-induced tsunamis or seiches that could impact the proposed project site.

Volcanic Eruptions

The proposed project site has a low potential to be affected by lahars but may be impacted by ash fall resulting from an eruption of Mount St. Helens. Ash fall could affect operation activities and result in damage to the project site and equipment. Ash fall impacts include falling fragments, suspension of abrasive fine particles in air and water, and burial of structures, transportation routes, and vegetation. Ash fall material could overload structures, clog machinery and filters, cause electrical short circuits and damage electronic equipment, cause surface corrosion, and make roads slippery. Regional communications and transportation systems may also be disrupted.

Related Actions

The potential for geologic impacts to the pipeline is low and known potential hazards can be mitigated.

The proposed electrical service improvements would not likely be impacted by geologic hazards.

1.2.2 Air Quality and Greenhouse Gas Emissions

1.2.2.1 Construction Impacts

Construction impacts would be the same for both of the Technology and Marine Terminal Alternatives. Dust from construction activities would contribute to ambient concentrations of suspended particulate matter. Emissions from diesel equipment could also reduce ambient air quality.

Construction activities, such as paving, could generate odors that may be perceptible for a short duration in close proximity to the source of the odor. These impacts are anticipated to be slight. Construction contractor(s) would be required to comply with Southwest Clean Air Agency (SWCAA) regulations requiring any source of emissions of odorous substances to use recognized good practice and procedures to reduce such odors.

Construction would require the use of a variety of large and small machinery and equipment and from vehicles used by workers to commute to the site, which would have GHG emissions. GHG emissions from construction would be minor in comparison to GHG emissions from the operation of the facility and typical of similar construction projects and would be similar among all alternatives.

1.2.2.2 Operational Impacts

Criteria Air Pollutants

Both Technology Alternatives would emit criteria air pollutants but off-site pollutant concentrations would be well below the levels allowed by the federal and Washington State standards.

CR Alternative

The CR Alternative would result in larger quantities of all criteria pollutants than the ULE Alternative during the methanol manufacturing process.

ULE Alternative

The ULE Alternative would result in reduced quantities of all criterial pollutants as compared with the CR Alternative.

Toxic Air Pollutants (TAPs)

Both Technology Alternatives would emit TAPs but off-site pollutant concentrations would be less than the respective screening level thresholds, with the exception of diesel particulate matter (DPM).

CR Alternative

TAP emissions under the CR Alternative would be greater than the ULE Alternative.

ULE Alternative

The proposed project sources of TAPs were found to comply with all emission standards, and off-site concentrations would be less than the respective screening level thresholds. Modeling of DPM emissions from both on-site and mobile sources associated with the project indicated that the ULE Alternative would result in DPM concentrations exceeding the Washington State Acceptable Source Impact Levels (ASIL). The areas in which DPM concentrations exceed the ASIL are limited primarily to tug and vessel activities within the river. Additional modeling was conducted and showed that DPM concentrations at the nearest residential areas would be less than allowed for direct emissions.

Cooling Tower Effects on Ground-Level Fog and Visibility

CR Alternative

The CR Alternative would have limited patterns of plume fogging to the north-northwest of the cooling towers. This projection is consistent with the wind patterns in the area. Areas of the fogging would not be expected to pose a driving hazard on nearby roadways or freeways and would not produce icing.

ULE Alternative

The ULE Alternative would have less plume fogging than the CR Alternative and would not be expected to pose a driving hazard on nearby roadways or freeways due to fogging or local icing. The frequency of visible plumes would be lower with the ULE Alternative.

Odor

The potential for odor impacts would be the same for both Technology Alternatives. There would be very limited potential for emission of odors, and the SWCAA requirements restricting offensive odors off site would not be exceeded.

GHG Emissions

Operation of the project and associated vessel transportation would result in the emission of GHGs. GHGs are quantified in terms of carbon dioxide equivalents.

CR Alternative

The CR Alternative manufacturing process is estimated to result in direct emissions of approximately 1.4 million tonnes of GHGs annually and 133,000 tonnes of GHGs annually from purchased power.

ULE Alternative

The ULE Alternative manufacturing process is estimated to result in direct emissions of approximately 976,000 tonnes of GHGs annually from methanol production and on-site power generation. Assuming purchased power comes from an average of northwest power sources, generation of purchased power would emit 266,000 tonnes of GHG annually. The ULE technology would result in an approximately 61 percent reduction in annual GHGs compared to the CR technology. When GHG emissions from on-site power generation are included, it would emit approximately 31 percent less GHG emissions than the CR Alternative.

Product Transport

Transport of the finished methanol product would involve oceangoing vessels and assist tugs that would emit GHGs. These emissions would be the same with all alternatives. Estimated annual emissions associated with vessel traffic within Washington State waters are approximately 3,900 tonnes.

Related Actions

Construction of the proposed pipeline would involve excavation and horizontal drilling activities that could result in temporary, localized increases in particulate concentrations due to emissions from construction-related sources.

There are no permanent sources of operational emissions for the proposed pipeline with the exception of minor fugitive methane emissions. Maintenance activity of the permanent right-of-way may result in small amounts of pollutants. Any emissions from the operation of the proposed pipelines would not result in impacts to local or regional air quality, including fugitive methane emissions.

The proposed electrical service improvements would result in limited construction activities and would not introduce new permanent sources of air emissions. It would not have the potential to result in significant adverse air quality impacts.

1.2.3 Water Resources

1.2.3.1 Construction Impacts

Surface Water

Both Technology Alternatives would have similar construction-related effects on surface water. Minor differences between the facility layouts of the technology alternatives would shift the location of the physical disturbances that could result in increased erosion, but would not result in measureable changes in the effects on water resources. During construction activities, water quality could be affected by surface water runoff from exposed soils that increase turbidity. In-water and overwater work could result in sediment, fuel, oil, grease, and other pollutant discharges that could affect water quality. Berth dredging in deep water could result in temporary, short-term turbidity. Overwater construction could introduce pollutants or debris through accidental spills.

A detailed construction stormwater pollution prevention plan (SWPPP) would be prepared and adhered to during construction as required by the construction stormwater permits granted by Ecology. Implementation of BMPs and compliance with permit requirements would ensure that state water quality standards are met.

Construction within the floodplain includes portions of the existing access road to the recreation area, infiltration pond, pumphouse and well facility, and the dock. The project would follow applicable codes and federal guidance, including Cowlitz County Code 16.25, Floodplain Management, and would not be expected to affect the elevation of floodwater measurably due to the size of the floodplain at this location is large and the volume of fill (inclusive of structures) would be negligible in comparison to the size of the Columbia River floodplain basin.

The proposed recreation access improvements would be constructed in the regulatory wetland buffer at the north end of the project site. Approximately 0.09 acre of moderately functioning wetland buffer would be eliminated. The mitigation proposed for the loss of wetland buffer includes riparian enhancement and invasive species management within adjacent wetland buffer at the north end of the project site.

1.2.3.2 Operational Impacts

The operation of the proposed project could result in impacts to water resources in terms of decreased water quality in surface waters and changes to surface water and groundwater from the operation of the new well. Water quality could be affected by operational water discharges, stormwater runoff, and accidental spills of methanol. Groundwater levels could be affected by the operation of the proposed well, which could affect water supplies at other wells located in the alluvial aquifer. The proposed use of approximately 3,340 gallons per minute of groundwater is approximately one-third of the Port's available water rights of approximately 10,450 gallons per minute and would not affect the aquifer or water availability to other users. There would be no operational impacts to floodplains or wetlands. Implementation of BMPs, including on-site infiltration of stormwater and on-site process water reuse and treatment, would ensure that the project meets state water quality standards.

1.2.3.3 Related Actions

The construction of the proposed pipeline may result in minor, short-term impacts on water resources for construction activities adjacent to stream channels and wetlands. Operation of the proposed pipeline would permanently affect less than 1 acre of wetland by converting it from a Palustrine Scrub Shrub (PSS) wetland to a Palustrine Scrub Shrub/Palustrine Emergent (PSS/PEM) wetland.

The proposed electrical service improvements would cross over a narrow slough that drains to the Kalama River and is located east of the existing rail lines and west of I-5. Construction adjacent to this slough could affect water quality in the slough temporarily due to soil and/or vegetation disturbance. Impacts would be temporary, localized, and minimized by the use of typical construction BMPs. No work would be conducted below the ordinary high water mark (OHWM) of the slough. The proposed transmission line improvements east of I-5, where the transmission lines would tie into the existing north-south line, could be emergent wetland, and work on the east side of I-5 could result in direct wetland impacts. Impacts to this area would be associated with utility pole footprints, and as such would have limited effect on wetlands. The area in which utility poles could be constructed would be within an existing utility right-of-way, in an area where an existing utility line is already established. This work would be completed as a separate activity conducted by Cowlitz County.

1.2.4 Plants and Animals

1.2.4.1 Construction Impacts

Technology Alternatives

Construction impacts to plant and animal resources would be the same with either Technology Alternative.

Habitat Impacts

Terrestrial

The construction of the proposed project would reduce the quantity of low-quality foraging, perching, and other habitat for the non-listed, ground-dwelling species now present on the project site but also would create new roosting and nesting opportunities for other species of birds that nest on buildings. The upland facilities would be located on developed portions of an existing industrial site with very little habitat function and native vegetation.

Upland construction activities could remove potentially suitable forage vegetation for the Columbian white-tailed deer. The use of the habitat is limited and the amount of vegetation that would be removed is not expected to result in significant adverse impacts to any Columbian white-tailed deer. Streaked horned lark have been documented on portions of the project site. However, most of the project site does not represent suitable nesting habitat for streaked horned lark.

Aquatic Habitat

Impacts to aquatic habitats associated with the construction of the upland portion of the facility for either Technology Alternative would be limited to temporary water quality impacts during construction. Implementation of BMPs would reduce the potential for impacts and result in the project meeting state water quality standards.

Riparian Habitat

The proposed project would result in direct permanent impacts to approximately 0.67 acre of riparian habitat area (RHA) buffer. Impacts to riparian habitats would be offset through the implementation of mitigation measures, including pile removal, engineered log jam installation, and riparian restoration activities.

Wetland Buffer

The proposed recreation access improvements at the north end of the project site would permanently impact approximately 0.09 acre of wetland buffer. These buffer impacts would be offset through implementation of buffer enhancement activities.

Temporary Construction Noise Impacts

Both Technology Alternatives would include a variety of activities, including pile driving, which would result in temporarily elevated terrestrial noise that may disturb terrestrial animals. Elevated noise level could cause wildlife at the project site or within the vicinity to temporarily avoid the area. The terrestrial portions of the project site that could experience temporarily elevated terrestrial noise levels provides only marginally suitable habitat. The terrestrial noise levels generated would not exceed any established injury thresholds for any special status species, and the effect to any special status species wildlife species present at the site would be expected to be limited to temporary avoidance of the site or vicinity.

Underwater noise generated by pile driving could potentially impact marine mammals and/or fish. Pile driving will be implemented using both vibratory and impact hammer equipment. Noise attenuation and marine mammal monitoring during pile installation would be used to mitigate impacts associated with underwater noise.

Temporary Water Quality Impacts

Temporary water quality impacts could affect fish habitat function and special status fish species both at the site and within the vicinity by reducing water quality, reducing visibility and increasing potential exposure to predators, and reducing habitat suitability for prey species. The potential for water quality impacts during construction would be minimized through adherence to the BMPs and compliance with state water quality standards.

Marine Terminal Alternative 1

The construction of the overwater portions of the proposed marine terminal under Marine Terminal Alternative 1 has the potential to affect plant and animal species at the project site and within the vicinity through direct habitat impacts (benthic habitat loss and overwater cover), by temporarily reduced water quality conditions during construction and dredging and through generation of temporarily elevated levels of underwater noise during pile installation and removal. Construction of Marine Terminal Alternative 1 would require the installation of approximately 320 concrete piles and 16 steel piles, resulting in the permanent loss of approximately 1,079 square feet of benthic habitat. The dock would result in a total of approximately 44,943 square feet of new solid overwater coverage that would reduce the suitability of aquatic habitat beneath the dock. The design minimizes impacts to shallow water habitat and approximately 34,018 square feet of overwater coverage would be located in deep water. The loss of benthic habitat and reduction in aquatic habitat suitability will be mitigated through pile removal, engineered log jam installation, and riparian restoration and wetland buffer enhancement.

Dredging will occur in deep water and will not result in the loss of aquatic habitat.

Marine Terminal Alternative 2

Marine Terminal Alternative 2 would require nearly twice as many piles and would result in nearly three times more overwater coverage as compared to Marine Terminal Alternative 1. Direct aquatic habitat impacts would be proportionally greater under Marine Terminal 2. Dredging impacts would be same as for Marine Alternative 1.

1.2.4.2 Operational Impacts

Operational impacts to plant and animal resources would be the same with all alternatives.

Operational water quality impacts under either Technology Alternative would include an increased potential for spills or leaks associated with on-site equipment and machinery, potential impacts associated with stormwater and wastewater, and impacts associated with water use. Potential impacts associated with spills are addressed in **Environmental Health and Safety**.

Wastewater and Stormwater

The proposed project under either Technology Alternative would generate wastewater and stormwater runoff at the project site, which could affect water quality and quantity for plant and animal resources. These discharges will comply with state and local standards and permit requirements. The normal operation of the proposed project would not result in significant adverse impacts to plant or animal species.

Water Use

The proposed project would require water for process uses and domestic uses (e.g., drinking, sanitation, etc.). Process water would be provided by a collector well (Ranney well) to be constructed by the Port near the Columbia River shoreline. The volume of water withdrawn from groundwater would be insubstantial (less than 0.0067 percent) relative to the flows in the Columbia River. For this reason, there would be no significant adverse impact to plant or animal resources as a result of the well and associated withdrawals.

Vessel Traffic

The operation of the proposed project would result in increased vessel traffic along the Columbia River from the project site to the mouth of the river. Increased vessel traffic has the potential to affect plants, animals, and/or aquatic resources from the effects of vessel wakes. However, the increase in vessel traffic would be small, approximately three to six ships per month (36 to 72 per year). The small increase in vessel traffic associated with the proposed project operations would potentially contribute a minor increase to the baseline condition on the river. This increase would not be expected to result in a significant adverse impact on any plant or animal resources, including fisheries or aquatic habitat.

1.2.4.3 Related Actions

Construction of the proposed pipeline and electrical service improvements may result in minor, short-term impacts on plant and animal resources. These impacts could occur because of activities located within or adjacent to stream channels, forested habitats, and wetlands. The potential impacts could include loss of vegetation through construction and operation, mortality of wildlife species from construction machinery and vehicles, temporary and permanent impacts to native wildlife habitats, and temporary disturbance of wildlife during construction. These impacts are not expected to result in significant adverse effects.

1.2.5 Energy and Natural Resources

1.2.5.1 Construction Impacts

Construction impacts would be the same with either Technology Alternative and either Marine Terminal Alternative. Construction would require fuel to power construction vehicles and equipment, personal vehicles for construction workers, temporary construction lighting, dredging vessels, and vessels and barges delivering construction modules to the project site. The demand for diesel and gasoline needed to fuel construction equipment is anticipated to be met by existing supplies. The construction of the proposed project would consume traditional building materials and would use a maximum of approximately 5.4 megawatts per day of temporary grid electric power. The volume and use of these resources would be typical of other construction projects of this size and scope, and these resources are not expected to be in short supply. Overall, construction of the proposed project would not result in significant adverse impacts to energy and natural resources.

1.2.5.2 Operational Impacts

Technology Alternatives

The primary differences in impacts between the CR and ULE Alternatives are energy consumption and the energy sources used in the methanol production process.

The ULE Alternative was assessed as the worst-case Technology Alternative for electricity demand and the CR Alternative was assessed as the worst-case Technology Alternative for natural gas demand.

Electricity Demand

Based on estimates provided by the applicant, the electricity demand for the ULE Alternative would be approximately 201 megawatts with both methanol production lines in operation. The ULE Alternative would include an on-site natural gas-fired power generator to produce approximately 101 megawatts, and the remaining 100 megawatts of electricity demand would be provided by the Cowlitz PUD.

The CR Alternative would require approximately 36 megawatts of electricity. This demand could be met entirely by the Cowlitz PUD and would not require an on-site power generation facility.

Neither Technology Alternative would result in a significant adverse impact related to electricity demand.

Natural Gas Demand

The CR Alternative would generate demand for approximately 290,000² dekatherms³ of natural gas per day (including natural gas used for raw material and natural gas used for fuel). Under the ULE Alternative, the total natural gas demand would be approximately 270,000⁴ dekatherm per day. The proposed pipeline has been designed to meet the higher demand of the CR Alternative.

Given the increasing production of natural gas in the United States, the ability to import additional natural gas supplies when needed, and the small amount of natural gas used by the proposed project relative to the overall U.S. consumption, the proposed project would not adversely affect the supply of natural gas for other consumers.

With respect to the availability of pipeline transmission capacity for natural gas, Northwest's Section 7(c) application to FERC,⁵ states that on a typical day more than 500,000 dekatherms of operationally available capacity on the mainline has been historically available for natural gas deliveries to the Kalama area. As a result, the proposed project with either Technology Alternative would not adversely affect the availability of natural gas for other Northwest consumers.

Overall, the proposed project with either Technology Alternative would not result in significant adverse impacts to energy.

² This is an estimate of the average natural gas consumption over the life of the reforming catalyst. This estimate is based on actual performance of combined reforming processes of similar design.

³ A dekatherm is a unit of energy equal to 10 therms and one million British thermal units (MMBtu).

⁴ This is also an estimated average over the life of the reforming catalyst. This is an estimate only; the actual natural gas usage may be lower or higher depending on the final engineering design and catalyst used and the heating value of the natural gas delivered to the project.

⁵ This application is FERC docket CP15-8 and is available online at <http://www.ferc.gov/docs-filing/elibrary.asp>

Marine Terminal Alternatives

Both Marine Terminal Alternatives would have the same impacts to energy. The alternatives would generate demand for electricity for lighting, loading equipment, and the operations shack and dockworker shelter, as well as demand for electricity for the use of shore power (also known as “cold-ironing”). They would generate a peak electrical demand of approximately 3 megawatts, and an estimated annual electricity use of approximately 11,000 megawatt-hours based on preliminary engineering estimates. This electricity demand would be negligible compared to the approximately 5 million megawatt-hours of energy sales by the Cowlitz PUD in 2013. Therefore, the operation of the Marine Terminal Alternatives would not result in significant adverse impacts to energy and natural resources.

1.2.5.3 Related Actions

During construction of the proposed pipeline, building materials and fuel would be consumed. Construction activities would be temporary, lasting approximately five months, and energy use during construction, which would primarily be diesel and gasoline fuel use, is expected to be negligible compared to the approximately 87 million barrels (42 gallons per barrel) of distillate fuel and motor gasoline consumed in 2012 in Washington (U.S. Energy Information Administration 2012). During operation, the proposed pipeline and associated aboveground facilities would require very little energy. Therefore, the proposed pipeline-related action would not result in significant adverse impacts to regional energy or local natural resources.

It is expected that electrical service improvements to the Kalama Industrial Substation and new transmission lines, primarily on existing towers within the existing power line corridor, may be run to the project site under the ULE Alternative. The new transmission lines and substation improvement would constitute a related action on the part of the Cowlitz PUD. They would provide electric service to the proposed project with the ULE Alternative but would not generate demand for energy by themselves. Therefore, this related action would not result in significant adverse impacts to regional energy or local natural resources.

1.2.6 Environmental Health and Safety

The Technology and Marine Terminal Alternatives are assumed to generally pose the same potential for impacts to environmental health and safety.

1.2.6.1 Construction Impacts

Construction of the proposed project would have impacts similar to that of any large construction project and includes impacts to individual workers at the construction site and to the surrounding population.

If released, hazardous materials used and stored on site during construction on the upland portion of the proposed project could expose workers, plants, animals, adjacent wetland resources, soil, and groundwater to hazardous materials.

If hazardous materials are spilled into adjacent surface waters or onto the nearshore portion of the project site, they could contaminate Columbia River water and/or underlying groundwater. A release could expose plants, animals, aquatic habitats, shorelines, and people to contamination. The extent of the impacts from a release into surface water at the site would depend upon several factors, including the type and quantity of the material released, location of the release, physical and biological features of the environment, and the sensitivity of various species to the hazardous material.

Compliance with the applicable regulations, implementation of BMPs, and a spill prevention, control, and countermeasures plan (SPCCP) would avoid and minimize the potential for significant adverse impacts to environmental health due to spills during construction activities.

The proposed project would not have significant adverse impacts on environmental health during construction.

1.2.6.2 Operational Impacts

The Quantitative Risk Analysis (QRA) for the project quantified the potential risk to the public and workers from a large-scale emergency incident, such as a methanol release, fire, or explosion. The QRA concludes that there is a fatality risk to individual workers of one in 100,000 years within the project site, but that there is no measurable risk of fatalities outside the boundaries of the proposed facility or to the public generally.

The QRA modeling of the worst-case scenario indicated that the destructive force of an explosion at the proposed methanol facility would not extend beyond the plant site and would not result in deformation or collapse of any off-site buildings, and individuals off site would be protected from significant injury.

The risks and impacts to human health and safety associated with loading methanol onto ships and transport would include potential incidents that could result in spills of methanol into the Columbia River. The transport of chemicals in bulk is regulated by the International Convention for the Safety of Life at Sea and the International Convention for the Prevention of Pollution from Ships. The ships or vessels used to transport methanol would be double-hulled with segmented compartments for storing methanol during transport. The segmented compartments reduce the probability of a complete loss of vessel contents to a low potential.

Vessel incidents resulting in the accidental spills and releases of methanol are a risk from the proposed project along the Columbia River to its mouth and into the open ocean. The proposed project would only transport methanol, except for the fuel that operates the ship. The proposed project would result in approximately 36 to 72 additional ship transits per year (depending on vessel size). This increase in vessel traffic for the proposed project is minor and would be within historical trends. There is a moderate relative risk of cargo vessel-related fuel/oil spills in the west portion of the Columbia River. The proposed project would not significantly increase the existing risk of fuel spills into surface waters because the project vessel traffic represents a minor increase to existing traffic.

A potential methanol release into the Columbia River from shiploading or an accident involving a vessel in transport would have minor to no impact due to the very large size of the river and the short-lived duration of methanol in the environment. Complying with regulatory requirements and implementing BMPs and mitigation measures at the facility during vessel loading and transport as discussed below would reduce the chance of a release occurring and would improve emergency response in the event of a release.

Upland methanol releases could potentially occur as a result of damage to the on-site piping systems and storage tanks. These releases would likely be localized and temporary due to safeguards and the presence of pavement at the site that would prevent the release from entering soil or groundwater. As a result, there would be little potential for impacts to adjacent recreation activities, including the proposed project recreation improvements or adjacent land use activities.

Methanol has a half-life of one to seven days in soil, depending on soil characteristics (e.g., chemical and microbiological characteristics), and is highly soluble in water. Surface spills of methanol to soil may enter groundwater depending on the size of the spill and depth to groundwater, but would likely dissolve and/or degrade rapidly. Large methanol plumes would not likely form or persist in the subsurface because of the rapid rate methanol disappears in soil and groundwater and its ability to vaporize and biodegrade.

The proposed project would use diesel fuel for emergency generators and would use petroleum-based lubricants for machinery. Petroleum products are not expected to be stored on site in large quantities. Petroleum spills (i.e., fuel or oils) are not readily dissolvable and tend to bind to soil particles. Petroleum materials would be stored on site in designated areas with spill response kits located nearby. The implementation of an operational SPCCP would trigger a rapid cleanup response.

The proposed project would not result in significant adverse impacts to soil or groundwater from accidental spills of methanol or petroleum-based products due to all methanol storage tanks meeting regulatory requirements, methanol's ability to biodegrade and vaporize, leak detection systems, site paving, and the small volume of petroleum-based products stored on the site.

1.2.6.3 Related Actions

Risks associated with the proposed pipeline and the electrical transmission improvements are considered to be low and are representative of risks associated with small construction projects and typical substation operation. As a result, the substation is not addressed further. The construction impacts associated with the proposed pipeline are considered to be similar to the construction impacts of the proposed project.

1.2.7 Land Use and Shoreline Use, Housing, and Employment

The proposed project with either Technology Alternative and either Marine Terminal Alternative would have similar potential impacts on land and shoreline use and housing and population characteristics.

1.2.7.1 Construction Impacts

Land Use

Construction activities would be temporary and would not alter surrounding land uses or otherwise affect land use patterns of the surrounding area during construction. The proposed activities are consistent with Cowlitz County land use plans and ordinances, and permits would be obtained prior to construction. Therefore, construction of the proposed project would not result in any significant adverse impacts on land use.

The proposed project would employ approximately 1,000 workers at its peak during construction. The proposed project's construction employment would constitute approximately less than 0.1 percent of the total employment in the area. Given the number of people currently employed in the area and the availability of construction labor, it is anticipated that the proposed project could predominately utilize the existing construction labor pool and construction laborers would not represent a significant increase in population or impact the housing characteristics of the study area.

1.2.7.2 Operational Impacts

Land Use

The proposed project would introduce a more active and intensive industrial land use to the project site. Although this would constitute a substantial change to the land use character, the proposed project would be located in an area that already contains industrial uses and would be generally compatible and consistent with other nearby land uses. Use of the site for the proposed project is not expected to create any adjacent use compatibility impacts nor trigger any pressure for those adjacent land uses to change from their existing use and would not have significant adverse impacts to recreational uses.

The project site and adjacent parcels are unzoned and would not affect zoning designations in other portions of the study area. The applicant would be required to obtain permits and approvals to show compliance with County land use and shoreline management programs and ordinances. As a result, the proposed project would not result in significant adverse impacts to zoning.

The proposed project would further the Port's strategy for continued industrial development of the North Port site and is consistent with the highest and best use of the site, which has been identified as an expansion of the marine terminal and water-dependent industry. The proposed project would, therefore, be consistent with the Port's comprehensive scheme.

1.2.7.3 Related Actions

The proposed pipeline would have the potential to result in temporary disruption to activities or inconvenience to persons living or working near the construction area, as well as the introduction of a new use to some areas of the proposed pipeline route. The proposed pipeline would convert approximately 12.4 acres of forest land to maintained right-of-way (ROW) but would not result in the removal of any existing structures or land uses. Most the land disturbed by the proposed pipeline is already developed and the majority of the land uses would be allowed to continue, with restrictions, within the maintained ROW. The proposed pipeline is consistent with County plans and regulations.

Overall, it is not anticipated that the proposed pipeline would have significant adverse impacts on land use or public policy.

Electrical Service

The proposed electrical service improvements would have the potential to result in temporary disruption to activities or inconvenience to persons living or working near the area during construction. The upgrade to the existing transmission line would not involve additional clearing or other significant construction activities because it is located within an existing transmission corridor that has been maintained active for this use. The new transmission line would be located primarily over existing maintained transportation corridors (road and rail) and would be designed to result in no impacts to these existing land uses. The proposed electrical service improvements are consistent with County plans and regulations. Overall, it is not anticipated that the electrical service improvements would have significant adverse impacts on land use or public policy.

1.2.8 Aesthetics and Visual Resources

The size, layout, and appearance of the alternatives vary but differences would be minor and impacts would be similar among all alternatives.

1.2.8.1 Construction Impacts

Construction activities on the project site would be visible to residents, workers, commuters, recreationalists, and boat operators, but would be temporary and consistent with the general industrial context of the adjacent area. These activities would alter the context of some views by changing the use of an existing cleared site. However, construction of the proposed project would not alter the overall visual character or aesthetic quality of surrounding views. Overall, construction of the proposed project would result in a low level of temporary adverse effect to aesthetics and visual quality. Therefore, construction activities would not result in significant adverse impacts to aesthetics and visual resources.

1.2.8.2 Operational Impacts

The operation of the proposed project would introduce new visual features to the project site and accompanying new sources of light and glare that would be visible from viewpoints within the study area. The new visual features would include new structures and equipment on the project site, additional workers, and increased vehicle and ship movements on and adjacent to the site. These elements would result in varying levels of effect to aesthetics and visual resources depending on the type of viewer, the amount of use of the view, and the context of the view.

Water vapor exhaust plumes from cooling towers has the potential to result in visual and aesthetic impacts. Visual impacts also include vertical and horizontal movement, which tend to distract viewers, cause shadows or ground level fog in surrounding areas, and may reflect light during nighttime conditions. Plumes are expected to be visible to most viewers; however, viewers would see this project within the visual context of the Kalama and Longview industrial areas, which include numerous emission plumes. Additionally, conditions conducive to larger emission plumes also coincide with atmospheric cloud cover, precipitation and fog, which would reduce the visual and aesthetic impact of water vapor emissions from cooling towers.

Additional light from the proposed project would have little effect on night sky viewing conditions in the context of existing lighting along this industrial stretch of Columbia River and in the cities of Kalama and Longview.

1.2.8.3 Related Actions

Construction of the proposed pipeline, particularly the removal of trees from the route, would result in temporary and permanent effects on visual resources. However, the existing topography would be recontoured to as near preconstruction condition as practical, and the disturbed soils would be revegetated soon after the completion of pipeline construction except as required for pipeline safety. Visual impacts from the construction and operation of aboveground facilities would be minimal.

The electrical service improvements would have a low level of effect on visual resources. The transmission line crossing over I-5 and the substation upgrades may be visible to motorists on I-5, but these viewers have low sensitivity to aesthetic and visual resources because they tend to be focused on driving and have transitory views of short duration. The transmission line crossing would appear in the context of many other existing power lines along I-5 and the substation improvements would be within the existing substation next to existing electrical equipment. Therefore, the potential transmission line and substation improvements would not result in significant adverse impacts to aesthetics and visual resources.

1.2.9 Historic and Cultural Resources

The proposed project, with either Technology Alternative and either Marine Terminal Alternative, would be located on the same project site, would include similar ground-disturbing activities, and impacts would be similar among all alternatives.

1.2.9.1 Construction Impacts

No cultural or historic resources listed in or eligible for listing in the National Register of Historic Places or the Washington Historic Register are located within or near the project. However, resources could be found during construction and an inadvertent discovery plan will be developed and implemented during construction. This measure would avoid potential adverse impacts to unanticipated cultural resources on the project site.

1.2.9.2 Operational Impacts

Operations for the upland portion of the facility are not expected to impact cultural resources because of the absence of eligible or listed resources on the project site or surrounding area. Increased vessel traffic would result in a minor increase in vessel wakes. However, the Columbia River shoreline has little susceptibility to erosion because of the existing nature of the shoreline, and no impacts from shoreline erosion caused by vessel wakes on onshore cultural resources are anticipated.

1.2.9.3 Related Actions

The proposed pipeline route was found to contain three cultural resources: the Old Pacific Highway, the Northern Pacific Railroad, and the Mt. Pleasant Cemetery. The Old Pacific Highway and the Northern Pacific Railroad are not recommended to be eligible for listing on National Register of Historic Places or the Washington Historic Register. The historic-period Mt. Pleasant Cemetery has not been formally evaluated for eligibility by the Washington State Department of Archaeology and Historic Preservation (DAHP). The proposed pipeline would avoid all three resources by aligning the route to avoid the cemetery and using horizontal directional drilling and conventional boring to route the pipeline beneath the highway and railroad; therefore, no impacts to cultural resources would occur.

There are no recorded cultural resources within the area of the proposed electrical service improvements-related action that are listed in or determined eligible for listing in the National Register of Historic Places or the Washington Historic Register. Minimal ground disturbance is necessary for the electrical service improvements; therefore, no impacts to cultural resources would occur.

1.2.10 Transportation

The proposed project alternatives would be located on the same site and would result in the same construction and operational employment, and transportation impacts would be the same among all alternatives.

1.2.10.1 Construction Impacts

Construction would result in additional vehicle traffic from deliveries and workers. However, all intersections affected by construction traffic would operate within acceptable standards of delay. Some deliveries could arrive by vessel during construction but the volume would be low in comparison to existing vessel traffic; therefore, no impacts are anticipated.

1.2.10.2 Operational Impacts

During operations, additional vehicular traffic will occur as a result of deliveries and workers. However, all intersections affected by project traffic would operate within acceptable standards of delay.

The small increase in vessel traffic associated with the proposed project operations would contribute a minor increase in vessel trips compared to 2014 volumes (less than 5 percent) but would remain at levels below the historic highs and the channel would be able to accommodate the increase. The increase in vessel traffic would increase the demand for assist tugs and pilots in the Columbia River and bar, but this demand, based on historic volumes, could be managed with existing resources.

1.2.10.3 Related Actions

Construction of the proposed pipeline would last approximately five months and would result in minor increases in traffic on area roadways from workers and deliveries. The amount of workers is small and the effects would be temporary, lasting only for the duration of construction activities. Operation of the proposed pipeline would not generate additional traffic with the exception of occasional inspections and maintenance activities; therefore, no impacts would occur.

Cowlitz PUD also has indicated that traffic flow would be maintained during construction activities and the upgraded transmission lines and substation would not generate additional trips during operation; therefore, no impacts would occur.

1.2.11 Public Services and Utilities

The proposed project alternatives would be located on the same project site and would result in the same demand on public services and utilities and impacts would be the same among all alternatives.

1.2.11.1 Construction Impacts

Construction of the proposed project would generate demands for fire, emergency, and police services. These demands would be typical of an industrial construction site, and would not result in substantial new demands on existing fire, emergency, and police service providers with the proposed security measures.

The proposed project would generate modest water demand during the first phase of construction. The need would be temporary, lasting only during the first phase of construction. Demand would be typical of industrial construction projects and would be satisfied by a temporary connection to the City's system. The on-site collector well would provide water for construction purposes during the second phase of construction. Therefore, water demands would be minimal during construction, and there would be no significant adverse impacts to public water systems.

No public sewage systems would be used during construction. Portable toilets would be used on site during construction. Therefore, there would be no significant adverse impacts to public sewage systems during construction.

Project construction is anticipated to require \$1.8 billion in capital investment; \$625 million of that is expected to be spent in the local region. Construction is expected to produce substantial

additional indirect spending by other businesses and government and induce spending by individuals for a total economic impact in the region of over \$1 billion. The state, Cowlitz County, and taxing jurisdictions within the County would be positively impacted through payment of business and occupation (B&O) and sales taxes. Combined sales, use, and B&O taxes are estimated at \$57.7 million during construction.

1.2.11.2 Operational Impacts

The proposed project could place new demands on fire and emergency services during its operation. These new demands would be offset by measures included in the operation and design of the proposed project, including the Port security plan, restricted on-site access, perimeter fencing, manned security gates, security cameras throughout the facility, and communications with the Cowlitz County Sheriff and Fire Departments. Proposed project emergency facilities will also include an on-site firehouse and workers trained in emergency response and firefighting. Fire suppression facilities (foam, water) will be located throughout the site.

Domestic water needs would be accommodated by the City of Kalama's water system, while process water needs would be met by the Port's proposed collector well.

Domestic wastewater from the project would be treated by the Port's existing wastewater treatment system. Process wastewater from the methanol production process would be treated on site in the proposed project's wastewater treatment system and would not impact Port or municipal wastewater systems.

The plant would have annual direct economic output of \$1.286 billion. The facility would employ 192 full-time workers with a payroll of \$21 million per year. The direct payments to employees, direct purchases of operating inputs (e.g., machinery, maintenance services, and overhead costs), and direct plant output from the local area would result in total (direct, indirect, and induced) impacts to the local economy of approximately \$1.4 billion annually. Combined sales, use, property, leasehold, hazardous substances, and B&O taxes paid during operations would vary based on levy rates and other factors but are estimated to average approximately \$36 million per year.

1.2.11.3 Related Actions

Construction and operation of the proposed pipeline would not generate new demands for water or sewer services. Overall, construction of the proposed pipeline would not result in significant adverse impacts on public services and utilities.

The proposed pipeline would transport natural gas to the project site. The transportation of natural gas by pipeline involves some incremental risk to the public due to the potential for accidental release of natural gas and should an incident occur demands could be placed on local resources. The proposed pipeline would be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures.

1.2.12 Noise

1.2.12.1 Construction Impacts

Noise from construction activities for both Technology and Marine Terminal alternatives would have similar impacts and would add to the noise environment in the immediate vicinity of the project site from typical construction activities along with in-water pile driving, potential upland pile driving, clearing, grading, paving, and building construction activities. Noise levels approximately 1,800 feet from the nearest residences are expected to be less than the noise level limits that would apply to long-term operational noise (and from which construction noise is exempt).

Construction would be temporary and limited to daytime hours, and construction activities and the associated noise are generally common in the Port area. Therefore, “typical” on-site construction activities under all alternatives would not result in significant adverse noise impacts. While the audible noise from pile driving may be perceived by some people as intrusive and possibly annoying, the noise levels would be relatively low and pile-driving activities would be temporary. Additionally, because construction would occur primarily during daytime hours, noise from these activities would be limited to daytime hours.

1.2.12.2 Operational Impacts

CR Alternative

Operations of the CR Alternative would generate noise from the various elements of the manufacturing process. Estimated sound levels from the CR Alternative would comply with the most restrictive nighttime noise limits at all off-site receivers nearest the site in both Washington and Oregon. The calculated increases in sound levels over existing levels would also comply with Oregon’s noise standards.

ULE Alternative

Operation of the ULE Alternative would generate noise from the various elements of the manufacturing process. Unless mitigated, estimated sound levels would not comply with the most restrictive nighttime noise limits at off-site receivers nearest the project site in Oregon, and the calculated increases in sound levels over existing levels would exceed the 10 dBA limit on increases over the existing L50 sound levels in Oregon. In addition, estimated sound levels indicated that noise limits could be exceeded along portions of the eastern and northern project site boundary. Mitigation measures would be employed to reduce sound levels to meet standards and impacts would not be significant.

Marine Terminal

The Marine Terminal Alternatives primary noise would be the methanol loading equipment and short-term tug operations during ship berthing, which is accounted for in the analysis of the CR and ULE Alternatives. As indicated, there would be no significant noise impacts.

1.2.12.3 Related Actions

The Northwest pipeline project and the electrical improvements are expected to generate normal construction noise and minor operational noises. The noise levels are not expected to exceed local or state noise criteria during operation. Construction noise is generally exempt.

1.3 Unavoidable Significant Adverse Impacts

Implementation of the mitigation proposed for the project would reduce impacts and the proposed project would not result in unavoidable significant adverse impacts.

1.4 Impact Avoidance, Minimization, and Mitigation

Tables 1-1 and 1-2 summarizes the design features, BMPs, and methods that would be used to avoid, minimize, or mitigate potential project impacts. As a result of these measures, there would be no significant adverse impacts associated with the proposed project.

Table 1-1. Proposed Project Alternatives – Potential Impacts and Mitigation Summary

Resources	Proposed Project Alternatives			
	Combined Reformer/Ultra-Low Emissions Technology Alternatives		Marine Terminal 1 and Marine Terminal 2 Alternatives	
	Potential Impacts	Mitigation	Potential Impacts	Mitigation
Earth	<p>Construction:</p> <ul style="list-style-type: none"> Short-term soil erosion from grading and earthwork activities Potential for spills of hazardous substances Site grading <p>Operational:</p> <ul style="list-style-type: none"> Risk of soil liquefaction, seismic lateral spreading, and ground shaking causing injury/death and structural damage during earthquakes Risk of ash fall from volcanic eruptions causing interruption of operational activities and damage to project site and equipment 	<p>Construction:</p> <ul style="list-style-type: none"> SWPPP and BMPs to control stormwater runoff/erosion at the upland site Conditions in the construction stormwater permits SPCCP used for hazardous materials storage, handling, and cleanup <p>Operational:</p> <ul style="list-style-type: none"> Foundation design with ground improvements, such as stone columns, drilled shafts, or other methods Pile-supported structures Structural design in accordance with current seismic codes 	<p>Construction:</p> <ul style="list-style-type: none"> Potential for sediment loss and turbidity during dredge activities in the Columbia River <p>Operational:</p> <ul style="list-style-type: none"> Risk of soil liquefaction, seismic lateral spreading, and ground shaking causing injury/death and structural damage during earthquakes Risk of ash fall from volcanic eruptions causing interruption of operational activities and damage to project site and equipment 	<p>Construction:</p> <ul style="list-style-type: none"> BMPs to minimize sediment loss and turbidity generation during dredging Compliance with Surface Water Quality Standards for Washington (173-201A WAC) Conditions specified in the Water Quality Certification <p>Operational:</p> <ul style="list-style-type: none"> Design measures consistent with state and federal regulations, seismic and building code, and standard construction methods to avoid and minimize earthquake impacts Measures to minimize ground movements and/or movements of structures as a result of seismically induced settlement and lateral spreading
Air Quality and Greenhouse Gas Emissions	<p>Construction:</p> <ul style="list-style-type: none"> Dust could suspend particulate matter Emissions from diesel equipment Short duration odors GHG emissions from construction activities <p>Operational:</p> <ul style="list-style-type: none"> CR Alternative would result in larger quantities of all criteria pollutants and GHG emissions than the ULE Alternative during the methanol manufacturing process. Limited patterns of fogging (water vapor) could appear to the north-northwest of the cooling towers, extending out to a distance of 500 meters. Areas of the fogging would not be expected to pose a driving hazard. Less plume fogging would occur with the ULE Alternative than the CR Alternative. Odor impacts would be very limited and the SWCAA requirements restricting offensive odors off site would not be exceeded. The CR manufacturing process is estimated to result in direct emissions of about 1.4 million tonnes of GHGs annually. The ULE manufacturing process would emit substantially less GHGs than the CR Alternative. 50 to 100 megawatts (depending on Technology Alternative) of purchased electricity would be required that would result in emissions of between 133,000 and 266,000 tonnes of CO2e annually. 	<p>Construction:</p> <ul style="list-style-type: none"> Construction activities would comply with applicable federal and state air quality rules requiring minimization of construction-related emissions. <p>Operational:</p> <ul style="list-style-type: none"> Because both alternatives would be required to employ Best Available Control Technology GHGs, their GHG impacts would not be considered significant according to Ecology's SEPA guidance for GHG. Using the ULE Alternative, all TAP sources would comply with emission standards and off-site concentrations would be less than the respective screening level thresholds. Odor impacts would be very limited and the SWCAA requirements restricting offensive odors off site would not be exceeded. Overall GHG emissions for the ULE Alternative (excluding on-site power generation) are about 61% lower than the CR Alternative. With on-site generation of electricity, the ULE Alternative GHG emissions are projected to be about 31.5% less than with the CR Alternative. <p>Additional Mitigation:</p> <ul style="list-style-type: none"> The ULE Alternative would function as a mitigation measure compared to the CR Alternative. 	<p>Construction:</p> <ul style="list-style-type: none"> Emissions from diesel equipment Short duration odors GHG emissions from construction activities <p>Operational:</p> <ul style="list-style-type: none"> Operational impacts of the marine terminal area are included in the Technology Alternatives impact. Vessel traffic within Washington State waters would have emissions of about 3,900 tonnes of CO2e. 	<p>Construction:</p> <ul style="list-style-type: none"> Construction activities would comply with applicable federal and state air quality rules requiring minimization of construction-related emissions. <p>Operational:</p> <ul style="list-style-type: none"> Vessel emissions during terminal operations are not expected to be significant because the increase in vessel traffic on the river would not be significant. <p>Additional Mitigation:</p> <ul style="list-style-type: none"> No additional mitigation measures are warranted or proposed.
Water Resources	<p>Construction:</p> <ul style="list-style-type: none"> Potential for short-term turbidity to surface water due to soil exposure, wind, and stormwater runoff. Potential for pollutant discharges that could affect water quality during in- and overwater work. Installation of ground improvements could result in slurry at the ground surface that could run off into adjacent surface waters. 	<p>Construction:</p> <ul style="list-style-type: none"> General BMPs. Wetland buffer impacts will be mitigated by riparian enhancement activities. Develop and implement a WQPMP for project construction. The WQPMP, at a minimum, shall include provisions for visual monitoring of adjacent surface water bodies and wetlands if stone column installation occurs within 100 feet of the surface water or wetland. 	<p>Construction</p> <ul style="list-style-type: none"> Marine Terminal Alternative 1 would require the installation of 336 piles plus temporary piles during construction. Marine Terminal Alternative 2 would require the installation of 779 piles plus temporary piles during construction. Construction impacts would occur over a longer period as compared to Marine Terminal 1. Short-term turbidity could result from pile installation and/or dredging activities. 	<p>Construction:</p> <ul style="list-style-type: none"> BMPs for general work, overwater work, pile installation, overwater concrete placement minimization, dredging, and dredge material placement. Develop and implement a WQPMP. Selection of the Marine Terminal Alternative 1 will minimize pile driving compared to Marine Terminal Alternative 2.

Resources	Proposed Project Alternatives			
	Combined Reformer/Ultra-Low Emissions Technology Alternatives		Marine Terminal 1 and Marine Terminal 2 Alternatives	
	Potential Impacts	Mitigation	Potential Impacts	Mitigation
	<ul style="list-style-type: none"> Risk of spills and the release of contaminants that could leach into the groundwater. Removal of 0.09 acre of regulatory wetland buffer for recreation access improvements. <p>Operational:</p> <ul style="list-style-type: none"> Water quality could be affected by wastewater discharges, stormwater runoff, and accidental spills of methanol or other substances. 	<ul style="list-style-type: none"> Develop and implement SWPPP and SPCCP. <p>Operational:</p> <ul style="list-style-type: none"> Stormwater will be managed by infiltration and will not be discharged to surface water. Runoff and accidental spills will be minimized by BMPs, SWPPP practices, and SPCCP controls. NPDES permit for wastewater discharge will impose effluent limits to protect water quality with monitoring to ensure compliance. <p>Additional Mitigation</p> <ul style="list-style-type: none"> There are no significant impacts identified for water resources; therefore, no additional mitigation measures are identified. 	<ul style="list-style-type: none"> The operation of equipment for overwater construction could release pollutants into surface water through spills. <p>Operational:</p> <ul style="list-style-type: none"> Water quality could be affected by stormwater runoff and accidental spills of methanol. 	<p>Operational:</p> <ul style="list-style-type: none"> Stormwater will be managed by infiltration and will not be discharged to surface water. Develop and implement a WQPMP, SWPPP, and SPCCP Impacts of potential spills would be minimized by containment located on the dock and automatic shutoff valves. Stormwater system is designed with the ability to handle spills to the dock surface. <p>Additional Mitigation:</p> <ul style="list-style-type: none"> There are no significant impacts identified for water resources; therefore, no additional mitigation measures are identified.
Plants and Animals	<p>Construction:</p> <ul style="list-style-type: none"> Low-quality foraging, perching, and other habitat for the non-listed, ground-dwelling species would be reduced. New roosting and nesting opportunities for other species of birds that nest on buildings would be created. Existing Osprey nesting could be impacted. Forage vegetation for the Columbian white-tailed deer could potentially be removed. Soil erosion could impact water quality for aquatic habitat. Direct impact of 0.67-acre RHA buffer. Direct impact of 0.09-acre wetland buffer. Pile driving for ground improvements could temporarily elevate terrestrial noise that may disturb terrestrial animals. Ground improvements could impact fish habitat by reducing water quality. <p>Operational:</p> <ul style="list-style-type: none"> The potential exists for spills or leaks associated with on-site equipment and machinery. Wastewater and stormwater runoff could affect water quality for plant and animal resources. Wastewater discharge from the facility could potentially affect the Columbia River water temperature, which could in turn affect fish or other aquatic species. 	<p>Construction:</p> <ul style="list-style-type: none"> Construction would be on the portion of the site that has no wetlands or other water bodies, has little substantial vegetation, has been identified for industrial development, and has been used as a dredged material placement site. Osprey nesting platform will be relocated. Stormwater from impervious surfaces associated with the upland methanol manufacturing facility would be infiltrated through on-site stormwater pond(s). Facility design would be within the envelope of previously developed areas at the site, and would avoid direct impacts to the forested backwater wetland to the north. BMPs would minimize potential impacts for general work, overwater work, pile installation, overwater concrete placement, dredging, and dredged material placement. <p>Operational:</p> <ul style="list-style-type: none"> BMPs, SWPPP, and SPCCP would minimize potential impacts to plants and animals during operations. Stormwater from impervious surfaces would be infiltrated through on-site stormwater pond(s). Wastewater discharge temperature will not exceed 20°C per Washington water quality standards. <p>Compensatory Mitigation:</p> <ul style="list-style-type: none"> Mitigation activities would include wetland buffer and riparian enhancement. 	<p>Construction:</p> <ul style="list-style-type: none"> Direct impact to 0.05 acre of RHA buffer. Temporarily reduce water quality of aquatic habitat. Temporarily elevate levels of underwater noise during pile installation and removal. Marine Terminal 1 Alternative will require the installation of approximately 320 24-inch concrete piles, twelve 12-inch steel pipe piles, and four 18-inch steel pipe piles, resulting in the permanent loss of approximately 1,079 square feet of benthic habitat and install approximately 44,943 square feet of new solid overwater coverage. Marine Terminal 2 Alternative would require nearly twice as many piles (637 total piles) and would result in nearly three times more overwater coverage (127,200 total square feet) as compared to Marine Terminal 1 Alternative. The new dock structure could affect aquatic habitat function by increasing nearshore overwater shading and by reducing the quantity and quality of benthic habitats. <p>Operational:</p> <ul style="list-style-type: none"> The terminal could generate stormwater runoff, which could affect water quality and quantity for plant and animal resources. 	<p>Construction:</p> <ul style="list-style-type: none"> Selection of the Marine Terminal 1 Alternative would minimize impacts to plants and animals due to the lesser amount of piles and overwater coverage. Pile-driving noise would be attenuated as needed to comply with the Marine Mammal Protection Act, including using bubble curtains and minimizing impact hammer pile driving. Dock design would include grated walkways to minimize shading. The size and configuration of the structures would be the minimum capable of supporting their needed functions and place the vessels away from shallow water to reduce impacts from vessel operations. Access trestle abutments would be designed and configured to eliminate the need for shoreline armoring. <p>Operational:</p> <ul style="list-style-type: none"> Stormwater from the dock would be collected and conveyed to upland treatment and an infiltration swale. <p>Compensatory Mitigation:</p> <ul style="list-style-type: none"> Compensatory mitigation is based on selection of Marine Terminal Alternative 1 and includes pile removal, riparian plantings, and enhancement.
Energy	<p>Construction:</p> <ul style="list-style-type: none"> Fuel would be required for construction vehicles and equipment, lighting, dredging vessels, delivery vessels and barges, but would be met by existing supplies. Grid electrical power needs would be approximately 5.4 megawatts per day, but is not anticipated to affect normal supply of electricity to the surrounding area. 	<p>Mitigation:</p> <ul style="list-style-type: none"> No mitigation is proposed. 	<p>Construction:</p> <ul style="list-style-type: none"> The Marine Terminal Alternatives would have similar energy impacts. Fuel would be required for construction vehicles and equipment, vehicles, lighting, dredging vessels, delivery vessels, and barges but would be met by existing supplies. 	<p>Mitigation:</p> <ul style="list-style-type: none"> No mitigation is proposed.

Resources	Proposed Project Alternatives			
	Combined Reformer/Ultra-Low Emissions Technology Alternatives		Marine Terminal 1 and Marine Terminal 2 Alternatives	
	Potential Impacts	Mitigation	Potential Impacts	Mitigation
	<p>Operational:</p> <ul style="list-style-type: none"> Electrical demand would be less for the CR Alternative than the ULE Alternative, but the natural gas demand would be greater. Demand for electricity and natural gas can be met with existing system capacity and would not affect supply for other local and regional users or increase local electricity or gas rates. 		<p>Operational:</p> <ul style="list-style-type: none"> The Marine Terminal Alternatives would have similar operational impacts to energy. 	
Environmental Health and Safety	<p>Construction:</p> <ul style="list-style-type: none"> Risk that hazardous materials used and stored on site on the upland portion of proposed project site would expose workers, plants, animals, adjacent wetland resources, soil, and groundwater to hazardous materials. Risk that hazardous material spills into adjacent surface waters or onto the nearshore portion of the project site could contaminate Columbia River water and/or underlying groundwater. Temporary, localized increases in particulate matter emissions. Diesel emissions from heavy and small equipment could temporarily impact ambient air quality. Slight and short duration odors within the area of the odor source. <p>Operational:</p> <ul style="list-style-type: none"> A catastrophic tank failure or other worst-case incident could result in a pool fire, jet fire, or vapor cloud explosion. Modeling of the worst-case scenario indicated that the destructive force of an explosion at the proposed methanol facility would not extend beyond the plant site. The quantitative risk assessment concludes that there is a fatality risk to individual workers of one in 100,000 years within the project site, but that there is no measurable risk of fatalities outside the boundaries of the proposed facility or to the general public. Surface spills of methanol to soil may enter groundwater depending on the size of the spill and depth to groundwater, but would likely dissolve and/or degrade rapidly. 	<p>Construction:</p> <ul style="list-style-type: none"> The contractor(s) would follow all required state and federal safety to ensure worker safety and would develop a SPCCP to protect human health and the environment from accidental spills and releases of toxic substances. BMPs would be used to minimize odors. <p>Operational:</p> <ul style="list-style-type: none"> The proposed project would be designed and constructed with comprehensive safeguards to prevent accidental spills, releases and leaks, detect releases, and contain and minimize the impacts of spills and releases in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192. Project design would include secondary containment berms around storage tanks to capture 110% of the tank contents plus precipitation from a 24-hour, 100-year storm event. Full emergency response capabilities will be available at the site, including an emergency alarm system and a comprehensive gas detection and fire suppression system and on-site trained personnel that would provide 100% coverage to the plant. Firefighting would also be supported by Cowlitz County Fire District 5. The facility would be required to prepare and maintain a SPCCP. A flare system would be provided as part of the safety systems to dispose of released flammable gases and vapors. Emergency response team would be trained and certified in compliance with OSHA, WISHA, PSM, and NFPA requirements and stationed on site. The facility would include an on-site firehouse and fire brigade. The production and handling of methanol would be designed, operated, maintained, and monitored under the principles of PSM. The requirements for PSM in Washington are found at WAC 296-67 Process Safety Management of Highly Hazardous Chemicals. <p>Additional Mitigation</p> <ul style="list-style-type: none"> No significant impacts have been identified; no additional mitigation measures are warranted or proposed. 	<p>Construction:</p> <ul style="list-style-type: none"> Risk that hazardous material spills into adjacent surface waters or onto the nearshore portion of the project site could contaminate Columbia River water and/or underlying groundwater. Temporary, localized increases in particulate matter. Diesel emissions from heavy and small equipment could temporarily impact ambient air quality. Slight and short duration odors within the area of the odor source. <p>Operational:</p> <ul style="list-style-type: none"> Risk that methanol spills could occur in the Columbia River during loading of methanol onto export vessels. Vessel incidents resulting in accidental spills and releases of methanol could occur from the proposed project along the Columbia River to its mouth and into the open ocean. 	<p>Construction:</p> <ul style="list-style-type: none"> The contractor(s) would follow all required state and federal safety to ensure worker safety and would develop a SPCCP to protect human health and the environment from accidental spills and releases of toxic substances. BMPs would be used to minimize odors. <p>Operational:</p> <ul style="list-style-type: none"> The facility would have full response capabilities to respond to emergencies at the marine terminal. The MFSA and Cowlitz County would have primary responsibility if an event involves a ship, but would be supported by NWIW. The facility would be required to prepare and maintain a SPCCP. The proposed project would be designed and constructed with comprehensive safeguards to prevent accidental spills, releases and leaks, detect releases, and contain and minimize the impacts of spills and releases should they occur. Infrastructure would include shutoff valves on product lines and stormwater systems to minimize impacts in the event of a spill. The proposed methanol transfer facilities would be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192. The emergency response team would be trained and certified in compliance with OSHA, WISHA, PSM, and NFPA requirements and stationed on site. The handling of methanol would be designed, operated, maintained, and monitored under the principles of PSM. The requirements for PSM in Washington are found at WAC 296-67 Process Safety Management of Highly Hazardous Chemicals. <p>Additional Mitigation</p> <ul style="list-style-type: none"> No significant impacts have been identified; no additional mitigation measures are warranted or proposed.

Resources	Proposed Project Alternatives			
	Combined Reformer/Ultra-Low Emissions Technology Alternatives		Marine Terminal 1 and Marine Terminal 2 Alternatives	
	Potential Impacts	Mitigation	Potential Impacts	Mitigation
Land Use and Shoreline Use, Housing, and Employment	<p>Construction:</p> <ul style="list-style-type: none"> Construction activities would be temporary and would not alter surrounding land uses or otherwise affect land use patterns. Construction labor would use the existing construction labor pool and laborers would not represent a significant increase in population or impact the housing. <p>Operational:</p> <ul style="list-style-type: none"> More active and intensive industrial land use would be introduced to the project site but the use is consistent with existing zoning and the Port's development plans. Roadway access to the informal recreation area near the site would be improved. 192 workers would work for the proposed operation and would likely already live in the area, and would not affect population and housing characteristics. 	<p>Mitigation:</p> <ul style="list-style-type: none"> No significant impacts have been identified; no mitigation measures are warranted or proposed. 	<p>Impacts associated with the Marine Terminals 1 and 2 Alternatives are the same as the impacts described for the Technologies Alternatives.</p>	<p>Mitigation associated with the Marine Terminals Alternatives is the same as the Technologies Alternatives.</p>
Aesthetics and Visual Resources	<p>Construction:</p> <ul style="list-style-type: none"> Construction activities on the project site would be visible to residents, workers, commuters, recreationalists, and boat operators, but these activities would be temporary and consistent with the general industrial context of the adjacent area. Construction of the proposed project would result in a low level of temporary adverse effect to aesthetics and visual quality. <p>Operational:</p> <ul style="list-style-type: none"> Views from Urban/Industrial areas are dominated by existing industrial facilities, operations, and activities. Large-scale buildings, heavy utility transmission lines, industrial plumes, and ancillary facilities and equipment define the existing visual character of this view. Views for travelers on southbound I-5 would be altered by introducing new industrial features and water vapor plumes. Site operational activities would occur 24 hours per day, which would be similar to those of adjacent industrial areas. The proposed project would result in new nighttime lighting and would expand the extent of artificially lit industrial activities along the river. 	<p>Construction:</p> <ul style="list-style-type: none"> Construction activities would have minor impacts to aesthetics and visual resources. No mitigation is proposed <p>Operational:</p> <ul style="list-style-type: none"> Nighttime lighting will be designed to minimize glare and confine the lighting to the project site to minimize nighttime visual impacts. <p>Mitigation:</p> <ul style="list-style-type: none"> No additional mitigation is proposed. 	<p>Impacts associated with the Marine Terminals 1 and 2 Alternatives are the same as the impacts described for the Technologies Alternatives.</p>	<p>Mitigation associated with the Marine Terminals Alternatives is the same as the Technologies Alternatives.</p>

Resources	Proposed Project Alternatives			
	Combined Reformer/Ultra-Low Emissions Technology Alternatives		Marine Terminal 1 and Marine Terminal 2 Alternatives	
	Potential Impacts	Mitigation	Potential Impacts	Mitigation
Historic and Cultural Resources	<p>Construction:</p> <ul style="list-style-type: none"> The potential exists for an inadvertent discovery of historical and/or cultural resources during construction. <p>Operational:</p> <ul style="list-style-type: none"> The potential to discover historical and/or cultural resources during operations is very low because of the absence of eligible or listed resources in the area of potential effects and the absence of ground-disturbing activities during operation. 	<p>Construction:</p> <ul style="list-style-type: none"> An Inadvertent Discovery Plan in advance of construction would detail protocols to be followed in the event that cultural resources or human remains are encountered during project construction activities. This measure would avoid potential adverse impacts to unanticipated cultural resources on the project site. <p>Operational:</p> <ul style="list-style-type: none"> The Inadvertent Discovery Plan would be used for any ground-disturbing activities during operations maintenance. <p>Mitigation:</p> <ul style="list-style-type: none"> No mitigation is proposed. 	<p>Impacts associated with the Marine Terminals 1 and 2 Alternatives are the same as the impacts described for the Technologies Alternatives.</p>	<p>The Marine Terminals Alternatives would have the same mitigation requirements as described for the Technology Alternatives.</p>
Transportation	<p>Construction:</p> <ul style="list-style-type: none"> All study intersections are forecast to meet the WSDOT standard of LOS C or better while all other intersections are forecast to operate at levels that meet the target threshold of LOS E or better during the weekday PM peak hour with peak season construction traffic. <p>Operational:</p> <ul style="list-style-type: none"> All study intersections are forecast to meet the WSDOT standard of LOS C or better, while all other intersections are forecast to operate at levels, which meet the target threshold of LOS E or better during the weekday PM peak hour with the proposed project in place. The addition of 36 to 72 vessels per year is within the historic range of Columbia River vessel traffic. 	<p>Mitigation:</p> <ul style="list-style-type: none"> No mitigation is proposed. 	<p>Impacts associated with the Marine Terminals 1 and 2 Alternatives are the same as the impacts described for the Technologies Alternatives.</p>	<p>The Marine Terminals Alternative would have the same mitigation requirements as described for the Technology Alternatives.</p>

Resources	Proposed Project Alternatives			
	Combined Reformer/Ultra-Low Emissions Technology Alternatives		Marine Terminal 1 and Marine Terminal 2 Alternatives	
	Potential Impacts	Mitigation	Potential Impacts	Mitigation
Public Services and Utilities	<p>Construction:</p> <ul style="list-style-type: none"> There could be a demand for fire, emergency, and police services during construction activities. Project construction is anticipated to require \$1.8 billion in capital investment; \$625 million of that is expected to be spent in the local region. Construction is expected to produce substantial additional indirect spending by other businesses and government and induce spending by individuals for a total economic impact in the region of over \$1 billion. The state, Cowlitz County, and taxing jurisdictions within the County would be positively impacted through payment of B&O and sales taxes. Combined sales, use, and B&O taxes are estimated at \$57.7 million during construction. <p>Operational:</p> <ul style="list-style-type: none"> New demands could be placed on fire and emergency services during operation. Operation of the project is expected to generate direct, indirect, and induce spending in the local region of approximately \$1.4 billion per year. Combined sales, use, property, leasehold, hazardous substances, and B&O taxes paid during operations are estimated to average approximately \$36 million per year. 	<p>Construction:</p> <ul style="list-style-type: none"> Increased demands for public services would be offset by substantial additional tax revenue that the project will generate and by measures included in the operation and design of the proposed project, including the Port security plan, restricted on-site access, perimeter fencing, manned security gates, security cameras, on-site firehouse, workers trained in emergency response and firefighting, and communications with the Cowlitz County Sheriff and Fire departments. <p>Operational:</p> <ul style="list-style-type: none"> The demand for fire, emergency, and police services would be minimized by design alarm and safety features and on-site emergency response equipment and trained personnel and offset by tax revenue. <p>Mitigation:</p> <ul style="list-style-type: none"> No mitigation is proposed. 	<p>Construction:</p> <ul style="list-style-type: none"> Impacts associated with the Marine Terminals Alternatives are the same as described for the Technology Alternatives. <p>Operational:</p> <ul style="list-style-type: none"> Impacts associated with the Marine Terminals Alternatives are the same as described for the Technology Alternatives. 	<p>Construction:</p> <ul style="list-style-type: none"> Mitigation associated with the Marine Terminals Alternatives are the same as described for the Technology Alternatives.
Noise	<p>Construction:</p> <ul style="list-style-type: none"> Construction noise would be short term and temporary and primarily occur during daytime hours. <p>Operational:</p> <ul style="list-style-type: none"> The noise assessment identified the potential for project-related sound levels for the CR Alternative that would not comply with Oregon's noise limits. 	<p>Construction:</p> <ul style="list-style-type: none"> Construction would primarily occur during the daytime hours. Construction equipment will employ properly sized and maintained mufflers, engine intake silencers, and engine enclosures, and turning off idle equipment. <p>Operational:</p> <ul style="list-style-type: none"> Noise mitigation measures would be employed for the CR Alternative cooling water pumps and methanol loading pumps. Options for mitigation include locating pumps where noise will be blocked or installing sound walls or enclosures to block noise. 	<p>Impacts associated with the Marine Terminals Alternatives are the same as described for the Technology Alternatives.</p>	<p>The Marine Terminals Alternatives would have the same mitigation requirements as described for the Technology Alternatives.</p>

Table 1-2. Related Project Impact and Mitigation Summary

Resource	Related Actions	
	Kalama Lateral Pipeline Note: This proposed project was assessed in Kalama Lateral Project FERC EA (FERC 2015)	Electrical Service
Earth	<p>Impacts: There is a low potential for geologic impact to the pipeline. Potential hazards identified include erosion, shallow groundwater, flood inundation, liquefaction, and lahars.</p> <p>Mitigation: Avoidance in route selection (e.g., landslide areas), standard-of-practice engineering design, BMPs, and targeted erosion protection measures.</p>	<p>Impacts: The related action would not result in adverse impacts.</p> <p>Mitigation: No mitigation is proposed.</p>
Air Quality and Greenhouse Gases	<p>Impacts: Construction of the proposed pipeline-related action would involve excavation and horizontal drilling activities that could result in temporary, localized increases in particulate concentrations due to emissions from construction-related sources.</p> <p>There are no permanent sources of operational emissions for the proposed pipeline with the exception of the possibility for minor fugitive methane emissions.</p> <p>Mitigation: No mitigation is proposed.</p>	<p>Impacts: The related action would not result in adverse impacts.</p> <p>Mitigation: No mitigation is proposed.</p>
Water Resources	<p>Impacts: The construction may result in minor, short-term impacts on water resources for construction activities adjacent to stream channels and wetlands.</p> <p>Operation of the proposed pipeline would permanently affect less than 1 acre of wetland by converting it from a Palustrine Scrub Shrub wetland to a Palustrine Scrub Shrub/Palustrine Emergent wetland and would not result in significant impacts.</p> <p>Mitigation: No mitigation is proposed.</p>	<p>Impacts: Proposed electrical improvements would cross over a narrow slough that drains to the Kalama River. Construction adjacent to this slough could affect water quality in the slough temporarily due to soil and/or vegetation disturbance. Impacts would be temporary, localized, and minimized by the use of typical construction BMPs. No work would be conducted below the OHWM of the slough.</p> <p>Work on the east side of I-5 could result in direct wetland impacts. Impacts to this area would be associated with utility pole footprints and, as such, would have limited effect on wetlands.</p> <p>Mitigation: BMPs would be used.</p>
Plants and Animals	<p>Impacts: The Kalama Lateral Project may result in minor, short-term impacts on plant and animal resources. These impacts could occur because the activities are located within or adjacent to stream channels, forested habitats, and wetlands. The potential impacts could include loss of vegetation through construction and operation, mortality of wildlife species from construction machinery and vehicles, temporary and permanent impacts to native wildlife habitats, and temporary disturbance of wildlife during construction. These impacts are not expected to result in significant adverse effects.</p> <p>Mitigation: No mitigation is proposed.</p>	<p>Impacts: The electrical improvements may result in minor, short-term impacts on plant and animal resources and could occur because activities may occur within or adjacent to habitat and wetlands. The potential impacts could include temporary and permanent impacts to native wildlife habitats and temporary disturbance of wildlife during construction. These impacts are not expected to result in significant adverse effects.</p> <p>Mitigation: Mitigation would include avoiding or minimizing disturbance of wildlife and habitat, erosion control, site restoration, habitat enhancement; timing of activities, and/or other BMPs would be used.</p>

Resource	Related Actions	
	Kalama Lateral Pipeline Note: This proposed project was assessed in Kalama Lateral Project FERC EA (FERC 2015)	Electrical Service
Energy	Impacts: Construction of the proposed pipeline, building materials, and fuel would use energy, which would primarily be diesel and gasoline fuel use, and is expected to be negligible compared to the approximately 87 million barrels of distillate fuel and motor gasoline consumed in 2012 in Washington. Operation of the proposed pipeline and associated aboveground facilities would require very little energy. Therefore, the proposed pipeline-related action would not result in significant adverse impacts to regional energy or local natural resources. Mitigation: No mitigation is proposed.	Impacts: The proposed electrical improvements would not result in significant adverse impacts to regional energy or local natural resources. Mitigation: No mitigation is proposed.
Environmental Health and Safety	Impacts: The related action would not result in adverse impacts. Mitigation: No mitigation is proposed.	Impacts: The related action would not result in adverse impacts. Mitigation: No mitigation is proposed.
Land Use and Shoreline Use, Housing, and Employment	Impacts: The Kalama Lateral Project would have the potential to result in temporary disruption to activities or inconvenience to persons living or working near the construction area. The related action would convert approximately 12.4 acres of forest land to maintained right-of-way for the life of the proposed pipeline. Overall, it is not anticipated to have adverse impacts on land use or public policy. Mitigation: No mitigation is proposed.	Impacts: The proposed electrical service improvements would have the potential to result in temporary disruption to activities or inconvenience to persons living or working near the area during construction. The proposed project includes a new overhead crossing of I-5, the BNSF railroad, and N. Hendrickson Drive within the city of Kalama. Overall, it is not anticipated to have significant adverse impacts on land use or public policy. Mitigation: No mitigation is proposed.
Aesthetics and Visual Resources	Impacts: Construction of the proposed pipeline, particularly the removal of trees from the route, would result in temporary and permanent effects on visual resources. However, the existing topography would be recontoured to as near preconstruction condition as practical and the disturbed soils would be revegetated. Visual impacts from the construction and operation of aboveground facilities would be minimal and temporary. The construction and operation of the proposed pipeline would not result in significant adverse impacts to aesthetics and visual resources. Mitigation: No mitigation is proposed.	Impacts: The potential transmission line and substation improvement-related action would have a low level of effect on visual resources. Mitigation: No mitigation is proposed.
Historic and Cultural	Impacts: The area near the proposed pipeline was found to contain three cultural resources: the Old Pacific Highway, the Northern Pacific Railroad, and the Mount Pleasant Cemetery. The historic-period Old Pacific Highway and the historic-period Northern Pacific Railroad are not recommended to be eligible for listing in the WHR or NRHP. The historic-period Mount Pleasant Cemetery has not been formally evaluated for eligibility by DAHP. Impacts to these resources are avoided by route selection and boring under the highway and railroad. Mitigation: No mitigation is proposed.	Impacts: There are no recorded cultural resources within the area for the proposed electrical service improvements-related action that are listed in or determined eligible for listing in the NRHP, the WHR, or the Cowlitz County cultural resource inventory. Mitigation: No mitigation is proposed.

Resource	Related Actions	
	<p align="center">Kalama Lateral Pipeline</p> <p align="center">Note: This proposed project was assessed in Kalama Lateral Project FERC EA (FERC 2015)</p>	<p align="center">Electrical Service</p>
Transportation	<p>Impacts: The related action would not result in adverse impacts.</p> <p>Mitigation: No mitigation is proposed.</p>	<p>Impacts: The related action would not result in adverse impacts.</p> <p>Mitigation: No mitigation is proposed.</p>
Public Services and Utilities	<p>Impacts: The proposed pipeline would not generate substantial new demands for water or sewer services.</p> <p>The pipeline involves some risk to the public due to the potential for accidental release of natural gas. The greatest risk is a fire or explosion following a major pipeline rupture. The proposed pipeline would be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192. Operation of the proposed pipeline would not place new demands on water and sewer systems or fire and emergency services.</p> <p>The proposed pipeline would not result in significant adverse impacts to public services and utilities.</p> <p>Mitigation: No mitigation is proposed.</p>	<p>Impacts: The related action would not result in adverse impacts.</p> <p>Mitigation: No mitigation is proposed.</p>
Noise	<p>Impacts: The pipeline project is expected to generate normal construction noise and minor operational noises. The noise levels are not expected to exceed local or state noise criteria during operation. Construction noise is generally exempt.</p> <p>Mitigation: No mitigation is proposed.</p>	<p>Impacts: The proposed electrical improvements are expected to generate normal construction noise and minor operational noises. The noise levels are not expected to exceed local or state noise criteria during operation. Construction noise is generally exempt.</p> <p>Mitigation: No mitigation is proposed.</p>
Socioeconomic	<p>Impacts: The related action would not result in adverse impacts.</p> <p>Mitigation: No mitigation is proposed.</p>	<p>Impacts: The related action would not result in adverse impacts.</p> <p>Mitigation: No mitigation is proposed.</p>

1.5 Controversial Issues

During the scoping process, a number of comments were received regarding the project. These concerns centered mostly on public safety and environmental impacts related to vessel transportation and work within the Columbia River. Vessel transport concerns have also focused on impacts from vessel wakes and spills. Concerns were expressed regarding the impact of dredging and the new marine terminal on the Columbia River, including impacts to shallow water habitat. Concerns were also raised about the potential for the project to affect water quality, human health, public services, recreational resources, natural resources, tribal resources, cultural resources, visual resources, and GHG emissions. Additionally, commenters emphasized that the environmental review consider the cumulative impacts of implementing other proposals that may result in an increase of vessel traffic on the river.

1.6 Anticipated Permits and Approvals

The proposed project would require federal, state, and local permits and authorizations, as well as completion of the SEPA review process. **Table 1-3** is a preliminary list of the permits that are anticipated to be needed for the project. Additional permits and/or approvals may be identified as the environmental review process and project design continues.

Table 1-3. Permits and Authorizations Required for the Proposed Project

Permit/Authorization	Agency
Federal	
Rivers & Harbors Act Section 10/Clean Water Act Section 404	USACE
Endangered Species Act Section 7 Consultation	National Oceanic and Atmospheric Administration (NOAA) Fisheries/U.S. Fish and Wildlife Service
Marine Mammal Protection Act	NOAA Fisheries
NEPA	USACE, NOAA Fisheries
Private Aids to Navigation Permit	U.S. Coast Guard
Section 106 of the National Historic Preservation Act	USACE
State	
Hydraulic Project Approval	Washington State Department of Fish and Wildlife
Shoreline Conditional Use Permit	Ecology
401 Water Quality Certification	Ecology
Prevention of Significant Deterioration (Air) Permit	SWCCA/Ecology
National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit	Ecology
NPDES Industrial Wastewater Discharge Permit	Ecology
SEPA	Port and County

Permit/Authorization	Agency
Local	
Shoreline Substantial Development and Conditional Use Permit	County
Critical Areas	County
Floodplain Permit	County
Engineering and Grading	County
Building, Mechanical, Fire, etc.	County

1.7 DEIS Comment Process

One of the primary purposes of preparing an EIS is to provide the public and agencies with information that they can use to make comments on the proposed project. After the DEIS is published, copies of the document are available for public review and comment, and a public hearing is held. The hearing provides an opportunity for citizens to orally present comments on the proposed project. Comments can also be submitted in writing at the hearing. The comment period starts on the day the DEIS is published, March 3, 2016, and ends at 5:00 p.m. on April 18, 2016.

The public hearing for the DEIS will be held on March 22, from 6:00 p.m. to 9:00 p.m. at the Kalama High School Gymnasium, 548 China Garden Road, Kalama, WA 98625.

To submit comments on the DEIS, visit <http://KalamaMfgFacilitySEPA.COM>.

Written comments and e-mail can be sent to:

KMMEF EIS
c/o SEPA Responsible Official
Port of Kalama
 110 West Marine Drive
 Kalama, WA 98625

SEPA@KalamaMfgFacilitySEPA.COM

1.7.1 Public Coordination

The SEPA EIS process begins with scoping of the DEIS. The co-lead agencies asked members of the public, agencies, and tribes to comment on what should be analyzed in the DEIS during the scoping period between November 7, 2014 and December 8, 2014. The co-lead agencies established the scope of the DEIS based on state and local SEPA guidance and comments received during the scoping period.

1.7.2 Next Steps

Comments received on the DEIS during the comment period (March 3 through April 18, 2016 at 5:00 p.m.) will be compiled and reviewed and a final EIS (FEIS) will be prepared. The co-lead agencies anticipate that the FEIS will be published in the summer of 2016. Substantive comments received on the DEIS will be included and responses provided in the FEIS. The FEIS will be used by the local and state agencies in making permit decisions for the proposed action. State and local permits for construction and operation of the project may be issued no sooner than seven days following publication of the FEIS.